5-1-2016

The Concordance of Caregiver-Teacher Perspectives on the Behavior of Children with Fetal Alcohol Spectrum Disorders

Allison Werlinger
University of Nevada, Las Vegas

THE CONCORDANCE OF CAREGIVER-TEACHER PERSPECTIVES ON THE BEHAVIOR OF CHILDREN WITH FETAL ALCOHOL SPECTRUM DISORDERS

By

Allison Werlinger

Bachelor of Science in Education
University of New Mexico
2011

Master of Science in Educational Psychology
University of Nevada, Las Vegas
2012

A dissertation submitted in partial fulfillment of the requirements for the

Doctor of Philosophy – Educational Psychology

Department of Educational Psychology & Higher Education
College of Education
The Graduate College

University of Nevada, Las Vegas
May 2016

UNLV | GRADUATE COLLEGE

Dissertation Approval

The Graduate College
The University of Nevada, Las Vegas

November 23, 2015

This dissertation prepared by

Allison Werlinger

entitled

The Concordance of Caregiver-Teacher Perspectives on the Behavior of Children with Fetal Alcohol Spectrum Disorders

is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy – Educational Psychology
Department of Educational Psychology & Higher Education

Scott Loe, Ph.D.
Examination Committee Chair

Kathryn Hausbeck Korgan, Ph.D.
Graduate College Interim Dean

Tara Raines, Ph.D.
Examination Committee Member

Colleen Morris, M.D.
Examination Committee Member

Mario Gaspar de Alba, M.D.
Examination Committee Member

Michelle Paul, Ph.D.
Graduate College Faculty Representative

Abstract

Diagnosing a child with a Fetal Alcohol Spectrum Disorder (FASD) is a complex process that can require the collaboration of many individuals. Gathering information from multiple informants has been essential for diagnosis (CDC, 2012). The Achenbach Child Behavior Checklist (CBCL) and Teacher Rating Form (TRF) have been used in research to determine cross-informant agreement within various clinical populations, but little research has studied the concordance of caregiver-teacher perceptions on the behavior of children with FASDs. Data from 139 participants diagnosed with an FASD through the Fetal Alcohol Syndrome Clinic in Las Vegas, Nevada were included for analysis. Interrater Pearson *r* correlations were calculated from mean *T*-Scores for cross-informant scales on the CBCL and TRF to determine the degree of concordance between caregiver and teacher perceptions of problem behaviors of children with FASDs. Effects of age, gender, and diagnosis on the degree of concordance between caregiver and teacher report were also examined. Results revealed weak to moderate correlations across several domains and factors, including *Externalizing Problems, Total Problems*, *Attention Problems, Rule-Breaking Behavior, Aggressive Behavior, Social Problems*, *ADHD Problems*, *Oppositional Defiant Problems*, and *Conduct Problems*. Further analysis indicated significant differences between mean *T*-Scores for caregivers and teachers. However, when analyzed within qualitative categories (i.e., Normal, Borderline, and Clinical), caregiver and teacher responses were similar on many scales. When compared to cross-informant correlations within Achenbach's normalized sample of participants, results indicated stronger correlations within this sample on several broad and narrow domains. Practical implications, conclusions, and areas for future research are discussed.

Acknowledgments

My Dear Husband: You are the reason I was able to persevere through the "Dissertation" chapter of my life. You have always supported my endeavors and I appreciate you more than words can ever express. I look forward to writing many more chapters of our lives together. I love you (for a thousand years).

My Amazing Parents: Thank you for all of your love and support. You have made me the woman I am today. You have granted me so many opportunities to reach for my dreams and I am so thankful and proud to have such strong, encouraging role models. I love you.

My Family and Closet Friends: I am so blessed to have so many wonderful people in my life. You all have encouraged me enjoy the good times and stand strong in the difficult times. I am appreciative of all of your love and support. Thank you.

My Dissertation Committee Members (and honorary committee members, you know who you are): Thank you, Dr. Loe, for your guidance and support. You have always been patient with me no matter how many times I knocked on your door, shot you a quick text, or wrote you a lengthy email. I appreciate you. Thank you, Dr. Raines, for whipping the first few chapters into shape. You have always encouraged me and I appreciate it. Dr. Paul, thank you for always offering me encouraging words or a smile as I walked through the hallways frequently stressed out. I appreciate you always being in my corner. Dr. Morris, thank you for offering me the opportunity for this research and for allowing me to invade your office to collect my data. I have truly

enjoyed working with you and your staff during this process and with the FAS Clinic. I appreciate all of your expertise and support. Last but certainly not least, Dr. Gaspar de Alba, thank you for not remembering what my dissertation was even about (Ha. You know I will always tease you about that). It has been a pleasure working with you over these last couple of years and I have always appreciated the friendly humor between us. My committee, thank you for your support and encouragement. I cannot thank you all enough for helping me become the professional I strive to be, but let's try once more…Thank you.

Table of Contents

List of Tables

Chapter 1: Introduction

Fetal Alcohol Syndrome (FAS) occurs in 0.2 to 3 out of every 1000 live births nationwide and is one of the leading preventable causes of birth defects and intellectual disabilities (Burd et al., 2003; Centers for Disease Control and Prevention, 2012; Sampson et al., 1997). FAS is exclusively the result of a woman consuming alcohol while pregnant (CDC, 2012). Alcohol is a teratogen, "a non-genetic agent that induces structural malformation and functional alterations during prenatal development" (Morris, 2014, Slide 3). In 1996, the Institute of Medicine asserted, "Of all the substances of abuse (including cocaine, heroin, and marijuana), alcohol produces by far the most serious neurobehavioral effects in the fetus." (Stratton, Howe, & Battaglia, 1996, p. 35) It is also the most common teratogen of prenatal substance exposure (Morris, 2014).

There are several clinical terms that describe the severity of prenatal alcohol-related effects. Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term used to describe the continuum of physical and neurodevelopmental defects caused by varying amounts of prenatal alcohol consumption (Centers for Disease Control and Prevention, 2012). There are several diagnostic terms to describe the spectrum of severity of FASDs, including Fetal Alcohol Syndrome (FAS), Partial Fetal Alcohol Syndrome (pFAS), and Alcohol-Related Neurodevelopmental Disorder (ARND) (National Institute on Alcohol Abuse and Alcoholism, 2015). According to the Institute of Medicine (Stratton, Howe, & Battaglia, 1996) and CDC (2012), the following diagnostic criteria briefly describe FAS (see Appendix A for full diagnostic criteria for additional FASDs):

I. Fetal Alcohol Syndrome (FAS) *with* Confirmed Maternal Alcohol Exposure

   A. Confirmed maternal alcohol exposure

B. Evidence of *all* characteristic dysmorphic facial features including:
    a. Short palpebral fissures
    b. Thin vermillion border of the upper lip
    c. Smooth philtrum (See Appendix B)
C. Evidence of prenatal and/or postnatal growth deficiency
    a. Height or weight $\leq 10^{th}$ percentile
D. Evidence of central nervous system problems
    a. Structural abnormalities (See Appendix C)
    b. Neurologic abnormalities
    c. Functional abnormalities (e.g., cognitive deficits or significant developmental delays; executive functioning deficits; attention problems or hyperactivity; problems with social skills)

FAS is the most severe form of an FASD (Morris, 2014).

There is no proven safe amount of alcohol consumption during pregnancy (CDC, 2012). With an escalating number of women of childbearing age who drink alcohol and an increasing prevalence of unplanned pregnancies, even small effects of prenatal alcohol exposure can cause significant neurodevelopmental dysfunction lasting a lifetime (Flak et al., 2014). Neurodevelopment refers to the development of the brain and central nervous system that control vital functions such as cognition, learning ability, attention, emotional regulation, language development, memory, and motor development (Goldstein & Reynolds, 1999; Flak et al., 2014).

FASDs and Neurodevelopmental Deficits

Although many children with FASDs are not intellectually disabled, with IQ scores above 70, they exhibit common deficits in executive functioning (e.g., problem-solving,

planning, organization, impulse control), and problems with behavior and emotional regulation (Beasley, 2014). Nonetheless, overall cognitive functioning is generally lower in children prenatally exposed to alcohol than in typical children not exposed to alcohol during the mother's pregnancy (Coles et al., 1991a).

Cognition. In a meta-analysis of studies on neurobehavioral deficits in children with prenatal alcohol exposure and FASDs, Mattson and Riley (1998) identified consistent deficits in specific cognitive abilities in children with FASDs. To begin, children with FASDs present with a variety of learning and memory problems. Specifically, these children have a difficult time with the initial stages of memory processing (i.e., encoding verbal material), but typically can recall material once it is learned, suggesting that learning problems are more prominent than long-term memory deficits. In addition to learning difficulties, children with FASDs also display significant hyperactivity and attention problems (Mattson & Riley, 1998). Thus, children with FASDs are frequently misdiagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD), or an FASD is often overlooked if they do not have evident facial dysmorphia (Coles et al., 1997). Children with FASDs are often described as fidgety and 'always on the go' (Mattson & Riley, 1998).

Furthermore, similar to children with Attention-Deficit/Hyperactivity Disorder (ADHD), children with FASDs exhibit deficits in acquiring, organizing, and sustaining attention, as well as frequent impulsive behaviors (Mattson & Riley, 1998). However, current research has not come to a consensus on the effects of FASDs on attention (Coles et al., 1997). Executive functioning (e.g., planning and organizing) is another attention-related deficit children with FASDs experience. Coles et al. (1997) found that children with FASDs experience difficulties with set shifting, or shifting their attention from one task to another. They also display inflexibility when

approaching problem-solving tasks, and have a difficult time abandoning ineffective strategies (Kodituwakku et al., 1995; Roebuck, Mattson, & Riley, 1999).

Social-emotional and adaptive behavior. In addition to an array of cognitive deficits, children with FASDs also experience social-emotional and adaptive behavior impairments. Children with FASDs often display unusual attachment and socially atypical behavior (Niccols, 2007). Streissguth and Giunta (1998) described these children as "outgoing, socially engaging, affectionate, and 'excessively friendly'" (as cited in Niccols, 2007). As well, they are described as socially naïve and followers, rather than leaders, in social groups (Beasley, 2014). Although there is a spectrum of functional abilities of children prenatally exposed to alcohol, Jirikowic, Kartin, and Olson (2008) found that children with FASDs exhibit significantly greater difficulties in adaptive functioning and maladaptive behavior, as measured by caregivers' responses on the Scales of Independent Behavior – Revised (SIB-R). Specifically, children with FASDs, including FAS, displayed Low Average to Below Average standard scores ($M = 100$; $SD = 15$) in the following adaptive clusters: Motor Skills, Social/Communication Skills, Personal Living Skills, and Community Living Skills, significantly lower than typical children within the sample population. As well, children with FASDs exhibited significantly more maladaptive behaviors, especially Disruptive Behavior, Uncooperative Behavior, and Socially Offensive Behavior, as defined by the SIB-R.

Strengths of children with a fetal alcohol spectrum disorder. Children with FASDs often look like typical children, are very verbal, and have average or above average intelligence (Morris, 2014). They embody many positive qualities: friendly, likeable, helpful, caring, hard working, and determined (Morris, 2014). Additionally, within a sample of children with FASDs, Jirikowic, Kartin, and Olson (2008) found that participants displayed relative strengths in gross

motor skills, personal self-care, and domestic skills, as reported by caregivers on the Scales of Independent Behavior- Revised (SIB-R).

FASDs in the Classroom

Children with FASDs have vast neurodevelopmental deficits that translate into poor academic performance and behavior in the classroom (Mattson & Riley, 1998; Coles et al., 1991a; Coles et al., 1991b). These children are at risk for a variety of secondary deficits, including learning disabilities (e.g., math, reading, writing) and mental health disorders (e.g., ADHD, ODD) (Beasley, 2014). Typical challenging behaviors for children with FASDs include impulsive aggression, temper tantrums, impulsive behaviors such as lying and stealing, extensive story telling and insisting they are true, and inappropriate friendships and social boundaries (Beasley, 2014). Within the classroom, children with FASDs can display inattention and impulsivity, irritability and frustration, mood changes, poor judgment, inconsistent performance, learning challenges, fine motor challenges, and peer pressure (Beasley, 2014). Teachers frequently struggle to manage the behaviors of children with FASDs, as many of these children are unidentified or mislabeled in the schools (NOFAS, n.d.).

Confounding the difficulties of identification and intervention of FASDs in the schools is the fact that FASDs are not recognized within the Individuals with Disabilities Education Act (IDEA) (Dybdahl & Ryan, 2010). According to Dybdahl and Ryan (2010):

> A school-aged child diagnosed with FAS is not automatically eligible for special education services. Although many children with FAS qualify for special services on the basis of associated disorders, the regular education classroom teacher is primarily responsible for the educational experiences of FAS students. The reality is often overwhelming for parents and teachers alike. (p. 186).

Diagnosis

Diagnosing a child with an FASD is a complex process that can require the collaboration of many individuals, for example, healthcare professionals, caretakers, and teachers. Children diagnosed with FAS must present with abnormal facial features associated with alcohol exposure (i.e., smooth philtrum, thin upper lip, and short palpebral fissures), growth deficits (i.e., below average weight or height), and central nervous system deficits (e.g., neurological problems, cognitive deficits, executive functioning deficits, attention problems) (CDC, 2012; Landgraf et al., 2014; Streissguth, 1986). The diagnostic process can include diagnosis by individual healthcare professionals or through a multidisciplinary team approach (Clarren, 1998). Professionals within multidisciplinary teams can include a geneticist, family physician, psychologist, speech and language pathologist, occupational therapist, and social worker ("Guideline," 2003). Given its diagnostic complexity, no single diagnostic test is currently available to identify FASDs ("Guideline," 2003). Typically, a comprehensive assessment can include a detailed psychosocial history, direct behavioral observations, cognitive assessment, and behavior rating scales from multiple raters (e.g., caretakers, teachers) across multiple settings (e.g., home, school) ("Guideline," 2003).

Although an important diagnostic component, confirmation of prenatal alcohol exposure is not always easy to obtain, as women who consumed alcohol during pregnancy are not always upfront about their drinking habits and often have difficulties recalling the amounts of alcohol consumed during pregnancy ("Guideline," 2003). Thus, the Canadian Academy of Child and Adolescent Psychiatry ("Guideline," 2003), recommends that a thorough drinking history be collected from all patients during the initial history collection and following prenatal care visits. This information can also help to inform FASD prevention education for at-risk mothers

(Canadian Academy of Child and Adolescent Psychiatry, 2003). As children with FASDs are often cared for by foster or adoptive parents who do not have information on pregnancy exposure history, a diagnosis of FAS no longer requires confirmed alcohol exposure (CDC, 2012).

Another vital component of any comprehensive neuropsychological evaluation includes gathering information from multiple informants within multiple settings ("Guideline," 2003). Gathering multiple perspectives of a child's behavior can not only provide information critical to diagnosis, but is also crucial for intervention planning and implementation *(*Keogh & Bernheimer, 1998*).* When providing successful interventions, it is important to have input and buy-in from caregivers, teachers, and other community members who interact with the child.

Multi-Rater Perspectives and the Child Behavior Checklist

Prior research indicates that children with FASDs have elevated rates of attention and behavior problems (Brown et al., 1991; Mattson & Riley, 2000; Dixon, Kurtz, & Chin, 2007). Furthermore, most of the research has relied solely on caregiver report (Mattson & Riley, 2000; Edwards & Greenspan, 2010). However, little research has looked at the concordance between caregiver and teacher ratings on the behavior of children with FASDs.

Multiple perspectives help to reduce biased perceptions and increase the reliability of the raters (Achenbach, McConaughy, & Howell, 1987; Sattler, 1992; Salbach-Andrae, Lenz, & Lehmkuhl, 2009). Yet, in practice there is often little concordance between informants, even on comparable measures such as the Achenbach System of Empirically Based Assessment (ASEBA) collection: Child Behavior Checklist (CBCL), Teacher Rating Form (TRF), and Youth Self Report (YSR) (Salbach-Andrae, Lenz, & Lehmkuhl, 2009).

The Child Behavior Checklist (CBCL) (Achenbach, 1991) is a standardized measure of children's competencies and problem behaviors as perceived by primary caregivers. The CBCL

is a structured rating scale for children 6 to 18 years of age (Preschool form for children 1.5 – 5 years of age), consisting of 118 behavioral and emotional problems that are rated on a three-point Likert scale: “0” (not true), “ 1” (sometimes true), or “2” (very true). All ratings are based on caregiver judgments of the child’s behavior at the present time or within the past 6 months. For this assessment, scores are generated within several domains and subdomains. In addition to yielding a Total Problems score, the CBCL assesses eight problem subdomains: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior, within two broad domains (Internalizing and Externalizing) (Achenbach, 1991). Internalizing symptoms are those associated with the overcontrolled suppression of feelings and emotions directed inward (i.e., anxious/depressed, withdrawn/depressed, somatic complaints), whereas externalizing symptoms are those associated with the undercontrolled expression of feelings and emotions directed outward (i.e., rule-breaking behavior, aggressive behavior) (Achenbach, 1991; Achenbach, McConaughy, & Howell, 1987). A Sex Problems scale is also scored for caregivers’ ratings of children ages 6 - 18. This scale can be especially useful when assessing children with FASDs as they often display risky, sexual behavior due to social naivety and deficits in executive functioning (Beasley, 2014). The CBCL also assesses social competency in school performance, involvement in activities, and social relationships (Achenbach, 1991). The Teacher Rating Form (TRF) is parallel to the CBCL, except that the informant is the child’s teacher (Tarren-Sweeney, Hazell, & Carr, 2004).

Purpose of the Study

Whilst FASDs are 100% preventable, they are not yet curable and prevalence rates are increasing despite ongoing public education of the harmful effects of prenatal alcohol exposure

(Bertrand, 2009; Kapp, 2000). However, with proper diagnosis and intensive support from caregivers, school staff, and the community, children with FASDs can grow to lead successful, functional lives (Morris, 2014).

The purpose of the present study is two-fold:

(1) To emphasize the importance of multi-rater perspectives when reaching diagnostic decisions for children with fetal alcohol spectrum disorders;

(2) To inform and encourage the implementation of classroom interventions for children with fetal alcohol spectrum disorders, based on caregiver-teacher concordance of problem behavior ratings.

Gathering information from multiple informants is essential for children with FASDs, as they require lifelong support within the home, school, and community settings. Yet, it can sometimes be a challenge to collect multi-rater perspectives, especially if the child is diagnosed early (birth to 36 months) and not in school (CDC, 2012). Thus, it is equally important to understand the agreement between parent and teacher behavior ratings of children with FASDs to determine if diagnosis and intervention planning grounded on perceptions from a single informant (e.g., caregiver only) can be reliable and applicable across settings. Nonetheless, no two children with FASDs are alike, emphasizing the importance of tailored interventions with consideration of each unique environment (e.g., home, school).

As previously mentioned, the majority of current research on FASDs has relied primarily on caregiver report and little research has looked at the agreement between caregiver and teacher ratings of the behavior of children with FASDs. Thus, the present study intends to investigate the concordance of caregiver and teacher perspectives of problem behaviors of children diagnosed with FASDs, examined with Achenbach's Child Behavior Checklist (CBCL) and Teacher Rating

Form (TRF). The literature suggests overall modest agreement between informants on children's behavior. Specifically, research has suggested stronger agreement for externalizing behavior than for internalizing behavior, as well as stronger accordance between similar informants (e.g., mother and father) than between different informants (e.g., caregiver and teacher) (Koegh & Bernheimer, 1998; Achenbach, McConaughy, & Howell, 1987; Efstratopoulou, Simons, & Janssen, 2012).

The following research questions will be addressed:

(1) What is the degree of concordance between caregiver and teacher perceptions of problem behaviors of children with fetal alcohol spectrum disorders?

(2) What are the effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children with fetal alcohol spectrum disorders?

Implications of caregiver-teacher concordance on informing and implementing interventions for problem behaviors will also be discussed. The author proposes the following hypotheses:

(1) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the broad domains of Externalizing Behavior and overall Total Problems. The sample will be further discussed in Chapter 3.

(2) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there a will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the narrow domains of Rule-Breaking Behavior, Aggressive Behaviors, and Attention Problems.

(3) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there

will be statistically significant effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children's behavior, as rated on the CBCL specifically within the broad domains of Externalizing Behavior and overall Total Problems.

(4) The null hypothesis states that, within a sample of children diagnosed with fetal alcohol spectrum disorders, there will not be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL within any broad or narrow domains.

(5) The null hypothesis states that, within a sample of children diagnosed with fetal alcohol spectrum disorders, there will not be statistically significant effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children's behavior as rated on the CBCL within any broad or narrow domains.

Chapter 2: Literature Review

This literature review highlights three significant topics related to FASDs: behavior, multi-rater perspectives within the diagnostic and intervention process, and intervention in the school setting. Scientific studies of the adverse effects of prenatal alcohol exposure date back to 1899, when Dr. William Sullivan found an increased prevalence of still-birth and infant death in children of mothers who consumed alcohol during pregnancy (Niccols, 2007). Yet, it was not until the early 1970s that interest in the detrimental effects of prenatal alcohol exposure sparked again (Niccols, 2007). Over the last several decades, extensive research has been conducted on the neurodevelopmental effects of FASDs.

Fetal Alcohol Spectrum Disorders and Behavior

Prior research has indicated that children with FASDs exhibit a variety of maladaptive behaviors, including inattention, impulsivity, irritability and frustration, mood changes, poor judgment, inconsistent performance, learning challenges, fine motor challenges, and peer pressure (Beasley, 2014; Mattson & Riley, 2000; Steinhausen, Willms, & Spohr, 1993). As FASD describes a spectrum of severities and abilities, no two children with prenatal alcohol exposure are alike. Roebuck, Mattson, and Riley (1999) examined the behavioral and psychosocial profile of alcohol-exposed children. The participants included two homogenous groups (age, gender, and ethnicity) of 32 children: an alcohol-exposed group and a non-exposed control group. Nearly 60% of the alcohol-exposed children were diagnosed with FAS. Caretakers completed the Personality Inventory for Children (PIC), evaluating their child's behavior, affect, and cognitive state. Analyses revealed significant differences ($p < .05$) within all substantive scales, excluding hyperactivity. Specifically, Achievement, Intellectual Screening, Development, Somatic Concerns, Depression, Delinquency, and Psychosis were at least one standard deviation

or greater than the control group. Furthermore, results indicated that children without an FAS diagnosis who were prenatally exposed to alcohol displayed behavior consistent to children with an FAS diagnosis. There was a significant difference, however, with cognitive ability, in which children with FAS had significantly greater cognitive impairment. These findings suggest that, regardless of cognitive ability, children prenatally exposed to alcohol who do not meet diagnostic criteria for FAS because of a lack of physical characteristics still exhibit behavioral and psychosocial impairments.

The Child Behavior Checklist. The majority of current research on behavior ratings of children with prenatal alcohol exposure looks primarily at parent perceptions using a variety of standardized measures of problem behaviors, including the Child Behavior Checklist (CBCL) (e.g., Mattson & Riley, 2000; Jirikowic, Kartin, & Carmichael Olson, 2008; Thomas et al., 1998; Carmichael Olson et al., 1997). Since its most recent major revision in 1991, the CBCL (Achenbach, 1991) has been widely used in the investigation of behavioral differences in children with prenatal alcohol exposure and children with no prenatal alcohol exposure (Mattson & Riley, 2000). The CBCL normative sample consists of demographically matched referred and nonreferred children (Achenbach, 2014). Additionally, the CBCL has been translated into over 85 different languages internationally with use in over 80 societies (Achenbach, 2014). In 2007, the Multicultural Guide for the ASEBA was introduced to document multicultural findings and applications of the CBCL forms across ages (Achenbach, 2014). The CBCL can be administered to parents, teachers, children, and other clinical populations, and does not require special qualifications for administration (Achenbach, 2014).

Using the CBCL and additional behavioral measures, Nanson and Hiscock (1990) conducted a retrospective study with children with FAS or fetal alcohol effects (FAE) and what

was known at that time as Attention-Deficit Disorder (ADD). The results indicated that parents rated both groups of children significantly higher in regards to inattention and hyperactivity than compared to the control groups. As well, Brown et al. (1991) investigated the effects of prenatal alcohol exposure and attention and behavior on school-age children. To assess behaviors exhibited at home and in the classroom, the authors collected information from multiple informants (i.e., mother and teacher) using the CBCL. In regards to teachers' perceptions of children's behavior in school when compared within three groups defined by the amount of maternal alcohol use during pregnancy (i.e., Never Drank, Stopping Drinking, and Continued to Drink), there were significant differences ($p < .05$) in all Externalizing narrow domains, as well as the Total Problems domain. Furthermore, within the Social Competence broad domain, children who were never prenatally exposed to alcohol, as well as children whose mothers stopped drinking mid-pregnancy, displayed significantly better social competence (i.e., school performance, hardworking, behaves appropriately, and learning). On the contrary, mothers who consumed alcohol at any time during pregnancy generally endorsed fewer problems than did mothers of children not prenatally exposed to alcohol. Likewise, teachers endorsed more significant problems overall than did mothers. The authors provided several possible interpretations of these unusual results. According to Brown et al., (1991),

> Mothers whose current drinking levels affected their children may be more likely to have internalizing problems themselves... As a result, they may be more likely to deny comparable symptoms in their children or to have a different threshold for considering these signs as problems. An alternative explanation may be that mothers are denying the effects of their drinking on children's behavior. (p. 374)

Importance of Multi-Rater Perspectives for Diagnostic and Intervention Processes

Literature within several clinical domains supports the importance of multi-rater perspectives when diagnosing children with clinical disorders and informing interventions (Sattler & Hoge, 2006; Tassé & Lecavalier, 2000; Keogh & Bernheimer, 1998). However, current research on caregiver-teacher concordance of problem behaviors of children with FASDs remains understudied. Achenbach et al. (1987) conducted a meta-analysis of cross-informant agreement on child/adolescent behavioral and emotional problems and revealed insignificant correlations ($r = 0.20$ to $r = 0.30$) for several different types of informants. The discrepancy between ratings calls into question the reliability of informants' perceptions and further supports that the diagnosis and treatment of children with disabilities should not rely on single perspectives (Achenbach, 1995). Sattler (1992) emphasized the benefits of gathering information from multiple sources:

> It increases the understanding of the child, the environment, and the interaction between the child and the environment. Multiple sources also allow for validity and reliability checks as well as an opportunity to compare discrepant viewpoints…The use of multiple sources helps to ensure that [behavior] is not biased or skewed by a single rater or single context, and thus provides a comprehensive description of the child's strengths and limitations. (p. 129)

Traditionally, parents and teachers have provided important, unique perspectives on children's behavioral and emotional functioning (Verhulst & Akkerhuis, 1989). Parents offer essential information on their child's behavior across time and settings, whereas teachers have the opportunity to observe the child among other peers and may recognize more specific difficulties in academic and social skills (Verhulst & Akkerhuis, 1989).

In 2004, Tarren-Sweeney, Hazell, and Carr conducted a study relevant to the demographic characteristics of children with prenatal alcohol exposure. The authors examined inter-rater agreement between foster parents and teachers, using the CBCL and TRF, as one indicator of the reliability of foster parents' perceptions. Although participants of the study were not identifiably children with prenatal alcohol exposure, the majority of children with FASDs live with foster parents or adoptive parents (Morris, 2014). Within the study, internalizing symptoms were poorly correlated. Overall findings were consistent with previous research (Verhulst & Akkerhuis, 1989; Achenbach & Edelbrock, 1986). Although, foster parent-teacher ratings were strongly correlated within the Externalizing and Total Problems scales (r = 0.71-0.77), exceeding previous findings in the literature. Specifically, high interrater concordance was found for the Social Problems and Attention Problems syndrome scales, as well as the Delinquent Behavior and Aggressive Behavior scales within the Externalizing Problems domain. Furthermore, there was strong agreement between raters for the "SAT" broadband scale, which included the Social Problems, Attention Problems, and Thought Problems syndrome scales. Such problem behaviors are frequently seen in children with FASDs (Steinhausen, Willms, & Spohr, 1993).

Investigation of multi-rater concordance within the literature. Studies of interrater concordance in clinical samples (e.g., Williams Syndrome, ADHD) date back to the late 1980s, and are supported in the literature (Achenbach & Edelbrock, 1986; Keogh & Bernheimer, 1998; Efstratopoulou, Simons, & Janssen, 2012).

In 1986, Achenbach and Edelbrock (as cited in Verhulst & Akkerhuis, 1989) conducted a correlational study with a normative sample of 570 clinically referred and nonreferred children using the CBCL and TRF. The authors found a moderate correlation (r = .45) for externalizing

problems versus a low correlation (r = .26) for internalizing distress. Additionally, in a meta-analysis of 119 studies, Achenbach, McConaughy, and Howell (1987) found correlations between similar raters to be significantly higher (e.g., parent-parent; r = .60) compared to correlations between different raters (e.g., parent-teacher; r = .27). According to Koegh and Bernheimer (1998),

> Concordance has been found to be higher when informants have similar relationships with the children being rated than when raters represent different roles. Thus, there is stronger agreement between parents [or between teachers] than between parents and teachers, suggesting that there may be differences in raters' frames of reference and/or that children's behaviors vary in different settings. (p. 33)

A number of studies with different population samples have confirmed these findings. Yet, these effects in samples of children with FASDs remain understudied. The inspiration for the present study was sparked by a recent investigation by Klein-Tasman et al. (2015), examining the concordance of parent and teacher perspectives about problem behaviors in children with Williams syndrome. Using the CBCL and TRF, parents and teachers of 52 children with Williams syndrome ages 6-17 provided their perceptions of the children's problem behaviors. Results indicated strong overall inter-rater agreement (Mean Q-correlation = .46). Specifically, parent and teacher reports were moderately correlated on the Externalizing and Total Composite problem scales, whereas the Internalizing Composite produced a weaker but statistically significant correlation. Parents and teachers reported greatest difficulties in the domains of Social, Thought, and Attention Problems. Teachers expressed more Externalizing problems (i.e., Aggressive Behavior, Opposition Defiant) than did parents. On the contrary, parents reported significantly more problems on the Attention and Affective Problems scales

than did teachers. These findings corroborate previous research on the behaviors of children with Williams syndrome, which relied primarily on parent perceptions, as well as suggests that children with Williams syndrome display a behavioral pattern that is moderately consistent across multiple raters and settings.

Assessment and Intervention in the School Setting

As rings true for all children with developmental disabilities, early intervention can improve the long-term developmental prognosis for children with FASDs (Bertrand, 2009). Without early diagnosis and intervention, many adolescents with FASDs slip through the cracks and display higher rates of substance abuse and inappropriate behavior, leading to criminal charges (Beasley, 2014). However, Bertrand (2009) acknowledges the lack of evidence-based interventions specific to the FASD population to be a problem for providing children with appropriate services:

> Despite the troubling number of children with fetal alcohol spectrum disorders, information and strategies for interventions specific to this population have been gleaned from interventions used with other disabilities without adaptation and from the practical wisdom gained by parents and clinicians through trial and error or informal networks. (p. 987)

Yet, the literature does not agree on the usefulness of interventions specifically designed for children with FASDs.

The behavioral profiles of students with FASDs are strikingly similar in many aspects to those of students with other disabilities, and thus interventions that apply to other disabilities may be applicable to students with FASDs (Dybdahl & Ryan, 2010). For example, children with FASDs frequently display inattentive behaviors in which general techniques that address

attention deficit disorders, such as providing a structured environment or breaking larger tasks into manageable pieces, can be beneficial for this population (Beasley, 2014). Furthermore, Morris, Beasley, and Kithas (2010, as cited in Beasley, 2014) support a variety of school-based strategies and interventions specific to the maladaptive behaviors and neurodevelopmental deficits exhibited by children with fetal alcohol exposure:

- Positive Behavioral Supports and Behavior Modification (e.g., antecedent strategies: setting up the environment for success; short consequences; immediate feedback; giving children a new start each day)
- Sensory Consideration (e.g., calm, structured environment; predictable routines and expectations; avoidance of sensory triggers: overstimulation, noises, crowds)
- Creative Supervision (e.g., the "buddy system")
- Learning Accommodations (e.g., repetition as much and as often as needed; visual strategies; interventions specific to the child's learning disability)
- Effective Communication (e.g., give more "start" or "yes" behavior opportunities as opposed to "stop" or "no" behavior consequences; consistent communication between staff and caregivers)

Streissguth (1997) advocated for "school-based FAS support teams comprising school professionals who would meet regularly to discuss achievements and needs, appoint an advocate for the student, collaborate with the parents of students with FAS, and coordinate with other community personnel and service organizations" (as cited in Dybdahl & Ryan, 2010, p. 186). According to Morris, Beasley, and Kithas (2010, as cited in Beasley, 2014), "consistent, resourceful, caring, and calm teachers" are the best with working with children with FASDs (Slide 14). Nonetheless, teachers frequently struggle to manage the behaviors of children with

FASDs and implement appropriate interventions, as many of these children are unidentified or mislabeled in the schools (NOFAS, n.d.).

Poitra et al. (2003) introduced a school-based screening program for identifying children with FASDs. The 32-item screening tool was designed to address the physical and developmental characteristics of children with any potential disorder, not specific to only children with an alcohol-related disorder (e.g., concerns of growth impairment are captured of all children with growth impairment, not just those with growth impairment due to alcohol exposure) (Poitra et al, 2003). Examination of physical characteristics included evident facial dysmorphia (e.g., thin upper lip, flat philtrum, low nasal bridge), and other abnormalities with the neck and back, arms and hands, chest, and skin (e.g., short, broad neck, tremulous, poor finger agility, sunken chest, raised red birthmarks). Developmental characteristics included mild to moderate intellectual disabilities, speech and language delays, vision and/or hearing problems, and attention/hyperactivity concerns. The results of the pilot screening process over a nine-year period indicated acceptable performance statistics in a community setting (Sensitivity= 100%; Specificity= 95.43%). The screening was also found to be time efficient, inexpensive, and easy to implement by school staff, teachers, and other community professionals. Further research is necessary in considering the usefulness of screening tools when developing intervention programs for children with FASDs.

Summary

In summary, there is a vast amount of literature on the effects of prenatal alcohol exposure on the fetus and long-term neurodevelopment. Children with prenatal alcohol exposure exhibit common deficits in executive functioning (e.g., problem-solving, planning, organization, impulse control), and problems with maladaptive behavior and emotional regulation (Beasley,

2014). As well, there is empirical support for the importance of multi-rater perspectives in regards to providing comprehensive evaluation, diagnosis, and treatment for children with disabilities. Parents and teachers provide important, unique perspectives on children's behavioral and emotional functioning (Verhulst & Akkerhuis, 1989). Gathering perspectives from multiple informants also helps to reduce biased perceptions and increase the reliability and validity of children's behavior across raters and settings (Sattler, 1992).

The development of the present study was inspired by a recent investigation by Klein-Tasman et al. (2015), examining the concordance of parent and teacher perspectives about problem behaviors in children with Williams Syndrome. Ultimately, the literature lacks support for multi-rater perspectives of problem behaviors within the population of children with FASDs. Given the complex collaborations necessary for the diagnosis and intervention of children with FASDs, collecting information from caregivers and teachers who work with these children, and understanding the concordance between these perspectives, are crucial.

Chapter 3 Methodology and Procedure

The purpose of this chapter is to discuss the methodology of this research investigation into the concordance of caregiver and teacher perspectives on the behavior of children with FASDs. Collecting multiple perspectives helps to reduce biased perceptions and increase the reliability of any assessment (Achenbach, McConaughy, & Howell, 1987; Sattler, 1988; Salbach-Andrae, Lenz, & Lehmkuhl, 2009). Yet, the majority of current research on FASDs has relied primarily on caregiver report and little research has looked at the agreement between caregiver and teacher ratings of the behavior of children with FASDs. More importantly, gathering information from multiple informants is essential for diagnosis and intervention planning for children with FASDs, as they require lifelong support within the home, school, and community settings. Yet, it can sometimes be a challenge to collect multi-rater perspectives, especially if the child is diagnosed early (birth to 36 months) and not in school (CDC, 2012). Thus, it is equally important to understand the agreement between parent and teacher behavior ratings of children with FASDs to determine if diagnosis and intervention planning grounded on perceptions from a single informant (e.g., caregiver only) can be reliable and applicable across settings. A quantitative approach was employed in order to answer the following research questions:

(1) What is the degree of concordance between caregiver and teacher perceptions of problem behaviors of children with fetal alcohol spectrum disorders?

(2) What are the effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children with fetal alcohol spectrum disorders?

Based on the degree on concordance between caregiver and teacher perceptions of problem behaviors of children with fetal alcohol spectrum disorders, can a single informant (e.g.,

caregiver) provide reliable data to support diagnostic decisions and inform appropriate interventions?

Correlational Research

According to Gay, Mills, and Airasian (2009), "correlational research involves collecting data to determine whether, and to what degree, a relationship exists between two or more quantifiable variables. The degree of relation is expressed as a correlation coefficient." (p. 196-197). When two variables are statistically correlated, a decimal number ranging from -1.00 to +1.00 is produced (Gay, Mills, & Airasian, 2009). Correlations near +1.00 and -1.00 represent a strong positive and strong negative relationship between the variables, respectively. A correlation coefficient does not suggest the percentage of relation between variables (Gay, Mills, & Airasian, 2009). Rather, covariance describes the "variation in one variable that is attributed to its tendency to vary with another variable" (p.600) and is found by squaring the correlation coefficient.

As there are many variations circulating throughout the literature to qualitatively interpret the relation between variables, for the purpose of the study, the descriptions in Table 1 will be considered (Gay, Mills, and Airasian (2009):

Table 1
Qualitative Ranges for Pearson's r Correlation Coefficient

Coefficient	**Relationship Between Variables**
Between +.35 and -.35	Weak or None
Between +.35 and +.65 or Between -.35 and -.65	Moderate
Between +.65 and +1.00 or Between -.65 and -1.00	Strong

When deciding on cutoff regions for correlation coefficients, it is also important to consider Achenbach's data of cross-informant agreement within the normative population for this set of measures. The Manual for the ASEBA School-Age Forms and Profiles (Achenbach & Rescorla, 2001) provides correlation coefficients for cross-informant agreement on scale scores, including inter-rater reliability between the CBCL and TRF forms. Thus, although a correlation coefficient of .29 might be rated as poor and unreliable per Herjanic and Reich (1997), it might be similar to the correlations found within the normative population for these specific assessment measures. Table 2 displays cross-informant agreement between the CBCL and TRF for the normalized populations of the school-age (6 – 18 years) individuals (Achenbach & Rescorla, 2001).

Table 2
Achenbach Normative Sample Cross-Informant Agreement for School-Age (6 – 18 years) CBCL and TRF Forms

Domain/Scale	CBCL x TRF*
Broad Domains	
Internalizing Problems	*.36*
Externalizing Problems	*.35*
Total Problems	*.29*
Narrow Domains	
Internalizing Problems	
Anxious/Depressed	*.19*
Withdrawn/Depressed	*.24*
Somatic Complaints	*.15*
Externalizing Problems	
Rule-Breaking Behavior	*.38*
Aggressive Behavior	*.33*
Other	
Social Problems	*.31*
Thought Problems	*.38*
Attention Problems	*.18*
DSM Scales	
Affective Problems	*.23*
Anxiety Problems	*.23*
Somatic Problems	*.12*
ADHD Problems	*.42*
Oppositional Defiant Problems	*.39*
Conduct Problems	*.29*

*All Pearson *r*s were significant at $p < .05$.
The mean *r* between parents and teachers was .27.

Furthermore, "In a study designed to explore or test hypothesized relations, a correlation coefficient is interpreted in terms of its statistical significance. Statistical significance refers to the probability that the results would have occurred simply due to chance" (Gary, Mills, & Airasian, 2009, p. 199). Based on the literature review for the present study, the author proposes the following hypotheses:

(1) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the broad domains of Externalizing Behavior and overall Total Problems.

(2) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there a will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the narrow domains of Rule-Breaking Behavior, Aggressive Behaviors, and Attention Problems.

(3) There will be insignificant concordance between caregiver and teacher ratings of children's problem behaviors as rated on the CBCL to support the reliability of data provided by a single informant.

(4) The null hypothesis states that, within a sample of children diagnosed with fetal alcohol spectrum disorders, there will not be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL within any broad or narrow domains.

When computing a correlation coefficient, choosing an appropriate technique depends on the type of data represented by each variable (e.g., continuous, dichotomous, rank) (Gary, Mills, & Airasian, 2009). Examples of correlational coefficients include the Pearson *r*, Spearman rho,

and phi coefficient. The Pearson *r* coefficient is the most common correlation, and is used when both variables to be correlated are expressed as continuous data (Gary, Mills, & Airasian, 2009). Spearman's rho is often used when the participant sample is small and the data is expressed as ranks (Gary, Mills, & Airasian, 2009). The Phi coefficient is appropriate for variables that are dichotomously scored (e.g., male or female). The data collected, *T*-Scores for domains and subdomains within the CBCL and TRF, is most appropriate for analysis using the Pearson *r* correlation.

Participants

Participants for the present study were acquired from a data set spanning 17 years, provided by Geneticist Dr. Colleen Morris, Chief, Genetics Division, Department of Pediatrics, University of Nevada School of Medicine. 437 files were examined of children who had been evaluated for an FASD through the Fetal Alcohol Syndrome (FAS) clinic, conducted through the University of Nevada School of Medicine Genetics Division in the Las Vegas valley. The following characteristics describe the sampling criteria for participation:

(1) Completed caregiver and teacher reports of child behavior using the Child Behavior Checklist (CBLC) and Teacher Rating Form (TRF), respectively.

(2) Clinical diagnosis of an FASD through the FAS clinic.

Of the 437 files examined, a total of 139 participants were included for analysis based on the sampling criteria. Participants ranged in age from 2 years to 18 years and included 61 females and 78 males. Table 3 provides the demographic characteristics of the total participant sample, as well as the subsamples used for analyses.

All participants included in the present study did not have a clinical diagnosis of an FASD prior to evaluation, however many children were currently receiving special education services under

secondary disorders (e.g., Other Health Impairment- ADHD; Learning Disorder- Reading, Math, Writing; Language Disorder; and/or Emotional Disturbance).

The Fetal Alcohol Syndrome (FAS) Clinic

The FAS clinic was established in 2004 by geneticist Dr. Colleen Morris and the University of Nevada School of Medicine. It is typically held once to twice a month and utilizes an interdisciplinary approach including professionals in the following disciplines: genetics, neuropsychology, clinical psychology, and developmental pediatrics. Additional team members often include Clark County School District (CCSD) nurses and a genetics counselor. Advanced graduate students are given the opportunity to observe the clinic and participate in case staffings. Typically four children are evaluated during a clinic day, and the children rotate through each professional. Prior to the clinic day, caregivers and teachers individually complete the CBCL and TRF. During the clinic, caregivers also participate by responding to the Scales of Independent Behavior- Revised (SIB-R), a structured interview regarding the child's independent, adaptive behaviors. These interviews are typically conducted by a clinical psychologist, genetics counselor, or advanced graduate student supervised by one of the professionals.

Materials

Demographic data was collected from caregiver completion of a standard history form. Requested information included basic caregiver and child descriptions (e.g., date of birth, age, gender, relationship to the client), detailed medical history including any previous diagnoses, school history, and family history including any known details regarding the prenatal experience of the biological mother, as well as any known mental health concerns of the biological parents and extended family.

Table 3
Demographic Characteristics of Total Sample and Subsamples of Participants

		Age (Years)				Gender (%)		Accompanied Caregiver (%)				FASD Diagnosis (%)		
Sample/*Subsample*	N	Mean	SD	Skewness	Kurtosis	Male	Female	Biological Parent	Foster Parent	Adoptive Parent	Other[a]	FAS 1	FAS 3	ARND (FAS 5)
Total Sample	*139*	*8.19*	*3.67*	*.815*	*.031*	*56.1*	*43.9*	*11.5*	*23.7*	*43.2*	*21.6*	*8.6*	*56.8*	*34.5*
Age														
Ages 6 – 18 Years	102	9.61	3.25	.919	-.033	58.8	41.2	13.7	25.5	39.2	21.6	7.8	56.9	35.3
Ages 1.5 – 5 Years	37	4.30	.78	-.961	.646	48.6	51.4	5.4	18.9	54.1	21.6	10.8	56.8	32.4
Ages 6 – 9 Years	58	7.31	1.10	.340	-1.170	58.6	41.4	10.3	27.6	39.7	22.4	5.2	56.9	37.9
Ages 10 – 13 Years	29	11.00	1.10	.688	-.889	65.5	34.5	17.2	20.7	44.8	17.2	6.9	58.6	34.5
Ages 14 – 18 Years	15	15.8	1.32	.206	-.740	46.7	53.3	20	26.7	26.7	26.7	20	53.3	26.7
Gender														
Male	78	8.29	3.41	.681	-.151	-	-	15.4	25.6	34.6	24.4	7.7	60.3	32.1
Female	61	8.07	3.99	.958	.204	-	-	6.6	21.3	54.1	18.0	9.8	52.5	37.7
Accompanied Caregiver														
Biological Parent	16	9.44	4.13	.914	-.129	75	25	-	-	-	-	12.5	43.8	43.8
Foster Parent	33	8.52	3.72	.758	.318	60.6	39.4	-	-	-	-	6.1	60.6	33.3
Adoptive Parent	60	7.63	3.41	.830	-.072	45.0	55.0	-	-	-	-	10.0	53.3	36.7
Other	30	8.30	3.80	.793	.063	63.3	36.7	-	-	-	-	6.7	66.7	26.7
FASD Diagnosis														
FAS 1	12	9.17	4.91	.690	-.903	50.0	50.0	16.7	16.7	50.0	16.7	-	-	-
FAS 3	79	8.10	3.68	.743	-.082	59.5	40.5	8.9	25.3	40.5	25.3	-	-	-
ARND (FAS 5)	48	8.10	3.31	.936	.621	52.1	47.9	14.6	22.9	45.8	16.7	-	-	-

[a]Accompanied Caregiver – Other includes: guardian, grandparent, aunt, great aunt, mental health technician, social worker, and step-parent

Measure. The variables examined in the present study were derived from the Child Behavior Checklist (CBCL) (Achenbach, 1991) and Teacher Rating Form (TRF) (See Appendix D for sample checklists). According to Efstratopoulou, Simmons, and Janssen (2012), "the CBCL and TRF are among the most widely used parent-report measures of youth emotional and behavioral problems in clinical and research settings" (p. 439). The CBCL is a standardized measure of children's competencies and problem behaviors as perceived by primary caretakers. It is a structured rating scale for children 4 to 18 years of age, consisting of 118 behavioral and emotional problems that are rated on a three-point Likert scale: "0" (not true), " 1" (sometimes true), or "2" (very true). All ratings are based on caregiver judgments of the child's behavior at the present time or within the past 6 months. The Teacher Rating Form (TRF) is similar to the CBCL, except that the informant is the child's teacher (Tarren-Sweeney, Hazell, & Carr, 2004).

Within Achenbach's normative sample, cross-informant correlations (Pearson *r*) between sets of parents (mother and father) and pairs of teachers were significant at $p < .05$ for all DSM-oriented scales and empirically based scales and subscales, excluding Somatic Complaints between teachers. Furthermore, "cross-informant correlations between scale scores were higher for mothers vs. fathers and for parents vs. youths than has been found in meta-analyses of many rating forms" (Achenbach & Rescorla, 2001, p. 106-107). In addition to reliability, Achenbach and Rescorla (2001) report significant validity for all forms within the CBCL. Specifically, evidence supports the ability for all items within the CBCL to discriminate significantly between referred and nonreferred children, as well as scales within the CBCL were significantly correlated with interview responses from the DSM-IV Checklist. Several CBCL scales were also significantly correlated with scales on other assessment measures with similar constructs, including the Conners Rating Scales.

Qualitative descriptions are also provided for *T*-Scores on all scales. On the CBCL and TRF syndrome and DSM-oriented scales, *T*-Scores less than 67 are considered in the Normal range, *T*-Scores ranging from 67 – 70 are considered Borderline, and *T*-Scores greater than 70 are in the Clinical range. For the broadband domains (i.e., *Internalizing Problems*, *Externalizing Problems*, and *Total Problems*), *T*-Scores less than 60 are considered in the Normal range, *T*-Scores ranging from 60 – 63 are considered Borderline, and *T*-Scores greater than 63 are in the Clinical range (Achenbach, 1991).

Procedure

Prior to participation in the FAS clinic, caregivers were required to sign informed consent, which included an acknowledgment that unidentifiable data could be used for research purposes.

The CBCL and TRF were individually distributed via mail to caregivers and teachers of the participants, prior to evaluation at the FAS clinic. Caregivers and teachers of children under six years of age were given the Preschool version of the CBCL and TRF, whereas caregivers and teachers of children ages 6-18 were given the School-Age version of the CBCL and TRF. Upon return, the data was scored using the Achenbach Preschool and School-Age scoring software (See Appendix E for sample profile).

Participant demographics, responses from the CBCL and TRF, and clinical diagnoses were gathered from FAS clinic paper files from the last 17 years and input into a standard Microsoft® Excel® database to be exported into a statistical analysis software. In many cases, there were multiple TRFs; the TRF data included for analysis was determined by the teacher who indicated he or she had know the child the longest, or indicated he or she knew the child very well.

Statistical Analysis

For the present study, data on caregiver and teacher perceptions of the behavior of children with FASDs were represented as *T*-scores on broad and narrow domains within the Child Behavior Checklist (CBCL) and Teacher Rating Form (TRF). *T*-scores have a mean of 50 and standard deviation of 10. Statistical analyses were performed using IBM® SPSS® Statistics 22, a software package designed for statistical analyses (IBM, n.d.). The predetermined alpha level was .05, consistent with the field of psychology. Correlations between rating scales were analyzed to investigate the concordance among raters (caregivers and teachers). Specifically, interrater Pearson *r* correlations were calculated for mean *T*-scores on the broad domains (i.e., Internalizing Problems, Externalizing Problems, and Total Problems). Additionally, *r* correlations were calculated for shared item scales, comprised of items that are included in both checklists. Correlations were also calculated for unique sample groups corresponding to the research question addressing the effects of age, gender, and FASD diagnosis on the concordance of caregiver and teacher perceptions of children with FASDs. As there were two different forms of the CBCL and TRF completed by the raters, separate but identical analyses were ran for each group of data depending on the child's age (i.e., 1.5 – 5 years; 6 years to 18 years).

A multivariate analysis of variance (MANOVA) was also computed to compare the difference in means of caregiver and teacher responses (*T*-scores) on each broad and narrow scale. Total samples within each form of the CBCL and TRF were considered. A MANOVA is utilized when two or more groups are compared with two or more dependent variables. In this case, the two groups were defined as caregiver and teacher, and the dependent variables were all broad and narrow domains corresponding between the CBCL and TRF.

Finally, within the samples of participants ages 6 – 18 years and 1.5 – 5 years, *T*-Scores

were converted into qualitative ranges, as described by Achenbach & Rescorla (2001). A cross tabulation with chi-square statistics was conducted between the qualitative categories of caregiver mean *T*-Scores (i.e., Normal, Borderline, and Clinical) and qualitative categories for teacher mean *T*-Scores on all cross-informant scales for the total samples of children ages 6 – 18 years.

Summary

Data was collected for 139 participants diagnosed with an FASD through the FAS Clinic within the University of Nevada School of Medicine Genetics Division. Demographic data and mean *T*-Scores for caregivers and teachers on corresponding CBCL and TRF forms were analyzed for participants ranging in age from 2 years to 18 years. Pearson *r* correlations were computed for all cross-informant scales for total samples, as well as participants divided by age, gender, and FASD diagnosis. A MANOVA was also computed to determine differences in mean *T*-Scores between caregivers and teachers within all cross-informant scales for each sample group (i.e., partcipants ages 6 – 18 years and participants ages 1.5 – 5 years). Lastly, *T*-Scores were converted into qualitative categories and compared between caregivers and teachers for the CBCL and TRF sample groups of children ages 6 – 18 years and 1.5 – 5 years using a cross-tabulation with chi-square statistics.

Chapter 4: Results

Pearson *r* Correlations

All significant correlations reported throughout this chapter were positive and ranged from weak to strong relationships, according to the coefficient descriptions provided in Gay, Mills, and Airasian (2009).

Total samples. Table 4 and Table 5 provide descriptive statistics for the total samples of children ages 6 – 18 years and 1.5 – 5 years, including mean *T*-Scores, standard deviations (SDs), skewness, and kurtosis.

Table 4
Descriptive Statistics for Total Sample 6 – 18 Years

	Caregiver				Teacher			
Domain/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Broad Domains								
Internalizing Problems	63.56	9.493	-.113	.070	58.41	10.844	-.055	-.513
Externalizing Problems	68.13	10.770	-.750	.434	61.78	10.679	-.029	-.497
Total Problems	69.49	8.392	-.600	1.014	63.28	9.534	.173	-.053
Narrow Domains								
Internalizing Problems								
Anxious/Depressed	62.80	9.319	.450	-.040	59.26	9.453	1.013	.205
Withdrawn/Depressed	63.29	9.433	.773	.637	58.58	7.649	.944	1.300
Somatic Complaints	60.48	9.185	.800	.340	56.20	8.506	1.268	.794
Externalizing Problems								
Rule-Breaking Behavior	66.76	8.970	-.074	-.427	59.68	7.941	.319	-.783
Aggressive Behavior	69.96	12.812	.120	-.980	63.79	11.658	.884	.130
Other								
Social Problems	67.01	10.436	.304	-.663	61.72	8.761	.725	.181
Thought Problems	66.70	9.977	-.131	-.926	60.72	8.654	.425	-.166
Attention Problems	74.16	11.354	.549	-.312	62.65	8.331	1.040	2.407
DSM Scales								
Affective Problems	63.51	8.881	.212	-.832	59.79	9.163	.961	.830
Anxiety Problems	63.11	8.181	-.186	-1.222	58.74	7.842	.445	-1.023
Somatic Problems	58.64	9.236	.862	-.036	54.99	8.291	1.482	1.036
ADHD Problems	68.33	7.837	-.447	-.839	62.28	7.170	.455	-.103
Oppositional Defiant Problems	65.63	9.640	-.204	-1.157	61.36	8.862	.149	-1.197
Conduct Problems	69.38	10.230	-.100	-.413	61.94	10.634	.861	.420

N = 102 for each rater group total on CBCL/TRF forms for children ages 6 – 18 years.

Table 5
Descriptive Statistics for Total Sample 1.5 – 5 Years

	Caregiver				Teacher			
Domain/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Broad Domains								
Internalizing Problems	66.54	9.272	-1.050	2.325	58.32	9.989	-.243	-.516
Externalizing Problems	70.43	12.224	-.375	.349	64.05	10.506	.598	.683
Total Problems	70.41	10.907	-.796	1.364	62.57	10.131	.087	.982
Narrow Domains								
Internalizing Problems								
Emotionally Reactive	69.14	10.430	8.643	-.534	60.41	9.338	.976	.843
Anxious/Depressed	62.57	11.009	11.651	.110	58.27	6.915	.269	-1.448
Somatic Complaints	60.65	7.807	10.903	-1.445	55.57	7.309	.864	-.855
Withdrawn	66.22	11.023	8.644	-.617	59.30	9.231	1.351	1.702
Externalizing Problems								
Attention Problems	68.11	8.455	-.362	-.872	66.11	66.11	11.806	.830
Aggressive Behavior	70.97	11.875	.164	-.496	63.59	63.59	11.226	1.234
DSM Scales								
Affective Problems	65.84	8.643	-.207	-.956	57.62	7.278	.616	-.896
Anxiety Problems	64.49	11.651	.365	-.989	57.38	7.116	.563	-.980
Pervasive Developmental Problems	68.70	10.903	-.162	-.921	60.35	8.008	.470	-.933
ADHD Problems	65.05	8.644	-.242	-1.099	66.57	11.929	.770	.355
Oppositional Defiant Problems	66.84	9.582	-.146	-1.063	61.70	8.256	.338	-.686

N = 37 for each rater group total on CBCL/TRF forms of children ages 1.5– 5 years.

Table 6 and 7 describe the mean *T*-Scores for cross-informant scales and Pearson *r* correlations for total samples within the two forms of the CBCL and TRF (i.e., 6 – 18 years and 1.5 – 5 years). For the sample of participants age 6 – 18 years, the *Externalizing Problems* broadband domain was moderately correlated at $p < .01$. Accordingly, there were weak to moderate correlations in the narrow domains of *Rule-Breaking Behavior* and *Aggressive Behavior*, significant at $p < .01$. There was a weak correlation in the *Total Problems* broadband domain, significant at $p < .05$. The following narrow domains and DSM-oriented scales also yielded weak to moderate correlations at a minimum significance of $p < .05$: *Somatic Complaints*, *Social Problems*, *Thought Problems*, *Attention Problems*, *Affective Problems*, *Somatic Problems*, *Oppositional Defiant Problems*, and *Conduct Problems*. For the 1.5 – 5 years forms, the *Externalizing Problems* broadband domain was moderately correlated at $p < .05$. However, none of the correlations for the narrow domains reached significance except the DSM-oriented scale of *ADHD Problems*, which was moderately correlated at $p < .05$.

Table 6

Interrater Agreement (Pearson Correlations) for Total Sample 6 – 18 Years CBCL/TRF Cross-Informant Scales

Domain/Scale	Caregiver mean *T*-scores	Teacher mean *T*-scores	Pearson *r*
Broad Domains			
Internalizing Problems	63.56	58.41	*.174*
Externalizing Problems	68.13	61.78	*.402***
Total Problems	69.49	63.28	*.235**
Narrow Domains			
Internalizing Problems			
Anxious/Depressed	62.80	59.26	*.129*
Withdrawn/Depressed	63.29	58.58	*.095*
Somatic Complaints	60.48	56.20	*.321***
Externalizing Problems			
Rule-Breaking Behavior	66.76	59.68	*.346***
Aggressive Behavior	69.96	63.79	*.452***
Other			
Social Problems	67.01	61.72	*.391***
Thought Problems	66.70	60.72	*.197**
Attention Problems	74.16	62.65	*.196**
DSM Scales			
Affective Problems	63.51	59.79	*.216**
Anxiety Problems	63.11	58.74	*.135*
Somatic Problems	58.64	54.99	*.290***
ADHD Problems	68.33	62.28	*.190*
Oppositional Defiant Problems	65.63	61.36	*.460***
Conduct Problems	69.38	61.94	*.480***

*$p < .05$.

**$p < .01$.

N = 102 for each rater group total on CBCL/TRF forms for children ages 6 – 18 years.

Table 7
Interrater agreement (Pearson correlations) for total sample 1.5 – 5 years CBCL/TRF cross-informant scales

Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains			
Internalizing Problems	66.54	58.32	*.182*
Externalizing Problems	70.43	64.05	*.355**
Total Problems	70.41	62.57	*.254*
Narrow Domains			
Internalizing Problems			
Emotionally Reactive	69.14	60.41	*.153*
Anxious/Depressed	62.57	58.27	*.116*
Somatic Complaints	60.65	55.57	*-.001*
Withdrawn	66.22	59.30	*.311*
Externalizing Problems			
Attention Problems	68.11	66.11	*.242*
Aggressive Behavior	70.97	63.59	*.283*
DSM Scales			
Affective Problems	65.84	57.62	*.075*
Anxiety Problems	64.49	57.38	*.000*
Pervasive Developmental Problems	68.70	60.35	*.153*
ADHD Problems	65.05	66.57	*.379**
Oppositional Defiant Problems	66.84	61.70	*.290*

*$p < .05$.
N = 37 for each rater group total on CBCL/TRF forms of children ages 1.5– 5 years.

Furthermore, several scales yielded greater correlations within the sample of participants in the present study than compared to cross-informant agreement within the Achenbach normative sample. Specifically, the following broadband and narrow domains were more strongly correlated within the total sample of participants ages 6 – 18 years: *Externalizing Problems* ($r = .402$, $p < .01$, compared with Achenbach $r = .35$, $p < .05$); *Somatic Complaints* ($r = .321$, $p < .01$, compared with Achenbach $r = .15$, $p < .05$); *Aggressive Behavior* ($r = .452$, $p < .01$, compared with Achenbach $r = .33$, $p < .05$); *Social Problems* ($r = .391$, $p < .01$, compared with Achenbach $r = .31$, $p < .05$); *Attention Problems* ($r = .196$, $p < .05$, compared with Achenbach $r = .18$, $p < .05$); *Somatic Problems* ($r = .290$, $p < .01$, compared with Achenbach $r = .12$, $p < .05$; *Oppositional Defiant Problems* ($r = .460$; $p < .01$, compared with Achenbach $r =$

.39, $p < .05$; and *Conduct Problems* ($r = .480$, $p < .01$, compared with Achenbach $r = .29$, $p < .05$).

Correlations by age, gender, and FASD diagnosis. Interrater agreement was further analyzed by age, gender, and FASD diagnosis. Table 8 provides descriptive statistics for the sample of participants ages 6 – 18 years by age, including mean *T*-Scores, standard deviation (SD), skewness, and kurtosis (see Appendix F). Table 9 describes the correlations between caregiver and teacher ratings by defined child age groups for the 6 – 18 years CBCL and TRF forms. Analysis by age was not computed for the sample of participants 1.5 – 5 years, as the small number of participants could not be divided into meaningful age ranges with sufficient participants in each range; 36 of the 37 participants were between ages three and five. As shown in Table 9, the *Externalizing Problems* broadband domain and *Social Problems* narrow domain yielded moderate to strong correlations across all age groups at a minimum significance of $p < .05$. Additionally, there were greater correlations between caregivers and teachers within the younger age ranges than within the 14 – 18 years age range. Specifically, *Rule-Breaking Behavior*, *Somatic Problems*, and *Conduct Problems* yielded weak to moderate correlations across the 6 – 9 years and 10 – 13 years age groups at a minimum significance of $p < .05$. The *Thought Problems* narrow domain was moderately significant in the 14 – 18 years age range, but insignificant in the younger age ranges. The *Internalizing Problems* and *Total Problems* broadband domains yielded weak to moderate correlations only in the 10 – 13 years age range at $p < .05$. Additional significant correlations by age can be found in Table 9.

Table 9

Interrater Agreement (Pearson Correlations) for 6 – 18 Years CBCL/TRF Cross-Informant Scales, Sample by Age

	Children Ages 6 – 9 Year[a]			Children Ages 10 – 13 Years[b]			Children Ages 14 – 18 Years[c]		
Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains									
Internalizing Problems	62.71	57.91	*-.005*	62.62	59.24	*.408**	68.67	58.73	*.497*
Externalizing Problems	67.72	61.16	*.350***	68.21	62.69	*.433**	69.53	62.47	*.514**
Total Problems	68.76	63.00	*.116*	69.62	64.07	*.343**	72.07	62.87	*.493*
Narrow Domains									
Internalizing Problems									
Anxious/Depressed	61.74	58.62	*-.003*	63.55	61.17	*.358*	65.47	58.07	*.333*
Withdrawn/Depressed	62.59	58.43	*-.021*	60.86	58.93	*.385**	70.73	58.47	*.187*
Somatic Complaints	59.91	56.78	*.257*	59.38	54.79	*.416**	64.80	56.67	*.382*
Externalizing Problems									
Rule-Breaking Behavior	65.91	59.17	*.318**	67.17	60.24	*.474***	69.27	60.53	*.140*
Aggressive Behavior	69.74	63.24	*.447***	69.76	64.38	*.346*	71.20	64.80	*.632**
Other									
Social Problems	66.29	61.79	*.361***	66.76	62.31	*.407**	70.27	60.27	*.679***
Thought Problems	64.95	61.47	*.162*	68.48	61.62	*.277*	70.00	56.07	*.557**
Attention Problems	72.88	62.10	*.184*	74.52	63.45	*-.086*	78.40	63.20	*.487*
DSM Scales									
Affective Problems	63.22	59.47	*.069*	61.97	60.59	*.392**	67.60	59.53	*.396*
Anxiety Problems	62.12	59.02	*.049*	64.90	59.34	*.325*	63.47	56.47	*.197*
Somatic Problems	57.93	55.03	*.286**	58.03	54.55	*.461**	62.53	55.67	*.129*
ADHD Problems	67.55	61.86	*.236*	69.72	63.24	*.023*	68.67	62.07	*.253*
Oppositional Defiant Problems	65.52	61.55	*.499***	65.14	60.83	*.312*	67.00	61.67	*.604**
Conduct Problems	68.90	61.03	*.369***	69.66	62.90	*.636***	70.73	63.60	*.473*

*$p < .05$.

**$p < .01$.

[a] N= 58 for each rater group of children ages 6 – 9 years.

[b] N = 29 for each rater group of children ages 10 – 13 years.

[c] N= 15 for each rater group of children ages 14 – 18 years.

Table 10 and Table 11 provide descriptive statistics for participants ages 6 – 18 years and 1.5 – 5 years by gender, including mean *T*-Scores, standard deviation (SD), skewness, and kurtosis (see Appendix F for Table 10). Table 12 and Table 13 describe the mean *T*-Scores and correlations across all CBCL and TRF forms by gender. There were no significant correlations between raters for female children within the 6 – 18 years CBCL and TRF data, as well as between raters for male children within the 1.5 – 5 years CBCL and TRF data. There were significant correlations between caregiver and teacher responses across several scales for male children ages 6 – 18 years. Specifically, the *Externalizing Problems* broadband domain, the narrow domains of *Somatic Complaints*, *Rule-Breaking Behavior*, *Aggressive Behavior*, and *Social Problems,* and the DSM-oriented scales of *Somatic Problems*, *Oppositional Defiant Problems* and *Conduct Problems* were moderately correlated at $p < .01$. The *Total Problems* broadband domain and the *Attention Problems* narrow domain yielded weaker correlations for male children at a minimum of $p < .05$. Within the sample of participants ages 1.5 – 5 years, caregiver and teacher responses yielded moderate correlations for the *Externalizing Problems* and *Total Problems* broadband domains, as well as for the *Emotionally Reactive* and *Aggressive Behavior* narrow domains and the *Oppositional Defiant Problems* DSM-oriented scale at a minimum significance of $p < .05$.

Table 11

Descriptive Statistics for Sample 1.5 – 5 Years by Gender

		Caregiver				Teacher			
Gender	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Female	***Broad Domains***								
	Internalizing Problems	65.42	9.754	-1.687	3.399	59.74	10.681	-.576	.340
	Externalizing Problems	68.53	11.725	-.995	.705	66.16	11.978	.526	.456
	Total Problems	68.42	10.458	-1.563	2.408	64.11	11.595	-.184	1.369
	Narrow Domains								
	Internalizing Problems								
	Emotionally Reactive	68.68	10.609	-.706	-.717	62.21	10.459	1.073	.709
	Anxious/Depressed	60.95	10.654	1.160	1.930	58.53	6.834	.170	-1.704
	Somatic Complaints	59.42	8.455	.198	-1.419	54.95	6.843	1.063	-.292
	Withdrawn	65.26	10.928	.401	-.811	61.42	11.127	1.103	.378
	Externalizing Problems								
	Attention Problems	65.79	8.290	-.314	-.880	68.32	12.288	.475	-.665
	Aggressive Behavior	69.95	11.063	-.273	-.598	66.11	13.241	1.168	.561
	DSM Scales								
	Affective Problems	64.26	8.157	-.208	-1.338	58.79	8.257	.369	-1.387
	Anxiety Problems	63.95	12.439	.525	-.960	58.26	8.006	.520	-1.245
	Pervasive Developmental Problems	67.37	9.014	-.401	-.555	61.53	8.572	.381	-1.080
	ADHD Problems	64.68	8.976	-.326	-1.090	68.16	10.895	.061	-.630
	Oppositional Defiant Problems	67.37	9.341	-.416	-.516	63.11	8.608	.459	-.730
Male	***Broad Domains***								
	Internalizing Problems	67.72	8.857	-.218	.747	56.83	9.269	.074	-1.304
	Externalizing Problems	72.44	12.747	.000	-.123	61.83	8.466	.101	-.704
	Total Problems	72.50	11.273	-.380	.601	60.94	8.342	.261	-.099
	Narrow Domains								
	Internalizing Problems								
	Emotionally Reactive	69.61	10.522	.657	-.413	58.50	7.831	.358	-1.226
	Anxious/Depressed	64.28	11.421	.569	-.729	58.00	7.187	.395	-1.257
	Somatic Complaints	61.94	7.067	-.277	-1.551	56.22	7.915	.732	-1.231
	Withdrawn	67.22	11.348	.481	-.333	57.06	6.245	.543	-.977
	Externalizing Problems								
	Attention Problems	70.56	8.140	-.524	-.891	63.78	11.138	1.393	2.056
	Aggressive Behavior	72.06	12.909	.396	-.621	60.94	8.171	.130	-.929
	DSM Scales								
	Affective Problems	67.50	9.057	-.360	-.626	56.39	6.070	.817	-.286
	Anxiety Problems	65.06	11.090	.210	-.898	56.44	6.128	.385	-1.450
	Pervasive Developmental Problems	70.11	12.714	-.263	-1.283	59.11	7.403	.514	-.913
	ADHD Problems	65.44	8.521	-.145	-1.142	64.89	13.033	1.422	1.996
	Oppositional Defiant Problems	66.28	10.069	.097	-1.367	60.22	7.833	.108	-1.099

[a] N = 19 for each rater group of female children.

[b] N= 18 for each rater group of male children.

Table 12

Interrater Agreement (Pearson Correlations) for 6 – 18 Years CBCL/TRF Cross-Informant Scales, Sample by Gender

	Child Gender – Female[a]			Child Gender – Male[b]		
Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains						
Internalizing Problems	63.40	55.93	*.219*	63.67	60.15	*.144*
Externalizing Problems	66.98	59.60	*.116*	68.93	63.32	*.520***
Total Problems	68.60	61.05	*-.065*	70.12	64.85	*.347***
Narrow Domains						
Internalizing Problems						
Anxious/Depressed	62.33	56.29	*.197*	63.13	61.35	*.097*
Withdrawn/Depressed	62.29	58.33	*.174*	64.00	58.75	*.034*
Somatic Complaints	62.07	56.55	*.248*	59.37	55.95	*.379***
Externalizing Problems						
Rule-Breaking Behavior	66.71	59.17	*-.022*	66.80	60.03	*.521***
Aggressive Behavior	67.19	59.98	*.171*	71.90	66.47	*.531***
Other						
Social Problems	67.17	60.19	*.152*	66.90	62.78	*.502***
Thought Problems	64.55	57.69	*.006*	68.20	62.83	*.252*
Attention Problems	74.90	61.93	*.009*	73.63	63.15	*.279**
DSM Scales						
Affective Problems	62.57	58.93	*.230*	64.17	60.40	*.196*
Anxiety Problems	62.81	56.88	*.021*	63.32	60.03	*.190*
Somatic Problems	61.02	55.19	*.230*	56.97	54.85	*.348***
ADHD Problems	67.52	61.60	*.077*	68.90	62.77	*.237*
Oppositional Defiant Problems	64.12	59.31	*.163*	66.68	62.80	*.606***
Conduct Problems	68.98	60.38	*.107*	69.67	63.03	*.638***

*$p < .05$.

**$p < .01$.

[a] N = 42 for each rater group of female children.

[b] N= 60 for each rater group of male children.

Table 13

Interrater Agreement (Pearson Correlations) for 1.5 – 5 Years CBCL/TRF Cross-Informant Scales, Sample by Gender

	Child Gender – Female[a]			Child Gender – Male[b]		
Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains						
Internalizing Problems	65.42	59.74	*.399*	67.72	56.83	*-.057*
Externalizing Problems	68.53	66.16	*.594***	72.44	61.83	*.160*
Total Problems	68.42	64.11	*.486**	72.50	60.94	*.042*
Narrow Domains						
Internalizing Problems						
Emotionally Reactive	68.68	62.21	*.482**	69.61	58.50	*-.281*
Anxious/Depressed	60.95	58.53	*.064*	64.28	58.00	*.180*
Somatic Complaints	59.42	54.95	*.298*	61.94	56.22	*-.360*
Withdrawn	65.26	61.42	*.325*	67.22	57.06	*.422*
Externalizing Problems						
Attention Problems	65.79	68.32	*.194*	70.56	63.78	*.463*
Aggressive Behavior	69.95	66.11	*.498**	72.06	60.94	*.083*
DSM Scales						
Affective Problems	64.26	58.79	*.205*	67.50	56.39	*-.007*
Anxiety Problems	63.95	58.26	*-.071*	65.06	56.44	*.126*
Pervasive Developmental Problems	67.37	61.53	*.360*	70.11	59.11	*.025*
ADHD Problems	64.68	68.16	*.391*	65.44	64.89	*.392*
Oppositional Defiant Problems	67.37	63.11	*.641***	66.28	60.22	*-.097*

*$p < .05$.

**$p < .01$.

[a] N = 19 for each rater group of female children.

[b] N= 18 for each rater group of male children.

Participant data was also analyzed by FASD diagnosis: FAS 1, FAS 3, and ARND (FAS 5). Table 14 and Table 15 provide descriptive statistics for participants ages 6 – 18 years and 1.5 – 5 years by FASD diagnosis, including mean *T*-Scores, standard deviation (SD), skewness, and kurtosis (see Appendix F). Table 16 and Table 17 display the mean *T*-Scores and correlations between caregiver and teacher responses across all CBCL and TRF forms by FASD diagnosis. Within the sample of participants ages 6 – 18 years, the sample of children diagnosed with FAS 3 yielded the greastest number of significant correlations. Specifically, the *Externalizing Problems* broadband domain was significantly correlated at $p < .05$ for children diagnosed with FAS 3, whereas there were no significant correlations for broadband scales for children diagnosed with FAS 1 or ARND (FAS 5). Additionally, in the sample of children ages 6 – 18 years diagnosed with FAS 3, the following narrow domains and DSM-oriented scales yielded weak to moderate correlations at a minimum of $p < .05$: *Somatic Complaints*, *Rule-Breaking Behavior*, *Aggressive Behavior*, *Social Problems*, *Thought Problems*, *Attention Problems, ADHD Problems*, *Oppositional Defiant Problems* and *Conduct Problems*. The only scale significantly correlated for children ages 6 – 18 years diagnosed with FAS 1 was the *Somatic Complaints* narrow domain. For children ages 6 – 18 diagnosed with ARND (FAS 5), the *Somatic Complaints*, *Aggressive Behavior*, *Social Problems*, *Affective Problems*, *Somatic Problems*, and *Conduct Problems* cross-informant scales yielded weak to moderate correlations at a minimum of $p < .05$. For children ages 1.5 – 5 years, interrater agreement by FASD diagnosis was not computed for FAS 1, as there were only 2 participants diagnosed with FAS 1 (or FAS 2). There were no significant correlations between caregivers and teachers for children ages 1.5 – 5 years separated by diagnosis of FAS 3 or ARND (FAS 5).

Table 16

Interrater Agreement (Pearson Correlations) for 6 – 18 Years CBCL/TRF Cross-Informant Scales, Sample by FASD Diagnosis

	FAS 1 Diagnosis[a]			FAS 3 Diagnosis[b]			ARND (FAS 5) Diagnosis[c]		
Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains									
Internalizing Problems	61.30	54.30	*-.022*	64.06	59.57	*.234*	63.45	57.84	*.063*
Externalizing Problems	61.40	52.70	*.031*	67.87	61.81	*.462***	70.26	64.13	*.271*
Total Problems	66.90	57.10	*.286*	69.67	64.07	*.245*	69.92	63.79	*.151*
Narrow Domains									
Internalizing Problems									
Anxious/Depressed	60.00	57.10	*-.055*	63.72	60.72	*.124*	62.24	57.76	*.130*
Withdrawn/Depressed	59.60	58.30	*-.150*	63.91	58.70	*.143*	63.39	58.47	*.094*
Somatic Complaints	58.00	54.00	*.664**	61.07	56.56	*.286**	60.29	56.26	*.341**
Externalizing Problems									
Rule-Breaking Behavior	57.40	55.20	*-.410*	66.76	59.41	*.411***	69.24	61.24	*.233*
Aggressive Behavior	65.00	55.50	*.346*	69.94	64.09	*.485***	71.29	65.55	*.370**
Other									
Social Problems	64.90	56.50	*.273*	68.06	62.70	*.412***	66.08	61.68	*.355**
Thought Problems	66.50	56.10	*.463*	66.46	61.57	*.272**	67.08	60.71	*.036*
Attention Problems	68.70	58.30	*-.053*	75.44	63.37	*.275**	73.76	62.76	*.049*
DSM Scales									
Affective Problems	62.30	57.40	*.233*	64.04	59.78	*.151*	63.08	60.45	*.322**
Anxiety Problems	61.90	55.90	*-.180*	64.04	60.67	*.130*	62.11	56.74	*.121*
Somatic Problems	55.10	53.40	*.356*	59.35	55.37	*.249*	58.55	54.87	*.357**
ADHD Problems	67.30	58.00	*-.016*	66.13	62.83	*.352***	67.47	62.63	*-.028*
Oppositional Defiant Problems	58.80	55.30	*.303*	65.57	61.17	*.530***	67.50	63.24	*.280*
Conduct Problems	61.90	55.90	*-.168*	69.00	61.54	*.513***	71.89	64.11	*.449***

*$p < .05$.

**$p < .01$.

[a] N = 10 for each rater group of children diagnosed with FAS 1.

[b] N = 54 for each rater group of children diagnosed with FAS 3.

[c] N= 38 for each rater group of children diagnosed with ARND (FAS 5).

Table 17
Interrater Agreement (Pearson Correlations) for 1.5 – 5 Years CBCL/TRF Cross-Informant Scales, Sample by FASD[a] Diagnosis

	FAS 3[b]			ARND (FAS 5)[c]		
Domain/Scale	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*	Caregiver Mean *T*-Scores	Teacher Mean *T*-Scores	Pearson *r*
Broad Domains						
Internalizing Problems	64.96	58.60	*.214*	70.20	57.50	*.166*
Externalizing Problems	67.40	63.60	*.309*	77.50	65.90	*.496*
Total Problems	68.60	62.72	*.340*	74.70	62.30	*.103*
Narrow Domains						
Internalizing Problems						
Emotionally Reactive	66.52	60.32	*.255*	74.90	60.50	*-.111*
Anxious/Depressed	61.52	58.92	*.201*	65.90	57.50	*-.032*
Somatic Complaints	60.48	56.96	*.141*	62.90	51.20	*-.270*
Withdrawn	65.80	58.88	*.229*	66.00	60.50	*.524*
Externalizing Problems						
Attention Problems	66.56	66.32	*.157*	71.30	64.50	*.617*
Aggressive Behavior	68.08	62.96	*.189*	78.20	66.10	*.415*
DSM Scales						
Affective Problems	65.64	57.32	*.208*	66.50	59.50	*-.239*
Anxiety Problems	63.84	58.72	*.061*	67.60	55.10	*-.168*
Pervasive Developmental Problems	68.44	60.44	*.049*	68.40	59.30	*.388*
ADHD Problems	63.76	66.56	*.278*	68.00	65.90	*.495*
Oppositional Defiant Problems	64.88	61.52	*.266*	71.10	63.40	*.426*

*$p < .05$.
**$p < .01$.
[a] There was only one child diagnosed with FAS 1 and one child diagnosed with FAS 2. Thus, correlations for FAS 1 and FAS 2 for children ages 1.5 – 5 years were not computed.
[b] N= 25 for each rater group of children diagnosed with FAS 3.
[c] N = 10 for each rater group of children diagnosed with ARND (FAS 5).

On all cross-informant scales across all forms by all factors (i.e., total sample, age, gender, diagnosis), caregivers consistently rated children's behavior higher, or more severe, than teachers. The only exception was for the sample of female children ages 1.5 – 5 years, in which the mean *T*-Score for *Attention Problems* was rated higher for teachers than for caregivers

Multivariate Analysis of Variance

Finally, a Multivariate Analysis of Variance (MANOVA) was conducted to determine any mean differences in *T*-Scores between caregivers and teachers. A MANOVA was conducted for each set of CBCL and TRF forms: 6 – 18 years and 1.5 – 5 years. Table 18 provides descriptive statistics for the adjusted total sample of participants ages 6 – 18 years, including mean *T*-Scores and SDs. See Table 5 for mean *T*-Scores and SDs for the total sample of

participants ages 1.5 – 5 years. Table 19 and Table 20 describe the F Value, Significance, and Observed Power for all cross-informant scales for the two age groups.

Table 18
Descriptive Statistics for Adjusted Total Sample 6 – 18 Years

	Caregiver				Teacher			
Domain/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Broad Domains								
Internalizing Problems	63.70	9.393	-.087	.115	58.06	10.643	-.066	-.481
Externalizing Problems	68.42	10.268	-.559	-.145	61.62	10.645	-.026	-.486
Total Problems	69.76	7.891	-.248	-.093	62.97	9.274	.097	-.165
Narrow Domains								
Internalizing Problems								
Anxious/Depressed	62.92	9.323	.447	-.044	58.80	8.933	.997	.212
Withdrawn/Depressed	63.36	9.478	.766	.611	58.51	7.705	.966	1.296
Somatic Complaints	60.52	9.194	.812	.363	56.03	8.501	1.332	.960
Externalizing Problems								
Rule-Breaking Behavior	66.87	8.879	-.048	-.397	59.51	7.885	.335	-.758
Aggressive Behavior	70.13	12.779	.122	-.987	63.63	11.611	.910	.223
Other								
Social Problems	67.25	10.374	.293	-.665	61.62	8.758	.746	.245
Thought Problems	66.78	9.901	-.120	-.901	60.40	8.254	.201	-.939
Attention Problems	74.44	11.242	.571	-.341	62.38	8.132	1.075	2.806
DSM Scales								
Affective Problems	63.58	8.883	.213	-.827	59.34	8.478	.646	-.716
Anxiety Problems	63.19	8.142	-.183	-1.214	58.50	7.739	.493	-.925
Somatic Problems	58.70	9.285	.854	-.071	54.95	8.310	1.506	1.098
ADHD Problems	68.50	7.719	-.426	-.887	62.19	7.198	.486	-.077
Oppositional Defiant Problems	65.67	9.541	-.201	-1.130	61.25	8.886	.172	-1.193
Conduct Problems	69.52	10.131	-.076	-.391	61.87	10.689	.878	.436

N = 100 for each rater group total on CBCL/TRF forms for children ages 6 – 18 years. 2 participants were identified as outliers and removed from the analysis.

Table 19
Multivariate Analysis of Variance (MANOVA) for Total Sample 6 – 18 Years CBCL/TRF Cross-Informant Scales

Domain/Scale	F Value	Significance*	Partial Eta Squared	Observed Power
Broad Domains				
Internalizing Problems	15.786	.000	.074	.997
Externalizing Problems	21.139	.000	.096	.996
Total Problems	31.094	.000	.136	1.000
Narrow Domains				
Internalizing Problems				
Anxious/Depressed	10.181	.002	.049	.888
Withdrawn/Depressed	15.767	.000	.074	.977
Somatic Complaints	12.857	.000	.061	.946
Externalizing Problems				
Rule-Breaking Behavior	38.415	.000	.162	1.000
Aggressive Behavior	14.172	.000	.067	.963
Other				
Social Problems	17.196	.000[a]**	.080	.985
Thought Problems	24.498	.000	.110	.998
Attention Problems	75.544	.000[a]**	.276	1.000
DSM Scales				
Affective Problems	11.922	.001	.057	.930
Anxiety Problems	17.432	.000	.081	.986
Somatic Problems	9.057	.003	.044	.850
ADHD Problems	35.742	.000	.153	1.000
Oppositional Defiant Problems	11.493	.001	.055	.921
Conduct Problems	26.982	.000	.120	.999

[a] Due to violation of homogeneity of variance, these domains were evaluated at $p < .01$.
*Values for all cross-informant scales are significant at $p < .05$.
**$p < .01$
N = 100 for each rater group (200 total) on CBCL/TRF forms for children ages 6 – 18 years. 2 participants were identified as outliers and removed.

Table 20
Multivariate Analysis of Variance (MANOVA) for total sample 1.5 – 5 years CBCL/TRF cross-informant scales

Domain/Scale	F Value	Significance	Partial Eta Squared	Observed Power
Broad Domains				
Internalizing Problems	13.446	.000*	.157	.951
Externalizing Problems	5.794	.019*	.074	.661
Total Problems	10.257	.002*	.125	.885
Narrow Domains				
Internalizing Problems				
Emotionally Reactive	14.388	.000*	.167	.963
Anxious/Depressed	4.043	.048[a]**	.053	.510
Somatic Complaints	8.352	.005*	.104	.814
Withdrawn	8.568	.005*	.106	.823
Externalizing Problems				
Attention Problems	.702	.405	.010	.131
Aggressive Behavior	7.543	.008*	.095	.773
DSM Scales				
Affective Problems	19.566	.000*	.214	.992
Anxiety Problems	10.030	.002[a]**	.122	.878
Pervasive Developmental Problems	14.101	.000*	.164	.959
ADHD Problems	.391	.534	.005	.095
Oppositional Defiant Problems	6.099	.016*	.078	.683

[a] Due to violation of homogeneity of variance, these domains were evaluated at $p < .01$.
*$p < .05$.
**$p < .01$.
N = 37 for each rater group total on CBCL/TRF forms of children ages 1.5– 5 years.

All assumptions for analysis were considered. To evaluate skewness and kurtosis, acceptable ranges were predetermined as -1.50 – +1.50 (Tabachnick & Fidell, 2013). As shown in Table 4 and Table 18, all variables upheld this assumption of normal distribution for both age groups (6 – 18 years and 1.5 – 5 years). To address any potential outliers in the data, univariate and multivariate analyses were conducted. To identify univariate outliers, dependent variable (cross-informant scales) *T*-Scores were transformed into standardized z-scores. Z-scores less than -3.00 and greater than +3.00 were considered outliers. To identify multivariate outliers, Mahalanobis Distance scores were computed with a critical chi-square value of 40.8, based on 17 degrees of freedom and *alpha* = .001. If a participant was identified as a univariate *and* multivariate outlier for either rater, that participant was removed from the MANOVA analysis. For the sample of children ages 6 – 18, Mahalanobis Distance scores and z-score transformations

were derived for caregivers and teachers independently. Two participants were identified as significant outliers for this age group and were removed from the analysis. For the sample of children ages 1.5 – 5 years, no participants were identified as significant outliers for this age group.

Levene's Test of Equality of Error Variances was computed via SPSS to determine homogeneity of variance. Within the sample of children ages 6 – 18 years, the assumption of homogeneity of variance was upheld for the following dependent variables: *Internalizing Problems*, *Externalizing Problems*, *Total Problems, Anxious/Depressed*, *Withdrawn/Depressed*, *Somatic Complaints*, *Thought Problems*, *Rule-Breaking Behavior*, *Aggressive Behavior*, A*ffective Problems*, *Anxiety Problems*, *Somatic Problems*, *ADHD Problems*, *Oppositional Defiant Problems*, and *Conduct Problems*. Conversely, *Social Problems* and *Attention Problems* were significant at $p < .05$, indicating a violation of this assumption for these variables within the sample of participants ages 6 – 18 years. Similarly, within the sample of children ages 1.5 – 5 years, *Anxious/Depressed* and *Anxiety Problems* were significant at $p < .05$, indicating a violation of this assumption for these variables within this sample. To account for these differences in variance, a more conservative alpha was used to determine significance for these variables, specifically $p < .01$ (Tabachnick & Fidell, 2013). The assumption of homogeneity of variance was upheld for the following dependent variables, within the sample of children ages 1.5 – 5 years: *Internalizing Problems*, *Externalizing Problems*, *Total Problems, Emotionally Reactive*, *Somatic Complaints*, *Withdrawn*, *Attention Problems*, *Aggressive Problems*, *Affective Problems*, *Pervasive Developmental Problems*, *ADHD Problems*, and *Oppositional Defiant Problems*.

Lastly, although Box's *M* was significant at $p < .001$, N was equal across cells within

each MANOVA and therefore the assumption of homogeneity of covariance matrices was upheld (Tabachnick & Fidell, 2013).

A one-way MANOVA revealed a significant multivariate main effect for rater, Wilks' λ = .648, F (17, 182.00) = 5.824, p <. 001, partial eta squared = .352. Power to detect the effect was 1.000. Follow-up ANOVAs were reviewed to determine the significant differences in mean *T*-Scores on specific cross-informant scales.

As seen in Table 19 for the total sample of children ages 6 – 18 years, all scales were significant at $p < .01$. These results indicate that the mean *T*-Scores between caregivers and teachers on all scales were statistically different. Similarly, most scales within the total sample of children ages 1.5 – 5 years were significant at a minimum of $p < .05$. However, the *Attention Problems* narrow domain and the *ADHD Problems* DSM-oriented scale were not significant at $p < .05$. Furthermore, given the violation of homogeneity of variance in domains of Anxious/Depressed and Anxiety, those domains were interpreted at a significance of $p < .01$. *Anxious/Depressed* was not significant at $p < .01$. These results suggest that caregivers and teachers rated the behaviors of children within these scales statistically similar, based on mean *T*-Scores. Further interpretation of these results will be discussed in Chapter 5.

Although the results of the MANOVAs indicated statistically significant differences, further analysis was conducted to explore the clinical significance of these findings. Specifically, mean *T*-Scores for the total samples of participants ages 6 – 18 years and 1.5 – 5 years were converted into Achenbach qualitative categories. Table 21 describes the qualitative ranges (Achenbach & Rescorla, 2001). A cross tabulation with chi-square statistics was conducted between the qualitative categories of caregiver mean *T*-Scores (i.e., Normal, Borderline, and Clinical) and qualitative categories for teacher mean *T*-Scores on all cross-informant scales for

the total samples of children ages 6 – 18 years. Table 22 provides the chi-square statistic and significance for all scales. Chi-square statistics were not computed for the total sample of children ages 1.5 – 5 years as the sample size was too small and violated one of the conditions of goodness of fit as all tables had multiple expected cell frequencies less than 5.

Table 21
Qualitative Ranges for CBCL and TRF Cross-Informant Scales

***Scales*/*T*-Scores**	**Qualitative Range**
Syndrome Scales	
< 65	Normal
65 – 69	Borderline
≥ 70	Clinical
Internalizing, Externalizing, and Total Problems Scales	
< 60	Normal
60 – 63	Borderline
≥ 64	Clinical
DSM-Oriented Scales	
< 65	Normal
65 – 69	Borderline
≥ 70	Clinical

As seen in Table 22, results of the chi-square test of independence indicated nonsignificant results on the following scales: *Internalizing Problems*, *Total Problems*, *Anxious/Depressed*, *Withdrawn/Depressed*, *Somatic Complaints*, *Rule-Breaking Behavior*, *Thought Problems*, *Attention Problems*, *Affective Problems*, *Anxiety Problems*, *Somatic Problems*, and *ADHD Problems*. The following domains were significant at $p < .05$: *Externalizing Problems*, *Aggressive Problems*, *Social Problems*, *Oppositional Defiant Problems*, and *Conduct Problems*. Further interpretation of these results will be discussed in Chapter 5.

Table 22

Chi-Square Statistic and Significance for Children Ages 6 – 18 Years

Domain/Scale	Chi-Square	Significance
Broad Domains		
Internalizing Problems	7.749	.101
Externalizing Problems	10.704	.030*
Total Problems	7.437	.115
Narrow Domains		
Internalizing Problems		
Anxious/Depressed	7.453	.114
Withdrawn/Depressed	1.975	.740
Somatic Complaints	9.337	.053
Externalizing Problems		
Rule-Breaking Behavior	9.467	.050
Aggressive Behavior	11.948	.018*
Other		
Social Problems	16.941	.002*
Thought Problems	3.787	.436
Attention Problems	2.915	.572
DSM Scales		
Affective Problems	6.537	.162
Anxiety Problems	4.104	.392
Somatic Problems	5.902	.207
ADHD Problems	4.992	.288
Oppositional Defiant Problems	18.608	.001*
Conduct Problems	13.103	.011*

Chapter 5: Discussion

Summary

Aside from specific phenotypic facial features, a key characteristic of FASDs is atypical behavior. Specifically, children diagnosed with FASDs typically exhibit social problems, inattention and impulsivity, disruptive and uncooperative behavior, and often times impulsive aggressive behavior (Beasley, 2014; Jirikowic, Kartin, & Olson, 2008, Mattson & Riley, 2000; Steinhausen, Willms, and Spohr, 1993). Professionals diagnosing FASDs primarily rely on rating scales from multiple raters to identify these behaviors across settings ("Guideline," 2003; Keogh & Bernheimer, 1998). The Achenbach CBCL and TRF rating scales have been used across many clinical populations, but the literature lacks support for interrater agreement for the presence of behaviors in children with FASDs (Klein-Tasman, 2015). Therefore, the purpose of the present study was to emphasize the importance of multi-rater perspectives when diagnosing children with FASDs, and to support specific classroom interventions for children with FASDS, given the results of the concordance of caregiver-teacher perspectives on the behavior of children with FASDs.

Hypotheses

The results of the present study were largely consistent with the literature on multi-rater concordance and the manifestation of behaviors of children with FASDs. Based on the literature review, the author proposed the following hypotheses at the beginning of the present study:

(1) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the broad domains of Externalizing Behavior and overall Total Problems.

(2) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there a will be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL specifically within the narrow domains of Rule-Breaking Behavior, Aggressive Behaviors, and Attention Problems.

(3) Within a sample of children diagnosed with fetal alcohol spectrum disorders, there will be statistically significant effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children's behavior, as rated on the CBCL specifically within the broad domains of Externalizing Behavior and overall Total Problems.

(4) The null hypothesis states that, within a sample of children diagnosed with fetal alcohol spectrum disorders, there will not be statistically significant agreement between caregiver and teacher perceptions of children's behavior as rated on the CBCL within any broad or narrow domains.

(5) The null hypothesis states that, within a sample of children diagnosed with fetal alcohol spectrum disorders, there will not be statistically significant effects of sex, age, and diagnosis on the degree of concordance between caregiver and teacher perceptions of children's behavior as rated on the CBCL within any broad or narrow domains.

Based on the resulting correlations, the null hypotheses were distinctly rejected.

In regards to the first hypothesis, there were statistically significant weak to moderate correlations between caregivers and teachers within the total sample of children ages 6 – 18 years for the *Externalizing Problems* and *Total Problems* broadband domains. Additionally, the *Externalizing Problems* broadband domain was also moderately correlated within the total sample of children ages 1.5 – 5 years.

In regards to the second hypothesis, there were statistically significant weak to moderate correlations between caregivers and teachers within the total sample of children ages 6 – 18 years for the narrow domains of *Rule-Breaking Behavior*, *Aggressive Behavior*, *Attention Problems*, and seven other scales. These results suggest that as one rater indicated the presence of behaviors in children older than five years, the other rater did as well. The *positive* correlations suggest that as one rater reported more severe responses (higher mean *T*-Score), the other informant also reported more severe responses. However, results of the MANOVA indicate that the mean *T*-Scores did not increase simultaneously at a constant rate. Although both raters indicated an increased presence of behaviors, one rater (typically the caregiver) perceived more severe behaviors than the other. Within the total sample of children ages 1.5 – 5 years, there were insignificant correlations for the narrow domains of *Breaking Behavior*, *Aggressive Behavior* and *Attention Problems*.

In regards to the third hypothesis, the results indicated statistically significant effects of age, gender, and diagnosis within the broadband domains of *Externalizing Behavior*, *Total Problems*, and various other cross-informant scales. Interestingly, there were no significant correlations between caregiver and teacher ratings of behaviors for female children ages 6 – 18 years, whereas over half of the scales for male children ages 6 – 18 years were significantly correlated. Interpretation of these results might suggest that female children with FASDs present less severe externalizing behaviors than male children across different settings (i.e., home versus school), or perhaps that the female gender may serve as a protective role in the school setting when acknowledging the severity of maladaptive behaviors (Dixon et al., 2008). These interpretations are consistent with literature on the effects of prenatal drug exposure and gender on child behavior, although research has not been conducted on gender differences in the

manifestation of FASDs (Delaney-Black et al., 2000; Delaney-Black et al., 2004; Sood et al., 2005; Women's Health Data, n.d.).

Conversely, there were no significant correlations between caregiver and teacher ratings of behaviors for male children ages 1.5 – 5 years. However, caregivers reported internalizing and externalizing behaviors in the Borderline to Clinical ranges, respectively, whereas teachers reported similar behaviors in the Normal to Borderline ranges. These results indicate that caregivers perceive more severe behaviors at home than teachers perceive at school, perhaps because parents of younger children have a greater opportunity to observe maladaptive behavior than teachers, as they often spend more time with the child during the day and the school environment is less demanding for younger ages. Teachers did indicate elevated responses in the Borderline range on several scales, but the difference in severity between the raters was too large to result in significant correlations for young male children. For example, on the *Aggressive Behavior* narrow domain, there was more than a 10-point difference between mean *T*-Scores for caregivers and teachers. Teachers indicated a mean *T*-Score in the lower Borderline range, whereas caregivers indicated a mean *T*-Score in the Clinical range.

Consistent with previous research, internalizing behaviors were overall poorly correlated within the total samples of participants ages 6 – 18 years and 1.5 – 5 years (Tarren-Sweeney, Hazell, & Carr, 2004; Verhulst & Akkerhuis, 1989; Achenbach & Edelbrock, 1986). However, these results are inconsistent when compared to the significant, moderate cross-informant agreement within the Achenbach normative sample ($r = .36;\ p < .05$).

Strengths of Correlations and Group Mean Differences. One point of particular interest was the strength of the resulting correlations within several cross-informant scales across the various factors addressed. Previous literature indicated weak correlations between different

raters (e.g., parent and teacher), and moderate to strong correlations between similar informants (Achenbach, McConaughy, and Howell, 1987; Koegh & Bernheimer, 1998). Yet, the results of the present study indicated moderate to strong statistically significant relationships across several cross-informant scales between caregivers and teachers. Specifically, when compared to cross-informant correlations within Achenbach's normalized sample of participants, there were overall stronger correlations for this sample of participants diagnosed with FASDs within the broad domain of *Externalizing Problems* and the narrow domains of *Somatic Complaints*, Aggress*ive Behavior*, *Social Problems*, and *Attention Problems* on the CBCL and TRF for children ages 6 – 18 years. Additionally, the broad domain of *Externalizing Problems* on the CBCL and TRF for children ages 1.5 – 5 years was also more strongly correlated than the Achenbach normative sample. These results indicate that children with FASDs present with a unique behavior profile that is consistent across settings. Such results were similar in a recent study on children with Williams Syndrome (Klein-Tasman et al., 2015).

Within the total sample of children ages 6 – 18 years with FASDs, there was a moderate correlation between caregiver and teacher mean *T*-Scores within the domains of *Externalizing Problems*, *Aggressive Problems*, *Oppositional Defiant Problems*, and *Conduct Problems*. However, these effects accounted for a mean of < 20% variance in scores, which is small by Cohen's (1988) magnitude. Table 23 describes Cohen's rule of thumb for effect size magnitudes.

Table 23
Cohen's (1988) Table of Effect Size Magnitudes

Effect Size	**Qualitative Description**
.01	Small Effect Size
.06	Medium Effect Size
.15	Large Effect Size

Additionally, only two scales within the total sample of children ages 1.5 – 5 years yielded significant moderate correlations and only accounted for a mean of < 15% variance in scores. Within the sample of children ages 6 – 18 years by age, rater type accounted for 40% of the variance in the *Conduct Problems* scale within the 10 – 13 years age group. Additionally, within the 14 – 18 years ages group, rater type accounted for 40% of the variance in the *Aggressive Behavior* scale, 36% of the variance in mean *T*-Scores in the *Oppositional Defiant Problems* scale, and 45% of the variance between mean *T*-Scores in the *Social Problems* scale, indicating medium to large effect sizes. Within the sample of children ages 6 – 18 years by gender, caregivers and teachers indicated significant correlations only for males. Specifically, the *Externalizing Problems*, *Rule-Breaking Behavior*, *Aggressive Behavior*, *Social Problems*, *Oppositional Defiant Problems*, and *Conduct Problems* were moderately correlated between raters. These effects accounted for a mean of 30% variance in scores, yielding a medium effect size by Cohen's magnitude. Similarly, within the sample of children ages 1.5 – 5 years by gender, caregivers and teachers indicated significant correlations only for females. Specifically, the *Externalizing Problems*, *Total Problems*, *Emotionally Reactive*, *Aggressive Behavior*, and *Oppositional Defiant Problems* yielded moderate correlations between raters. These effects also accounted for a mean of 30% variance in scores. Literature on the behavior of children with FASDs supports these findings that these children do not present with atypical somatic complaints. As mentioned above, several scales were more strongly correlated within the sample of participants in the present study than within the normative population for the Achenbach School-Age Forms (Achenbach & Rescorla, 2001), emphasizing a phenotypic behavior profile unique to children with FASDs.

Furthermore, although positive significant correlations indicated that the mean *T*-Scores

for each rater increased concurrently, results of the MANOVA suggested that the rate of increase was not constant between raters, as the mean group differences remained statistically different for most cross-informant scales. Specifically, within the total samples of children ages 6 – 18 years and 1.5 – 5 years, the *Internalizing Problems*, *Externalizing Problems*, and *Total Problems* broadband domains yielded significant differences between mean *T*-Scores with medium to large effect sizes. Furthermore, the corresponding narrow domains yielding statistically significant differences between scores also yielded medium to large effect sizes, with the exception of the *Anxious/Depressed* scale, which yielded a significant difference and small effect size. Within the sample of children ages 1.5 – 5 years, mean *T*-Scores on the *Attention Problems* and *ADHD Problems* scales yielded insignificant differences.

Practical Implications

Results of the correlation analyses indicated that scales addressing externalizing maladaptive behaviors (e.g., *Aggression*, *Oppositional Defiant Problems*, *Conduct Problems*) yielded the greatest percentages of variance in scores accounted for by rater type. This suggests that the differences in mean *T*-Scores between raters are moderately attributed to the individual rater's perception of the behaviors. Yet, this interpretation supports the need for multiple raters to accurately capture the behaviors of children with FASDs, as there are other significant factors influencing the relationship between caregiver and teacher perceptions of behaviors that were not accounted for. Furthermore, although many correlations within all sample groups were statistically significant, the trivial variance in scores accounted for by rater type also supports the need for multiple raters and future research to identify other variables that affect caregivers' and teachers' perceptions of the behaviors of children with FASDs. For example, although *Somatic Problems* was significantly correlated within the sample of children ages 6 – 9 years, rater type

only accounted for 8% of the variance in scores, which does not support or weaken the reliance of scores by a single rater within a small sample. In addition to elevated mean *T*-Scores and significant interrater agreement in a variety of domains, the MANOVA yielded significant F values in all scales for children ages 6-18 years, and most scales for children ages 1.5 – 5 years. These results indicate that there were significant differences in the mean *T*-Scores between caregivers and teachers, although cross-informant correlations were often moderate.

Furthermore, in the sample of children ages 1.5 – 5 years, the MANOVA yielded F values that were not significant for the domains of *Attention Problems* and *ADHD* problems. These results indicate that caregivers and teachers rated children very similarly in these domains. The mean *T*-Scores for these domains were in the mid to high Borderline range, further supporting the literature that children with FASDs present with evident attention problems (Beasley, 2014; Jirikowic, Kartin, & Olson, 2008; Mattson & Riley, 1998).

The results of the present study are largely consistent with the behavior presentation of children on the fetal alcohol spectrum. Specifically, children with FASDs are described as socially naïve and excessively friendly (Streissguth & Giunta, 1998). They frequently display inattention and impulsivity. They also exhibit more severe maladaptive behaviors, such as disruptive behavior, uncooperative behavior, and socially offensive behavior (Streissguth & Giunta, 1998). In the present study, caregivers typically endorsed behaviors (Borderline to Clinical mean *T*-Scores) in related domains, including *Social Problems*, *Attention Problems*, *Rule-Breaking Behavior, Aggressive Behavior*, *ADHD Problems*, and *Oppositional Defiant Problems*.

A closer look at the individual items that comprise each scale also support the manifestation of behaviors of children with FASDs. For example, as discussed in Chapter 2,

children with FASD are typically followers, not leaders, are impulsive, and are socially immature. These characteristics often manifest in the behaviors included in *Rule-Breaking Behavior* domain, such as hanging around peers who get in trouble, breaking rules at home and school, lying, cheating, stealing, and running away. The *Attention Problems* domain encompasses the inattentive and impulsive behavior that manifests in children with FASDs.

When examining the effects of gender on the degree of concordance between caregiver and teacher perceptions of children's behavior within this sample of participants diagnosed with FASDs, there were evident phenotypic behavior differences between females and males. Specifically, within the sample of children ages 6 – 18 years, caregivers and teachers endorsed the presence of more severe externalizing behaviors in male children, as the mean *T*-scores for the *Externalizing Problems*, *Rule-Breaking Behavior* and *Aggressive Behavior* domains were higher than in females, and significantly correlated in males. The *Oppositional Defiant Problems* and *Conduct Problems* DSM-oriented scales were also rated higher in males and significantly correlated. When purely considering mean *T*-scores for children ages 6 – 18 years, teachers consistently rated the presence of more severe behaviors in males across all domains except somatic complaints, in which caregivers and teachers indicated that females within this subsample exhibited greater somatic complaints. Conversely, within the sample of children ages 1.5. – 5 years, teachers consistently rated the presence of more severe behaviors in females across all domains except somatic complaints. It is important to note that, even though mean *T*-scores for teachers across all syndrome and DSM-oriented scales in the sample of particpants ages 6 – 18 years were considered in the Normal range (*T*-score less than 67), mean *T*-scores for all broadband domains in males ages 6 – 18 years were in the Borderline to Clinical ranges.

Diagnostic Process. Clinically, caregivers and teachers perceived significant

externalizing problems, social deficits, and executive functioning difficulties (i.e., inattention, impulsivity), congruent with the IOM and CDC diagnostic criteria for FASDs. Yet, results of the MANOVA confirmed significant differences in mean *T*-Scores between caregivers and teachers on nearly all cross-informant scales. These results support previous literature that multi-rater perspectives are important in the diagnostic process, as each rater provides a unique perspective on the child's behavior and emotional functioning (Sattler, 1992; Sattler & Hoge, 2006; Verhulst & Akkerhuis, 1989).

Practical applications were explored through further qualitative analysis of the data. When the mean *T*-Scores were converted into qualitative descriptions (Normal, Borderline, and Clinical) for the total sample of children ages 6 – 18 years, caregivers and teachers rated children similarly on the following scales, as indicated by nonsignificant chi-square statistics: *Internalizing Problems*, *Total Problems*, *Anxious/Depressed*, *Withdrawn/Depressed*, *Somatic Complaints*, *Rule-Breaking Behavior*, *Thought Problems*, *Attention Problems*, *Affective Problems*, *Anxiety Problems*, *Somatic Problems*, and *ADHD Problems*. These results support that children with FASDs exhibit many problems behaviors across settings. Additionally, in the present study, caregivers consistently identified all behavior problems as more severe than teachers did, although qualitative ranges may have been similar.

Although the data supports the need for multi-rater perspectives to gain a global understanding of the complex behaviors of children with FASDs, analysis with qualitative ranges supports that information collected from one rater might sufficiently describe problem behaviors such as internalizing behaviors, thought problems, and attention problems. This information is useful for practitioners analyzing the presence or absence of a child's behaviors in a single setting for FASD screening purposes.

Interventions. While there are differences in the severity of behaviors perceived, children with FASDs exhibit overall similar behaviors in school and at home. These results are important to school psychologists who rely primarily on teacher report when determining special education eligibility and services. With the support that children with FASDs present with a unique phenotypic behavioral profile, school psychologists can recommend and encourage consistent interventions across settings.

The frequently elevated *Rule-Breaking Behavior*, *Aggressive Behavior*, *Social Problems*, and *Attention Problems* domains within the present study support the vital need for constant supervision of children with FASDs. As well, the clinically-oriented *ADHD Problems*, *Oppositional Defiant Problems*, and *Conduct Problems* scales are also indicative of the behavior manifestations of children with FASDs supported in the literature. These behaviors, in conjunction with the neurodevelopmental deficits discussed in Chapter 1 (e.g., learning difficulties, memory problems, executive functioning deficits), demand unique interventions for children with FASDs. Children with FASDs do not learn from their consequences, and therefore typical punishment is often ineffective (Beasley, 2014). Thus, positive behavior supports foster a proactive environment that reduces antecedents to problem behavior (Beasley, 2014).

Limitations

There are many advantages to using secondary data for research. It is typically an inexpensive process that can be much quicker than collecting primary, experimental data (Boslaugh, 2007). As well, the breadth of data in secondary databases can be greater than what could be collected for smaller research projects, considering financial and logistical constraints (Boslaugh, 2007). As with any research, there can be disadvantages and limitations that ultimately affect conclusions, validity, applicability, and generalizations of the findings

(Giovingo, 2008). Specifically, when using secondary data, the data might not address the researcher's specific research question, or be consistent with the demographic variables the researcher was interested in (Boslaugh, 2007).

In the present study, the most significant limitation was the number of participants included in the study. Although 437 files were examined, only 139 participants were included. The remaining files were excluded due to differential diagnoses or incomplete data. Specifically, the majority of files excluded did not have a completed or scored TRF. Additionally, if the child was not diagnosed with an FASD, they were not included as a participant. Due to the large number of excluded files, the participant sample was smaller than anticipated. Furthermore, the total sample size was reduced to smaller groups by form (6 – 18 years and 1.5 – 5 years), age, gender, and FASD diagnosis. These groups ranged in sample size from 10 to 102 participants. As the sample sizes got smaller, the correlation analysis lost statistical power. Specifically, the low number of participants in the female gender group (6 – 18 years; N = 42 compared to N = 60 for males) likely resulted in a lack of statistical power to detect significant weak to moderate correlations (r = .006 - .248). Similar implications likely resulted in a greater inability to detect smaller correlations for the sample of children ages 1.5 – 5 years by gender, the sample for children ages 6 – 18 years by age, and the samples of children ages 6 – 18 years and 1.5 – 5 years by diagnosis.

Another limitation to the present study is the primary data collection method. Specifically, families were required to attend the FAS Clinic at a specified location on a specified date and time. Thus, transportation, availability, and financial resources might have limited some families from participating. Additionally, consenting for unidentifiable data to be used in research was a condition for participation in the FAS Clinic. This might have limited

some families from participating also.

Finally, the demographic data might limit the generalizability of the results to other clinical populations. Specifically, only 14% of the caregiver respondents were male. However, within the Achenbach normative sample, cross-informant agreement between male and female raters was moderate to strong on all scales included in the present study. The literature also supports stronger correlations between similar informants. Thus, it is likely that the results would have been similar if the sample included more male caregiver respondents. Additionally, over 65% of the caregiver respondents were foster or adoptive parents, and only 12% were biological parents, which is typical of the FASD population. While the caregiver demographics are representative of the population of children with FASDs, they might not be an accurate representation of other clinical populations and might limit generalization of the results and conclusions of this study.

Suggestions for Future Research

Fetal Alcohol Syndrome is one of the leading preventable causes of birth defects and intellectual disabilities (Burd et al., 2003; Centers for Disease Control and Prevention, 2012; Sampson et al., 1997). With an escalating number of women of childbearing age who drink alcohol and an increasing prevalence of unplanned pregnancies, even small effects of prenatal alcohol exposure can cause significant neurodevelopmental dysfunction lasting a lifetime (Flak et al., 2014). These conditions have created an urgency to further investigate the accuracy and efficiency of the diagnostic process. It might be of interest to conduct a similar study of caregiver-teacher concordance on the behaviors of children with FASDs, utilizing the CBCL and TRF with a larger, more diverse sample in regards to age and gender. Such a study might yield stronger correlations between caregivers and teachers, which would increase the generalizability

of the perceptions of one rater across multiple settings.

The results of the present study concluded that, although there were significant correlations between caregivers and teachers, there were significant differences mean *T*-Scores across raters. Further analysis of cross-informant agreement with the CBCL and TRF can address individual item correlations to develop a more detailed profile of the behavior manifestations of children with FASDs compared to the behavior manifestations of children in other clinical populations. For example, it is anticipated that the literature will support a difference in the manifestation of social problems between children with FASDs and children with Autism Spectrum Disorder (ASD). Thus, although mean *T*-scores for the *Social Problem* scale would likely be elveted in both populations, CBCL and TRF raters in each population would presumably endorse different items within the scale. This valuable knowledge would allow practitioners to use the data to inform more specific interventions that target the unique behaviors of children with FASDs.

Given the results of the present study, additional analysis of possible factors influencing the relationship between caregiver and teacher perceptions of the behaviors of children with FASDs would also help to inform the importance of multi-rater perspectives in the diagnostic and intervention process.

Appendix A

FASD Diagnostic Criteria

Diagnostic criteria for Fetal Alcohol Spectrum Disorders, according to the Institute of Medicine (Stratton, Howe, & Battaglia, 1996) and CDC (2012):

I. Fetal Alcohol Syndrome (FAS) *with* Confirmed Maternal Alcohol Exposure

   A. Confirmed maternal alcohol exposure

   B. Evidence of *all* characteristic dysmorphic facial features including:

      a. Short palpebral fissures

      b. Thin vermillion border of the upper lip

      c. Smooth philtrum (See Appendix A)

   C. Evidence of prenatal and/or postnatal growth deficiency

      a. Height or weight $\leq 10^{th}$ percentile

   D. Evidence of central nervous system problems

      a. Structural abnormalities (See Appendix B)

      b. Neurologic abnormalities

      c. Functional abnormalities (e.g., cognitive deficits or significant developmental delays; executive functioning deficits; attention problems or hyperactivity; problems with social skills)

II. Fetal Alcohol Syndrome (FAS) *without* Confirmed Maternal Alcohol Exposure

   A. Confirmation of abnormalities in characteristics B through D above.

III. Partial Fetal Alcohol Syndrome (pFAS)

   A. Confirmation of maternal alcohol exposure

   B. Evidence of one or two characteristic dysmorphic facial features including:

a. Short palpebral fissures

b. Thin vermillion border of the upper lip

c. Smooth philtrum

C. Evidence of prenatal and/or postnatal growth deficiency

a. Height or weight $\leq 10^{th}$ percentile

and/or

D. Evidence of central nervous system problems

a. Structural abnormalities

b. Neurologic abnormalities

c. Functional abnormalities (e.g., cognitive deficits or significant developmental delays; executive functioning deficits; attention problems or hyperactivity; problems with social skills)

IV. Alcohol-Related Neurodevelopmental Disorder (ARND)

A. Confirmation of maternal alcohol exposure

B. Evidence of deficient brain growth or structural abnormalities

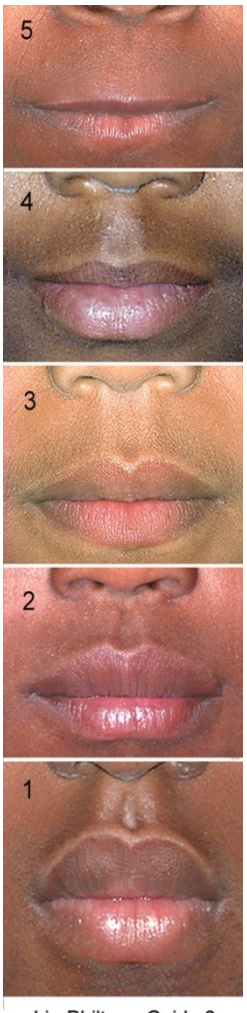
C. Evidence of behavioral or cognitive abnormalities consistent with the profile of fetal alcohol spectrum disorders (e.g., impairment in executive functioning; language deficits; maladaptive behavior)

Appendix B

Lip Philtrum Guide

Lip-philtrum guide in Caucasian and African-American populations (Astley, 2004)

Lip-Philtrum Guide I



Lip-Philtrum Guide 2

Appendix C

FAS Brain Development

The structural brain development of a typical 6-week old baby, compared with the structural brain development of a 6-week old baby with FAS (as cited in Morris, 2014)

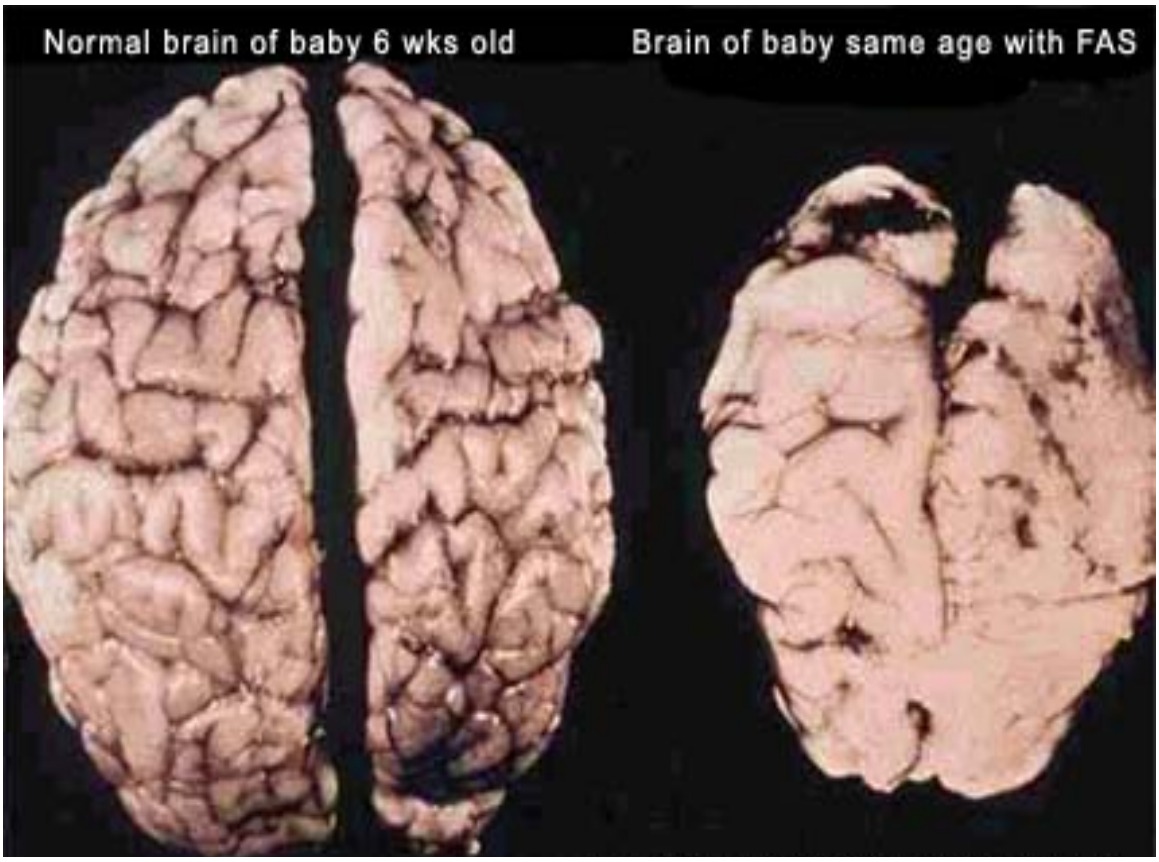


Photo courtesy of Clarren, n.d.

Appendix D

CBCL and TRF Checklists

Sample School-Age CBCL and School-Age TRF checklists (ASEBA, 2014)

Please print **CHILD BEHAVIOR CHECKLIST FOR AGES 6-18**

For office use only
ID #

CHILD'S FULL NAME First Middle Last

CHILD'S GENDER ☐ Boy ☐ Girl

CHILD'S AGE

CHILD'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo. ____ Day ____ Year _____

CHILD'S BIRTHDATE Mo. ____ Day ____ Year ____

GRADE IN SCHOOL _____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to print additional comments beside each item and in the space provided on page 2. ***Be sure to answer all items.***

PARENTS' USUAL TYPE OF WORK, even if not working now.
(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)
FATHER'S TYPE OF WORK _____
MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: (print your full name)
_____

Your gender: ☐ Male ☐ Female

Your relation to the child:
☐ Biological Parent ☐ Step Parent ☐ Grandparent
☐ Adoptive Parent ☐ Foster Parent ☐ Other (specify)

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

None ☐

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, computers, singing, etc. (Do ***not*** include listening to radio or TV.)

None ☐

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

None ☐

	Compared to others of the same age, how active is he/she in each?			
	Less Active	Average	More Active	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.)

None ☐

	Compared to others of the same age, how well does he/she carry them out?			
	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

V. 1. About how many close friends does your child have? (Do *not* include brothers & sisters)

☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours? (Do *not* include brothers & sisters) ☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to others of his/her age, how well does your child:

	Worse	Average	Better	
a. Get along with his/her brothers & sisters?	☐	☐	☐	☐ Has no brothers or sisters
b. Get along with other kids?	☐	☐	☐	
c. Behave with his/her parents?	☐	☐	☐	
d. Play and work alone?	☐	☐	☐	

VII. 1. Performance in academic subjects. **Does not attend school because** _____

_____

Check a box for each subject that child takes

	Failing	Below Average	Average	Above Average
a. Reading, English, or Language Arts	☐	☐	☐	☐
b. History or Social Studies	☐	☐	☐	☐
c. Arithmetic or Math	☐	☐	☐	☐
d. Science	☐	☐	☐	☐
e. _____	☐	☐	☐	☐
f. _____	☐	☐	☐	☐
g. _____	☐	☐	☐	☐

Other academic subjects–for example: computer courses, foreign language, business. Do ***not*** include gym, shop, driver's ed., or other nonacademic subjects.

2. Does your child receive special education or remedial services or attend a special class or special school?

☐ No ☐ Yes—kind of services, class, or school:

3. Has your child repeated any grades? ☐ No ☐ Yes—grades and reasons:

4. Has your child had any academic or other problems in school? ☐ No ☐ Yes—please describe:

When did these problems start? _____

Have these problems ended? ☐ No ☐ Yes–when?

Does your child have any illness or disability (either physical or mental)? ☐ No ☐ Yes—please describe:

What concerns you most about your child?

Please describe the best things about your child.

Be sure you answered all items.

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months***, please circle the ***2*** if the item is ***very true or often true*** of your child. Circle the ***1*** if the item is ***somewhat or sometimes true*** of your child. If the item is ***not true*** of your child, circle the ***0***. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Drinks alcohol without parents' approval (describe):_____
_____
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks rules at home, school, or elsewhere
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sound or voices that aren't there (describe): _____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe): _____
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasses) (describe): _____
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____

0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much

0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy

0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids

0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____

0 1 2 67. Runs away from home
0 1 2 68. Screams a lot

0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe):
_____
_____

0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires

0 1 2 73. Sexual problems (describe): _____
_____
_____

0 1 2 74. Showing off or clowning

0 1 2 75. Too shy or timid
0 1 2 76. Sleeps less than most kids

0 1 2 77. Sleeps more than most kids during day and/or night (describe): _____
_____

0 1 2 78. Inattentive or easily distracted

0 1 2 79. Speech problem (describe): _____
_____

0 1 2 80. Stares blankly

0 1 2 81. Steals at home
0 1 2 82. Steals outside the home

0 1 2 83. Stores up too many things he/she doesn't need (describe): _____
_____
_____

0 1 2 84. Strange behavior (describe): _____
_____

0 1 2 85. Strange ideas (describe): _____
_____

0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings

0 1 2 88. Sulks a lot
0 1 2 89. Suspicious

0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self

0 1 2 92. Talks or walks in sleep (describe): _____
_____

0 1 2 93. Talks too much

0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper

0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people

0 1 2 98. Thumb-sucking
0 1 2 99. Smokes, chews, or sniffs tobacco

0 1 2 100. Trouble sleeping (describe): _____
_____

0 1 2 101. Truancy, skips school

0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed

0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe):
_____
_____

0 1 2 106. Vandalism
0 1 2 107. Wets self during the day

0 1 2 108. Wets the bed
0 1 2 109. Whining

0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others

0 1 2 112. Worries

113. Please write in any problems your child has that were not listed above:

0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

Please print **TEACHER'S REPORT FORM FOR AGES 6-18**

For office use only
ID #

Your answers will be used to compare the pupil with other pupils whose teachers have completed similar forms. The information from this form will also be used for comparison with other information about this pupil. Please answer as well as you can, even if you lack full information. Scores on individual items will be combined to identify general patterns of behavior. Feel free to print additional comments beside each item and in the spaces provided on page 2. ***Please print, and answer all items.***

PUPIL'S FULL NAME First Middle Last

PUPIL'S GENDER ☐ Boy ☐ Girl

PUPIL'S AGE

PUPIL'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo. _____ Day ____ Year _____

PUPIL'S BIRTHDATE (if known) Mo. ____ Day ____ Year ____

GRADE IN SCHOOL _____

NAME AND ADDRESS OF SCHOOL

_____

_____

_____

PARENTS' USUAL TYPE OF WORK, even if not working now.
(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)
FATHER'S TYPE OF WORK _____
MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: (print your full name)

_____

Your gender: ☐ Male ☐ Female

Your role at the school:

☐ Classroom Teacher ☐ Counselor ☐ Teacher's Aide
☐ Special Educator ☐ Administrator ☐ Other (specify)

I. For how many months have you known this pupil? _____ months

II. How well do you know him/her? 1. ☐ Not Well 2. ☐ Moderately Well 3. ☐ Very Well

III. How much time does he/she spend in your class or service per week?

IV. What kind of class or service is it? (Please be specific, e.g., regular 5th grade, 7th grade math, learning disability, counseling, etc.)

V. Has he/she ever been referred for special class placement, services, or tutoring?
☐ Don't know 0. ☐ No 1. ☐ Yes — what kind and when?

VI. Has he/she ever repeated any grades? ☐ Don't Know 0. ☐ No 1. ☐ Yes – grades and reasons:

VII. Current academic performance — list academic subjects and check box that indicates pupil's performance for each subject:

Academic subject	1. Far below grade	2. Somewhat below grade	3. At grade level	4. Somewhat above grade	5. Far above grade
1. _____	☐	☐	☐	☐	☐
2. _____	☐	☐	☐	☐	☐
3. _____	☐	☐	☐	☐	☐
4. _____	☐	☐	☐	☐	☐
5. _____	☐	☐	☐	☐	☐
6. _____	☐	☐	☐	☐	☐

Be sure you answered all items. Then see other side.

UNAUTHORIZED COPYING IS ILLEGAL

6-1-01 Edition - 301

Please print. Be sure to answer all items.

VIII. Compared to typical pupils of the same age:	**1. Much less**	**2. Somewhat less**	**3. Slightly less**	**4. About average**	**5. Slightly more**	**6. Somewhat more**	**7. Much more**
1. How hard is he/she working?	❒	❒	❒	❒	❒	❒	❒
2. How appropriately is he/she behaving?	❒	❒	❒	❒	❒	❒	❒
3. How much is he/she learning?	❒	❒	❒	❒	❒	❒	❒
4. How happy is he/she?	❒	❒	❒	❒	❒	❒	❒

IX. Most recent achievement test scores (optional):

Name of test	Subject	Date	Percentile or grade level obtained

X. IQ, readiness, or aptitude tests (optional):

Name of test	Date	IQ or equivalent scores

Does this pupil have any illness or disability (either physical or mental)? ❒ No ❒ Yes — please describe:

What concerns you most about this pupil?

Please describe the best things about this pupil:

Please feel free to write any comments about this pupil's work, behavior, or potential, using extra pages if necessary.

Please print. Be sure to answer all items.

Below is a list of items that describe pupils. For each item that describes the pupil ***now or within the past 2 months***, please circle the ***2*** if the item is ***very true or often true*** of the pupil. Circle the ***1*** if the item is ***somewhat or sometimes true*** of the pupil. If the item is ***not true*** of the pupil, circle the ***0***. Please answer all items as well as you can, even if some do not seem to apply to this pupil.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Hums or makes other odd noises in class
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Defiant, talks back to staff
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Fidgets
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys property belonging to others
0 1 2 22. Difficulty following directions
0 1 2 23. Disobedient at school
0 1 2 24. Disturbs other pupils
0 1 2 25. Doesn't get along with other pupils
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks school rules
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sound or voices that aren't there (describe): _____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe):
_____
_____
0 1 2 47. Overconforms to rules
0 1 2 48. Not liked by other pupils
0 1 2 49. Has difficulty learning
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Talks out of turn
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Eye problems (***not*** if corrected by glasses) (describe): _____
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____
_____

Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

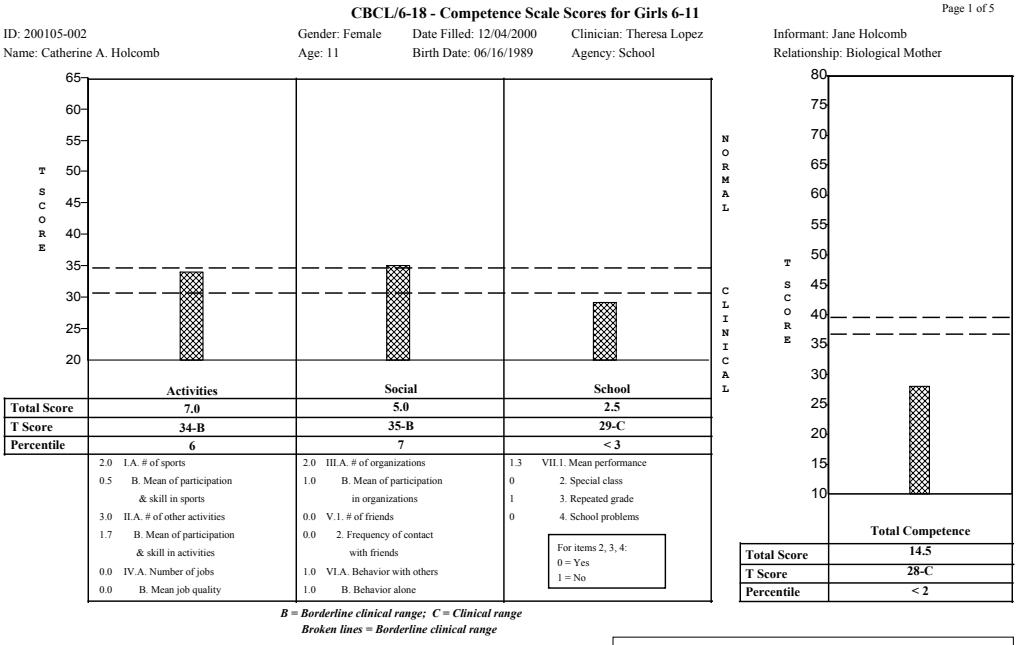
0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____
0 1 2 59. Sleeps in class
0 1 2 60. Apathetic or unmotivated
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older children or youths
0 1 2 64. Prefers being with younger children
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Disrupts class discipline
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe):
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Messy work
0 1 2 73. Behaves irresponsibly (describe): _____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Too shy or timid
0 1 2 76. Explosive or unpredictable behavior
0 1 2 77. Demands must be met immediately, easily frustrated
0 1 2 78. Inattentive or easily distracted
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Feels hurt when criticized
0 1 2 82. Steals
0 1 2 83. Stores up too many things he/she doesn't need (describe): _____
_____
_____
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe): _____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Underachieving, not working up to potential
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Seems preoccupied with sex
0 1 2 97. Threatens people
0 1 2 98. Tardy to school or class
0 1 2 99. Smokes, chews, or sniffs tobacco
0 1 2 100. Fails to carry out assigned tasks
0 1 2 101. Truancy or unexplained absence
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include tobacco) (describe): _____
_____
_____
0 1 2 106. Overly anxious to please
0 1 2 107. Dislikes school
0 1 2 108. Is afraid of making mistakes
0 1 2 109. Whining
0 1 2 110. Unclean personal appearance
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems the pupil has that were not listed above:
0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

Appendix E

Sample CBCL Profile

Sample School-Age CBCL profile (ASEBA, n.d.)



CBCL/6-18 - Competence Scale Scores for Girls 6-11

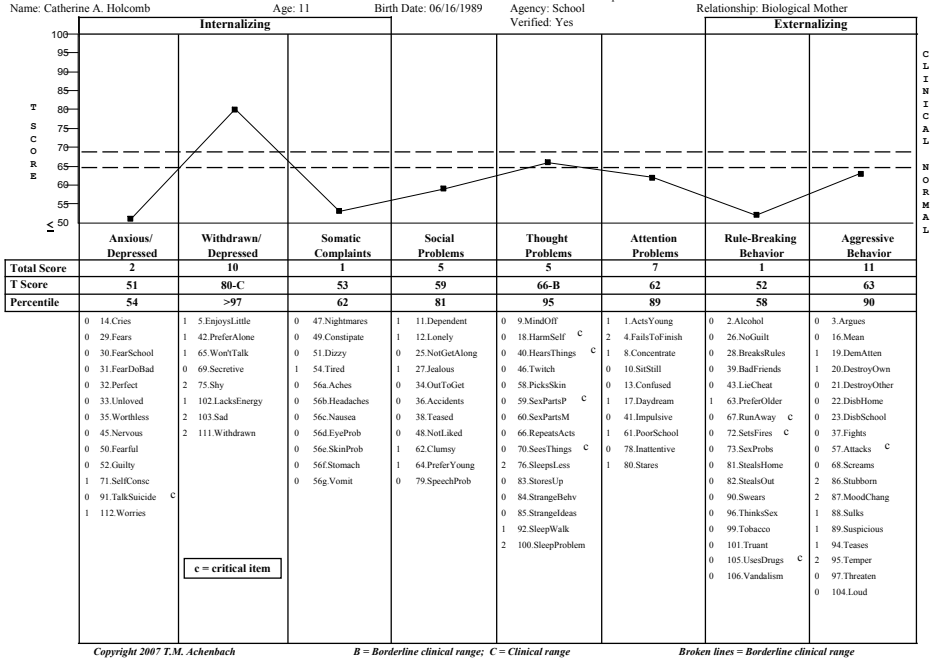
ID: 200105-002 | Gender: Female | Date Filled: 12/04/2000 | Clinician: Theresa Lopez | Informant: Jane Holcomb
Name: Catherine A. Holcomb | Age: 11 | Birth Date: 06/16/1989 | Agency: School | Relationship: Biological Mother

	Activities	Social	School
Total Score	7.0	5.0	2.5
T Score	34-B	35-B	29-C
Percentile	6	7	< 3
	2.0 I.A. # of sports	2.0 III.A. # of organizations	1.3 VII.1. Mean performance
	0.5 B. Mean of participation & skill in sports	1.0 B. Mean of participation in organizations	0 2. Special class
	3.0 II.A. # of other activities	0.0 V.1. # of friends	1 3. Repeated grade
	1.7 B. Mean of participation & skill in activities	0.0 2. Frequency of contact with friends	0 4. School problems
	0.0 IV.A. Number of jobs	1.0 VI.A. Behavior with others	For items 2, 3, 4: 0 = Yes 1 = No
	0.0 B. Mean job quality	1.0 B. Behavior alone	

Total Competence	
Total Score	14.5
T Score	28-C
Percentile	< 2

B = Borderline clinical range; C = Clinical range
Broken lines = Borderline clinical range

Total score for each scale is rounded to nearest 0.5.
****** = missing data**
nc = The score was not computed due to missing data.
On Activities and Social Scales, if one item is missing, the mean of the other items is substituted.



CBCL/6-18 - Syndrome Scale Scores for Girls 6-11 Scored Using T Scores for United States

ID: 200105-002 | Gender: Female | Date Filled: 12/04/2000 | Clinician: Theresa Lopez | Informant: Jane Holcomb
Name: Catherine A. Holcomb | Age: 11 | Birth Date: 06/16/1989 | Agency: School | Relationship: Biological Mother
Verified: Yes

	Anxious/ Depressed	Withdrawn/ Depressed	Somatic Complaints	Social Problems	Thought Problems	Attention Problems	Rule-Breaking Behavior	Aggressive Behavior
Total Score	2	10	1	5	5	7	1	11
T Score	51	80-C	53	59	66-B	62	52	63
Percentile	54	>97	62	81	95	89	58	90
	0 14.Cries	1 5.EnjoysLittle	0 47.Nightmares	1 11.Dependent	0 9.MindOff	1 1.ActsYoung	0 2.Alcohol	0 3.Argues
	0 29.Fears	1 42.PreferAlone	0 49.Constipate	1 12.Lonely	0 18.HarmSelf c	2 4.FailsToFinish	0 26.NoGuilt	0 16.Mean
	0 30.FearSchool	1 65.Won'tTalk	0 51.Dizzy	0 25.NotGetAlong	0 40.HearsThings c	1 8.Concentrate	0 28.BreaksRules	1 19.DemAtten
	0 31.FearDoBad	0 69.Secretive	1 54.Tired	1 27.Jealous	0 46.Twitch	0 10.SitStill	0 39.BadFriends	1 20.DestroyOwn
	0 32.Perfect	2 75.Shy	0 56a.Aches	0 34.OutToGet	0 58.PicksSkin	0 13.Confused	0 43.LieCheat	0 21.DestroyOther
	0 33.Unloved	1 102.LacksEnergy	0 56b.Headaches	0 36.Accidents	0 59.SexPartsP c	1 17.Daydream	1 63.PreferOlder	0 22.DishHome
	0 35.Worthless	2 103.Sad	0 56c.Nausea	0 38.Teased	0 60.SexPartsM	0 41.Impulsive	0 67.RunAway c	0 23.DishSchool
	0 45.Nervous	2 111.Withdrawn	0 56d.EyeProb	0 48.NotLiked	0 66.RepeatsActs	1 61.PoorSchool	0 72.SetsFires c	0 37.Fights
	0 50.Fearful		0 56e.SkinProb	1 62.Clumsy	0 70.SeesThings c	0 78.Inattentive	0 73.SexProbs	0 57.Attacks c
	0 52.Guilty		0 56f.Stomach	1 64.PreferYoung	2 76.SleepsLess	1 80.Stares	0 81.StealsHome	0 68.Screams
	1 71.SelfConsc		0 56g.Vomit	0 79.SpeechProb	0 83.StoresUp		0 82.StealsOut	2 86.Stubborn
	0 91.TalkSuicide c				0 84.StrangeBehv		0 90.Swears	2 87.MoodChang
	1 112.Worries				0 85.StrangeIdeas		0 96.ThinksSex	1 88.Sulks
					1 92.SleepWalk		0 99.Tobacco	1 89.Suspicious
					2 100.SleepProblem		0 101.Truant	1 94.Teases
							0 105.UsesDrugs c	2 95.Temper
							0 106.Vandalism	0 97.Threaten
								0 104.Loud

c = critical item

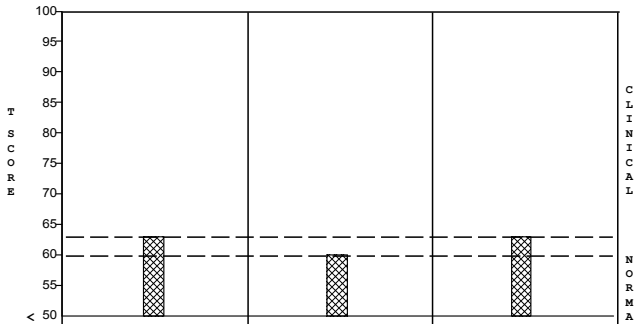
B = Borderline clinical range; C = Clinical range
Broken lines = Borderline clinical range

CBCL/6-18 - Internalizing, Externalizing, Total Problems, Other Problems for Girls 6-11

Scored using T scores for United States

ID: 200105-002 | Gender: Female | Date Filled: 12/04/2000 | Clinician: Theresa Lopez | Informant: Jane Holcomb

Name: Catherine A. Holcomb | Age: 11 | Birth Date: 06/16/1989 | Agency: School | Relationship: Biological Mother



	Internalizing Problems	Externalizing Problems	Total Problems
Total Score	13	12	46
T Score	63-B	60-B	63-B
Percentile	90	84	90

B = Borderline clinical range; C = Clinical range *Broken lines = Borderline clinical range*

Other Problems

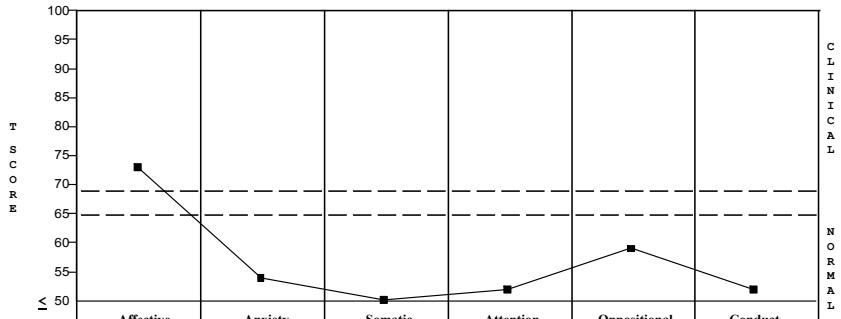
0	6.BMOut	c
0	7.Brags	
1	15.CruelAnimal	c
0	24.NotEat	
0	44.BiteNail	
0	53.Overeat	
0	55.Overweight	
0	56h.OtherPhys	
0	74.ShowOff	
0	77.SleepsMore	
0	93.TalkMuch	
1	98.ThumbSuck	
0	107.WetsSelf	c
0	108.WetsBed	
0	109.Whining	
0	110.WishOppSex	
2	113.OtherProb	

c = critical item

CBCL/6-18 - DSM-Oriented Scales for Girls 6-11 Scored Using T Scores for United States

ID: 200105-002 | Gender: Female | Date Filled: 12/04/2000 | Clinician: Theresa Lopez | Informant: Jane Holcomb

Name: Catherine A. Holcomb | Age: 11 | Birth Date: 06/16/1989 | Agency: School | Relationship: Biological Mother



	Affective Problems	Anxiety Problems	Somatic Problems	Attention Deficit/ Hyperactivity Problems	Oppositional Defiant Problems	Conduct Problems
Total Score	9	2	0	3	4	1
T Score	73-C	54	50	52	59	52
Percentile	>97	65	<=50	58	81	58
	1 5.EnjoysLittle	1 11.Dependent	0 56a.Aches	2 4.FailsToFinish	0 3.Argues	1 15.CruelAnimal
	0 14.Cries	0 29.Fears	0 56b.Headaches	1 8.Concentrate	0 22.DisbHome	0 16.Mean
	0 18.HarmSelf	0 30.FearSchool	0 56c.Nausea	0 10.SitStill	0 23.DisbSchool	0 21.DestroyOther
	0 24.NotEat	0 45.Nervous	0 56d.EyeProb	0 41.Impulsive	2 86.Stubborn	0 26.NoGuilt
	0 35.Worthless	0 50.Fearful	0 56e.SkinProb	0 78.Inattentive	2 95.Temper	0 28.BreaksRules
	0 52.Guilty	1 112.Worries	0 56f.Stomach	0 93.TalkMuch		0 37.Fights
	1 54.Tired		0 56g.Vomit	0 104.Loud		0 39.BadFriends
	2 76.SleepsLess					0 43.LieCheat
	0 77.SleepsMore					0 57.Attacks
	0 91.TalkSuicide					0 67.RunAway
	2 100.SleepProb					0 72.SetsFires
	1 102.Underactive					0 81.StealsHome
	2 103.Sad					0 82.StealsOut
						0 90.Swears
						0 97.Threaten
						0 101.Truant
						0 106.Vandalism

B = Borderline clinical range; C = Clinical range *Broken lines = Borderline clinical range*

CBCL/6-18 - 2007 Scales for Girls 6-11 Scored Using T Scores for United States

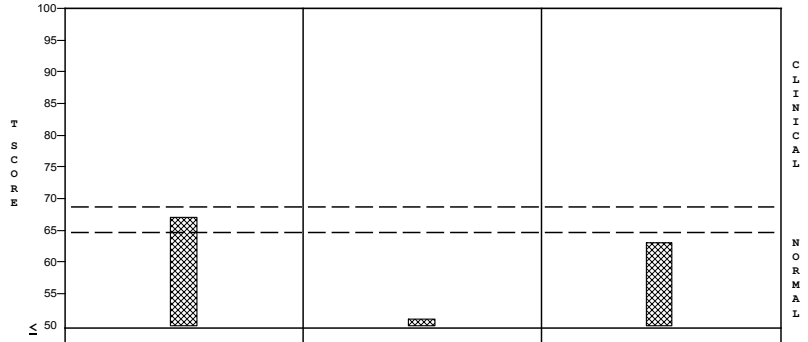
ID: 200105-002
Name: Catherine A. Holcomb

Gender: Female
Age: 11

Date Filled: 12/04/2000
Birth Date: 06/16/1989

Clinician: Theresa Lopez
Agency: School

Informant: Jane Holcomb
Relationship: Biological Mother



	Sluggish Cognitive Tempo	Obsessive-Compulsive Problems	Post-traumatic Stress Problems
Total Score	**3**	**1**	**8**
T Score	**67-B**	**51**	**63**
Percentile	**96**	**54**	**90**
	0 13.Confused	0 9.MindOff	0 3.Argues
	1 17.Daydreams	0 31.FearDoBad	1 8.Concentrate
	1 80.Stares	0 32.Perfect	0 9.MindOff
	1 102.LacksEnergy	0 52.Guilty	1 11.Dependent
		0 66.RepeatsActs	0 31.FearDoBad
		0 84.StrangeBehav	0 34.OutToGet
		0 85.StrangeIdeas	0 45.Nervous
		1 112.Worries	0 47.Nightmares
			0 50.Fearful
			0 52.Guilty
			0 69.Secretive
			2 87.MoodChang
			2 103.Sad
			2 111.Withdrawn

B = Borderline clinical range; C = Clinical range ***Broken lines = Borderline clinical range***

Appendix F

Tables

Table 8
Descriptive Statistics for Sample 6 – 18 Years by Age

		Caregiver				Teacher			
Age	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Ages 6 – 9 Years[a]	***Broad Domains***								
	Internalizing Problems	62.71	9.654	.030	-.164	57.91	10.798	.090	-.356
	Externalizing Problems	67.72	10.489	-1.044	1.061	61.16	10.682	-.111	-.491
	Total Problems	68.76	8.420	-.987	1.781	63.00	9.220	.190	-.055
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	61.74	9.934	.674	.116	58.62	9.593	1.087	.237
	Withdrawn/Depressed	62.59	8.714	.267	-.844	58.43	7.963	1.266	2.369
	Somatic Complaints	59.91	8.494	.636	-.421	56.78	8.276	.990	.149
	Externalizing Problems								
	Rule-Breaking Behavior	65.91	8.457	-.118	-.325	59.17	7.843	.525	-.190
	Aggressive Behavior	69.74	12.288	-.032	-.851	63.24	11.453	.841	-.150
	Other								
	Social Problems	66.29	10.195	.279	-.817	61.79	9.155	.821	.362
	Thought Problems	64.95	10.467	.174	-.978	61.47	8.070	.009	-.871
	Attention Problems	72.88	11.357	.636	.009	62.10	7.829	.862	2.156
	DSM Scales								
	Affective Problems	63.22	8.436	.160	-.884	59.47	8.459	.638	-.738
	Anxiety Problems	62.12	8.304	.059	-1.263	59.02	8.220	.442	-1.021
	Somatic Problems	57.93	9.273	.871	-.346	55.03	8.033	1.364	.653
	ADHD Problems	67.55	8.276	-.417	-.953	61.86	7.224	.500	-.062
	Oppositional Defiant Problems	65.52	9.746	-.264	-1.160	61.55	8.461	.111	-.937
	Conduct Problems	68.90	9.076	-.515	-.091	61.03	10.010	.694	-.194

Table 8

Descriptive Statistics for Sample 6 – 18 Years by Age

Ages 10 – 13 Years[b]	***Broad Domains***								
	Internalizing Problems	62.62	8.666	-.942	-.033	59.24	11.528	-.121	-.695
	Externalizing Problems	68.21	11.063	-.309	-.595	62.69	10.522	.007	-.334
	Total Problems	69.62	8.174	-.539	-.643	64.07	10.623	.004	.023
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	63.55	8.105	-.259	-.850	61.17	9.921	.869	.241
	Withdrawn/Depressed	60.86	7.130	.383	-.265	58.93	7.294	.398	-.142
	Somatic Complaints	59.38	7.664	.228	-.911	54.79	8.252	1.983	3.928
	Externalizing Problems								
	Rule-Breaking Behavior	66.76	10.773	.238	-.669	60.24	8.092	.127	-1.214
	Aggressive Behavior	68.48	8.854	-.640	-.280	64.38	11.543	.859	.496
	Other								
	Social Problems	66.76	10.773	.238	-.669	62.31	9.247	.466	-.610
	Thought Problems	68.48	8.854	-.640	-.280	61.62	9.883	.798	.589
	Attention Problems	74.52	9.455	.253	-1.228	63.45	8.087	.471	.226
	DSM Scales								
	Affective Problems	61.97	8.525	.135	-1.497	60.59	10.591	1.307	2.436
	Anxiety Problems	64.90	7.423	-.621	-.431	59.34	7.532	.250	-1.318
	Somatic Problems	58.03	7.423	.598	-.177	54.55	8.034	1.838	2.872
	ADHD Problems	69.72	7.216	-.720	-.665	63.24	7.244	.315	.082
	Oppositional Defiant Problems	65.14	9.738	.015	-1.213	60.83	9.278	.227	-1.386
	Conduct Problems	69.66	11.693	.033	-.842	62.90	11.226	.948	.831
Ages 14 – 18 Years[c]	***Broad Domains***								
	Internalizing Problems	68.67	9.363	.365	.778	58.73	10.257	-.695	.086
	Externalizing Problems	69.53	11.886	-.842	1.299	62.47	11.526	.201	-.505
	Total Problems	72.07	8.746	.564	-.099	62.87	9.062	.516	.579
	Narrow Domains								
	Internalizing Problems								

Table 8

Descriptive Statistics for Sample 6 – 18 Years by Age

	Anxious/Depressed	65.47	8.943	.912	1.309	58.07	7.896	1.191	.801
	Withdrawn/Depressed	70.73	12.550	.649	-.667	58.47	7.558	.560	-.445
	Somatic Complaints	64.80	13.176	.614	-.595	56.67	10.062	1.348	.557
	Externalizing Problems								
	Rule-Breaking Behavior	69.27	8.779	-.346	-.572	60.53	8.425	-.030	-1.571
	Aggressive Behavior	71.20	14.659	.399	-1.018	64.80	13.300	1.159	1.018
	Other								
	Social Problems	70.27	10.807	.578	-.241	60.27	6.204	.360	1.515
	Thought Problems	70.00	9.181	-.366	-.096	56.07	7.255	.621	-1.194
	Attention Problems	78.40	14.131	.337	-1.067	63.20	10.838	1.867	4.977
	DSM Scales								
	Affective Problems	67.60	10.521	.014	-.640	59.53	9.395	.891	-.349
	Anxiety Problems	63.47	9.007	-.372	-1.456	56.47	6.968	.880	-.094
	Somatic Problems	62.53	11.661	.662	-.451	55.67	10.161	1.482	.710
	ADHD Problems	68.67	7.306	.224	-.806	62.07	7.126	.711	.549
	Oppositional Defiant Problems	67.00	9.562	-.437	-.763	61.67	10.104	.170	-1.697
	Conduct Problems	70.73	11.961	.230	-.748	63.60	12.147	1.123	1.304

[a] N= 58 for each rater group of children ages 6 – 9 years.

[b] N = 29 for each rater group of children ages 10 – 13 years.

[c] N= 15 for each rater group of children ages 14 – 18 years.

Table 10

Descriptive Statistics for Sample 6 – 18 Years by Gender

		Caregiver				Teacher			
Gender	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
Female	**Broad Domains**								
	Internalizing Problems	63.40	10.061	-.041	.159	55.93	10.308	-.259	-.621
	Externalizing Problems	66.98	10.043	-.544	.009	59.60	8.506	-.350	.227
	Total Problems	68.60	7.444	-.288	-.333	61.05	7.815	-.458	-.034
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	62.33	10.048	.642	.207	56.29	6.201	.993	.236
	Withdrawn/Depressed	62.29	8.824	1.112	2.405	58.33	8.536	1.186	1.211
	Somatic Complaints	62.07	9.277	.310	-.879	56.55	9.229	1.293	.630
	Externalizing Problems								
	Rule-Breaking Behavior	66.71	7.866	.099	-.533	59.17	7.150	-.028	-1.348
	Aggressive Behavior	67.19	11.982	.236	-1.029	59.98	7.649	.916	1.707
	Other								
	Social Problems	67.17	9.517	.025	-1.125	60.19	6.844	.356	.054
	Thought Problems	64.55	10.182	.269	-.730	57.69	7.829	.399	-1.412
	Attention Problems	74.90	9.892	-.140	-.990	61.93	6.726	-.319	-.181
	DSM Scales								
	Affective Problems	62.57	9.099	.304	-.812	58.93	8.994	.635	-.837
	Anxiety Problems	62.81	8.104	-.136	-1.262	56.88	6.417	.590	-.719
	Somatic Problems	61.02	9.618	.353	-1.000	55.19	8.975	1.569	1.149
	ADHD Problems	67.52	7.236	-.361	-1.059	61.60	6.192	-.267	-.583
	Oppositional Defiant Problems	64.12	8.879	-.093	-1.107	59.31	8.304	.253	-1.085
	Conduct Problems	68.98	9.172	-.188	-.527	60.38	8.520	.510	.408
Male	**Broad Domains**								
	Internalizing Problems	63.67	9.159	-.175	.079	60.15	10.954	.000	-.621
	Externalizing Problems	68.93	11.264	-.920	.836	63.32	11.796	-.140	-.858
	Total Problems	70.12	9.005	-.801	1.599	64.85	10.350	.171	-.455
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	63.13	8.846	.302	-.179	61.35	10.748	.671	-.668
	Withdrawn/Depressed	64.00	9.848	.587	.018	58.75	7.032	.692	1.541
	Somatic Complaints	59.37	9.031	1.211	1.870	55.95	8.033	1.243	.986
	Externalizing Problems								

Table 10

Descriptive Statistics for Sample 6 – 18 Years by Gender

	Rule-Breaking Behavior	66.80	9.733	-.140	-.490	60.03	8.491	.426	-.739
	Aggressive Behavior	71.90	13.112	-.005	-.949	66.47	13.204	.525	-.746
	Other								
	Social Problems	66.90	11.111	.435	-.522	62.78	9.800	.644	-.325
	Thought Problems	68.20	9.632	-.414	-.720	62.83	8.634	.415	.285
	Attention Problems	73.63	12.329	.841	-.064	63.15	9.313	1.294	2.215
	DSM Scales								
	Affective Problems	64.17	8.741	.169	-.791	60.40	9.307	1.185	1.793
	Anxiety Problems	63.32	8.296	-.227	-1.193	60.03	8.515	.229	-1.309
	Somatic Problems	56.97	8.651	1.346	1.694	54.85	7.852	1.409	.960
	ADHD Problems	68.90	8.244	-.549	-.706	62.77	7.797	.635	-.294
	Oppositional Defiant Problems	66.68	10.077	-.341	-1.146	62.80	9.023	.036	-1.301
	Conduct Problems	69.67	10.977	-.090	-.439	63.03	11.841	.815	-.074

[a] N = 42 for each rater group of female children.

[b] N= 60 for each rater group of male children.

Table 14

Descriptive Statistics for Sample 6 – 18 Years by FASD Diagnosis

		Caregiver				Teacher			
Diagnosis	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
FAS 1[a]	**Broad Domains**								
	Internalizing Problems	61.30	6.881	-.784	-.356	54.30	12.553	.178	-.239
	Externalizing Problems	61.40	11.740	-.653	-.716	52.70	10.594	.511	-1.252
	Total Problems	66.90	6.454	-1.052	.620	57.10	9.049	-.294	-1.148
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	60.00	7.902	.451	-1.694	57.10	8.465	1.387	1.637
	Withdrawn/Depressed	59.60	8.099	.884	.311	58.30	10.350	2.154	5.614
	Somatic Complaints	58.00	7.902	.880	-.456	54.00	5.333	.703	-1.577
	Externalizing Problems								
	Rule-Breaking Behavior	57.40	6.275	.444	-1.394	55.20	5.266	.310	-1.727
	Aggressive Behavior	65.00	12.138	.425	-.582	55.50	8.410	1.148	-.582
	Other								
	Social Problems	64.90	9.386	.309	-1.163	56.50	7.948	.565	-1.886
	Thought Problems	66.50	8.721	-1.052	-.210	56.10	5.685	.025	-1.798
	Attention Problems	68.70	8.084	1.621	3.201	58.30	5.982	-.206	-1.200
	DSM Scales								
	Affective Problems	62.30	6.977	-.020	-.896	57.40	8.409	.809	-.705
	Anxiety Problems	61.90	7.031	-.278	-1.559	55.90	6.064	.510	-1.233
	Somatic Problems	55.10	6.967	1.378	1.121	53.40	5.582	1.191	-.437
	ADHD Problems	67.30	6.651	-.145	.249	58.00	6.272	.922	.280
	Oppositional Defiant Problems	58.80	8.561	.614	-1.335	55.30	8.301	1.452	1.016
	Conduct Problems	61.90	9.243	-.429	-1.797	55.90	6.590	.618	-1.326
FAS 3[b]	***Broad Domains***								
	Internalizing Problems	64.06	10.851	.024	-.292	59.57	11.295	-.186	-.609
	Externalizing Problems	67.87	10.925	-.880	.945	61.81	10.946	.046	-.479
	Total Problems	69.67	9.433	-.685	1.211	64.07	9.951	.325	.018
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	63.72	10.382	.468	-.127	60.72	10.349	.737	-.443
	Withdrawn/Depressed	63.91	9.995	.692	.184	58.70	7.444	.853	1.368
	Somatic Complaints	61.07	10.663	.795	-.099	56.56	8.899	1.095	.013
	Externalizing Problems								
	Rule-Breaking Behavior	66.76	8.087	-.164	.079	59.41	8.286	.526	-.396
	Aggressive Behavior	69.94	13.355	.123	-.984	64.09	12.154	.949	.093
	Other								
	Social Problems	68.06	11.216	.331	-.696	62.70	9.146	.687	.132
	Thought Problems	66.46	10.728	-.086	-1.131	61.57	9.113	.442	.111
	Attention Problems	75.44	11.583	.388	-.335	63.37	8.537	1.120	2.606
	DSM Scales								
	Affective Problems	64.04	9.306	.164	-.688	59.78	9.741	1.324	1.949
	Anxiety Problems	64.04	8.556	-.298	-1.170	60.67	8.115	.182	-1.194

Table 14

Descriptive Statistics for Sample 6 – 18 Years by FASD Diagnosis

		Caregiver				Teacher			
Diagnosis	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
	Somatic Problems	59.35	10.605	.854	-.410	55.37	8.653	1.265	.090
	ADHD Problems	69.13	8.108	-.673	-.432	62.83	7.171	.425	.141
	Oppositional Defiant Problems	65.57	9.714	-.156	-1.086	61.17	8.887	.218	-1.128
	Conduct Problems	69.00	9.817	.059	-.218	61.54	10.348	.981	.774
ARND (FAS 5)[c]	***Broad Domains***								
	Internalizing Problems	63.45	8.002	-.824	.305	57.84	9.647	.147	-.118
	Externalizing Problems	70.26	9.753	-.509	-.313	64.13	9.186	.037	-.244
	Total Problems	69.92	7.254	-.426	-.447	63.79	8.653	-.023	-.359
	Narrow Domains								
	Internalizing Problems								
	Anxious/Depressed	62.24	7.988	.052	-.705	57.76	8.149	1.449	2.007
	Withdrawn/Depressed	63.39	8.922	.885	1.873	58.47	7.362	.501	-.459
	Somatic Complaints	60.29	7.075	.300	-.024	56.26	8.698	1.467	1.786
	Externalizing Problems								
	Rule-Breaking Behavior	69.24	9.295	-.274	-.343	61.24	7.681	-.185	-1.282
	Aggressive Behavior	71.29	12.176	.063	-.997	65.55	10.968	.814	.249
	Other								
	Social Problems	66.08	9.590	.070	-.966	61.68	8.098	.901	.485
	Thought Problems	67.08	9.388	-.055	-.646	60.71	8.415	.184	-.994
	Attention Problems	73.76	11.539	.596	-.277	62.76	8.394	.964	2.363
	DSM Scales								
	Affective Problems	63.08	8.854	.252	-1.204	60.45	8.608	.305	-1.215
	Anxiety Problems	62.11	7.945	-.116	-1.327	56.74	7.273	.737	-.697
	Somatic Problems	58.55	7.471	.322	-.732	54.87	8.479	1.784	2.447
	ADHD Problems	67.47	7.794	-.239	-1.335	62.63	7.183	.448	-.186
	Oppositional Defiant Problems	67.50	9.191	-.512	-.852	63.24	8.420	-.120	-1.022
	Conduct Problems	71.89	10.248	-.360	-.289	64.11	11.394	.587	-.014

[a] N = 10 for each rater group of children diagnosed with FAS 1.

[b] N = 54 for each rater group of children diagnosed with FAS 3.

[c] N= 38 for each rater group of children diagnosed with ARND (FAS 5).

Table 15
Descriptive Statistics for Sample 1.5 – 5 Years by FASD Diagnosis

		Caregiver				Teacher			
Diagnosis	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
FAS 1[a]	***Broad Domains***								
	Internalizing Problems	68.00	.000	-	-	59.00	4.243	-	-
	Externalizing Problems	73.00	.000	-	-	60.50	13.435	-	-
	Total Problems	71.50	2.121	-	-	62.00	7.071	-	-
	Narrow Domains								
	Internalizing Problems								
	Emotionally Reactive	73.00	5.657	-	-	61.00	2.828	-	-
	Anxious/Depressed	59.00	9.899	-	-	54.00	4.243	-	-
	Somatic Complaints	51.50	2.121	-	-	60.00	14.142	-	-
	Withdrawn	72.50	17.678	-	-	58.50	.707	-	-
	Externalizing Problems								
	Attention Problems	71.50	2.121	-	-	71.50	26.163	-	-
	Aggressive Behavior	71.00	1.414	-	-	59.00	11.314	-	-
	DSM Scales								
	Affective Problems	65.00	7.071	-	-	52.00	2.828	-	-
	Anxiety Problems	57.00	8.485	-	-	52.00	2.828	-	-
	Pervasive Developmental Problems	73.50	4.950	-	-	64.50	3.536	-	-
	ADHD Problems	66.50	13.435	-	-	70.00	26.870	-	-
	Oppositional Defiant Problems	70.00	4.243	-	-	55.50	7.778	-	-
FAS 3[b]	***Broad Domains***								
	Internalizing Problems	64.96	10.093	-1.064	1.505	58.60	10.372	-.498	-.107
	Externalizing Problems	67.40	12.247	-.299	.436	63.60	9.482	.646	2.751

Table 15

Descriptive Statistics for Sample 1.5 – 5 Years by FASD Diagnosis

		Caregiver				Teacher			
Diagnosis	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
	Total Problems	68.60	11.715	-.797	.857	62.72	9.885	-.137	2.650
	Narrow Domains								
	Internalizing Problems								
	Emotionally Reactive	66.52	9.862	.009	-.547	60.32	10.323	1.102	.819
	Anxious/Depressed	61.52	9.448	.361	-.816	58.92	6.988	.060	-1.474
	Somatic Complaints	60.48	7.768	.112	-1.318	56.96	7.602	.431	-1.521
	Withdrawn	65.80	10.962	.207	-1.091	58.88	7.780	1.320	2.364
	Externalizing Problems								
	Attention Problems	66.56	8.742	-.161	-1.024	66.32	11.672	.911	.319
	Aggressive Behavior	68.08	11.431	.387	.100	62.96	9.796	1.800	5.252
	DSM Scales								
	Affective Problems	65.64	8.770	-.194	-.814	57.32	7.301	.761	-.465
	Anxiety Problems	63.84	11.589	.286	-1.208	58.72	7.068	.259	-1.002
	Pervasive Developmental Problems	68.44	11.533	-.284	-1.145	60.44	7.741	.433	-.981
	ADHD Problems	63.76	8.866	-.216	-1.234	66.56	11.705	1.058	1.515
	Oppositional Defiant Problems	64.88	9.688	.129	-.950	61.52	7.321	.640	.623
ARND (FAS 5)[c]	***Broad Domains***								
	Internalizing Problems	70.20	7.068	.749	.041	57.50	10.448	.520	-1.749
	Externalizing Problems	77.50	10.732	-.368	-.224	65.90	13.212	.462	-1.220
	Total Problems	74.70	8.920	.211	-.084	62.30	12.010	.486	-1.317
	Narrow Domains								
	Internalizing Problems								
	Emotionally	74.90	10.630	-.403	-.123	60.50	7.976	.218	-.972

Table 15

Descriptive Statistics for Sample 1.5 – 5 Years by FASD Diagnosis

		Caregiver				Teacher			
Diagnosis	*Domain*/Scale	Mean *T*-Scores	SD	Skewness	Kurtosis	Mean *T*-Scores	SD	Skewness	Kurtosis
	Reactive Anxious/Depressed	65.90	14.753	.783	-.870	57.50	7.292	.636	-1.475
	Somatic Complaints	62.90	7.622	-1.067	-.301	51.20	2.530	1.779	1.406
	Withdrawn	66.00	11.025	1.184	2.392	60.50	13.310	1.091	-.012
	Externalizing Problems								
	Attention Problems	71.30	7.818	-.637	-.626	64.50	10.427	.712	.142
	Aggressive Behavior	78.20	11.584	-.496	-.687	66.10	14.873	.563	-1.037
	DSM Scales								
	Affective Problems	66.50	9.348	-.343	-1.350	59.50	7.590	.067	-1.909
	Anxiety Problems	67.60	12.349	.400	-.850	55.10	7.156	1.406	.512
	Pervasive Developmental Problems	68.40	10.617	.620	-.047	59.30	9.499	.918	-.481
	ADHD Problems	68.00	7.379	.004	-1.697	65.90	10.979	.184	-1.380
	Oppositional Defiant Problems	71.10	9.049	-.744	-.718	63.40	10.543	-.226	-2.054

[a] The FAS 1 subsample includes one child diagnosed with FAS and one child diagnosed with FAS 2. As there were only two participants in this subsample, skewness and kurtosis were not computed.

[b] N= 25 for each rater group of children diagnosed with FAS 3.

[c] N = 10 for each rater group of children diagnosed with ARND (FAS 5).

References

Achenbach, *T*. (1991). *Manual for the child behavior checklist/4-18 and 1991 profile.* Burlington, VT: Department of Psychiatry, University of Vermont.

Achenbach, *T*. (2014). ASEBA School-Age Assessments. *ASEBA Achenbach System of Empirically Based Assessment*. Retrieved from http://www.aseba.org/schoolage.html

Achenbach, *T*. M. (1995). Diagnosis, assessment, and comorbidity in psychosocial treatment research. *Journal of Abnormal Child Psychology*, *23*(1), 45-65.

Achenbach, *T*. M., & Edelbrock, C. S. (1986). *Manual for the Teacher's report form and teacher version of the child behavior profile*. Burlington, VT: *T*.M. Achenbach.

Achenbach, *T*. M., Mcconaughy, S. H., & Howell, C. *T*. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, *101*(2), 213-232.

Achenbach, *T*. M., & Rescorla, L. (2001). *Manual for the ASEBA school-age forms & profiles: An integrated system of multi-informant assessment*. Burlington, VT: ASEBA.

ASEBA Sample Forms. (2014). *ASEBA*. Retrieved from http://www.aseba.org/forms.html

Astley, S.J. 2004. Diagnostic guide for fetal alcohol spectrum disorders: the 4-digit diagnostic code, third edition. Seattle: University of Washington Publication Services, p. 114.

Beasley, J. (Director) (2014, April 18). Fetal alcohol spectrum disorders – A parent education program. *FAS Inservice*. Lecture conducted from UNLV Center for Autism Spectrum Disorders, Las Vegas.

Bertrand, J. (2009). Interventions for children with fetal alcohol spectrum disorders (FASDs): overview of findings for five innovative research projects. *Research in Developmental Disabilities*, *30*(5), 986-1006.

Boslaugh, S. (2007). An Introduction to Secondary Data Analysis. In *Secondary data sources for public health: A practical guide*. Cambridge: Cambridge University Press.

Brown, R., Coles, C., Smith, I., Platzman, K., Silverstein, J., Erickson, S., et al. (1991). Effects of prenatal alcohol exposure at school age. II. Attention and behavior. *Neurotoxicology and Teratology*, *13*(4), 369-376.

Burd, L., Martsolf, J. *T.*, Klug, M. G., & Kerbeshian, J. (2003). Diagnosis of FAS: a comparison of the fetal alcohol syndrome diagnostic checklist and the institute of medicine criteria for fetal alcohol syndrome. *Neurotoxicology and Teratology*, *25*(6), 719-724.

Clarren S. (1998). *FAS: A diagnosis for two. Finding Common Ground: Working Together for the Future*. Vancouver; British Columbia.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.

Coles, C., Brown, R., Smith, I., Platzman, K., Erickson, S., & Falek, A. (1991). Effects of prenatal alcohol exposure at school age. I. Physical and cognitive development. *Neurotoxicology and Teratology*, *13*(4), 357-367.

Coles, C. D., Platzman, K. A., Raskind-Hood, C. L., Brown, R. *T.*, Falek, A., & Smith, I. E. (1997). A comparison of children affected by prenatal alcohol exposure and attention deficit, hyperactivity disorder. *Alcoholism: Clinical and Experimental Research*, *21*(1), 150-161.

Dixon, D. R., Kurtz, P. F., & Chin, M. D. (2008). A systematic review of challenging behaviors in children exposed prenatally to substances of abuse. *Research in Developmental Disabilities*, *29*(6), 483-502.

Dybdahl, C. S., & Ryan, S. (2009). Inclusion for students with fetal alcohol syndrome: classroom

teachers talk about practice. *Preventing School Failure*, *53*(3), 185-196.

Edwards, W. J., & Greenspan, S. (2010). Adaptive behavior and fetal alcohol spectrum disorders. *Journal of Psychiatry and Law*, *38*(Winter), 419-447.

Efstratopoulou, M., Simons, J., & Janssen, R. (2013). Concordance among physical educators', teachers', and parents' perceptions of attention problems in children. *Journal of Attention Disorders*, *17*(5), 437-443.

FASD: what school systems should know about affected students. (n.d.). *National Organization on Fetal Alcohol Syndrome*. Retrieved from http://www.nofas.org/wp-content/uploads/2012/05/students-school.pdf

Fetal alcohol exposure and the brain - alcohol alert No. 50. (n.d.). *National Institute on Alcohol Abuse and Alcoholism*. Retrieved from http://pubs.niaaa.nih.gov/publications/aa50.htm

Centers for Disease Control and Prevention. (2012). *Fetal Alcohol Spectrum Disorder*. Retrieved from http://www.cdc.gov/ncbddd/fasd/index.html

Flak, A. L., Su, S., Bertrand, J., Denny, C. H., Kesmodel, U. S., & Cogswell, M. E. (2014). The association of mild, moderate, and binge prenatal alcohol exposure and child neuropsychological outcomes: A meta-analysis. *Alcoholism: Clinical and Experimental Research*, *38*(1), 214-226.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2009). *Educational research: competencies for analysis and applications* (9th ed.). Upper Saddle River, N.J.: Merrill/Pearson.

Giovingo, L. K. (2008). *Child Behavior Checklist Behavioral Profiles of Children with Autism Spectrum Disorders*. (Unpublished doctoral dissertation). Florida State University, Florida.

Goldstein, S., & Reynolds, C. R. (1999). *Handbook of neurodevelopmental and genetic*

disorders in children. New York: Guilford Press.

Guideline for the diagnosis of fetal alcohol syndrome (FAS). (2003).*The Canadian Child and Adolescent Psychiatry Review*, *12*(3), 81-86.

Herjanic, B. & Reich, W. (1997). Development of a structured psychiatric interview for children: agreement between child and parent on individual symptoms. Journal of Abnormal Child Psychology, 25, 21–31.

Jirikowic, *T*., Kartin, D., & Olson, H. C. (2008). Children with fetal alcohol spectrum disorders: A descriptive profile of adaptive function. *Canadian Journal of Occupational Therapy*, *75*(4), 238-248.

Kapp, F. M. (2000). *Issues of communication and miscommunication among parents, physicians, and teachers about fetal alcohol syndrome/fetal alcohol effects* (Doctoral dissertation). Retrieved from UMI. (9978100).

Keogh, B. K., & Bernheimer, L. P. (1998). Concordance between mothers' and teachers' perceptions of behavior problems of children with developmental delays. *Journal of Emotional and Behavioral Disorders*, *6*(1), 33-41.

Klein-Tasman, B. P. (2015). Parent and teacher perspectives about problem behavior in children with Williams syndrome. *American Journal on Intellectual and Developmental Disabilities, 120*(1), 72-86.

Kodituwakku, P. W., Handmaker, N. S., Cutler, S. K., Weathersby, E. K., & Handmaker, S. D. (1995). Specific impairments in self-regulation in children exposed to alcohol prenatally. *Alcoholism: Clinical and Experimental Research*, *19*(6), 1558-1564.

Liu, J. (2004). Childhood externalizing behavior: Theory and implications. *Journal of Child and Adolescent Psychiatric Nursing*, *17*(3), 93-103.

Mattson, S. N., & Riley, E. P. (1998). A review of the neurobehavioral deficits in children with fetal alcohol syndrome or prenatal exposure to alcohol. *Alcoholism: Clinical and Experimental Research*, *22*(2), 279-294.

Mattson, S. N., & Riley, E. P. (2000). Parent ratings of behavior in children with heavy prenatal alcohol exposure and iq-matched controls. *Alcoholism: Clinical and Experimental Research*, *24*(2), 226-231.

Morris, C. (Director) (2014, April 18). Fetal alcohol syndrome. *FAS Inservice*. Lecture conducted from UNLV Center for Autism Spectrum Disorders, Las Vegas.

Nanson, J. L., & Hiscock, M. (1990). Attention Deficits in Children Exposed to Alcohol Prenatally. *Alcoholism: Clinical and Experimental Research*, *14*(5), 656-661.

National Institute on Alcohol Abuse and Alcoholism. (2015). Fetal alcohol exposure.

Niccols, A. (2007). Fetal alcohol syndrome and the developing socio-emotional brain. *Brain and Cognition*, *65*(1), 135-142.

Olson, H. C., Streissguth, A. P., Sampson, P. D., Barr, H. M., Bookstein, F. L., & Thiede, K. (1997). Association of prenatal alcohol exposure with behavioral and learning problems in early adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(9), 11871194.

Poitra, B. A., Marion, S., Dionne, M., Wilkie, E., Dauphinais, P., Wilkie-Pepion, M., et al. (2003). A school-based screening program for fetal alcohol syndrome. *Neurotoxicology and Teratology*, *25*(6), 725-729.

Roebuck, *T*. M., Mattson, S. N., & Riley, E. P. (1999). Behavioral and psychosocial profiles of alcohol-exposed children. *Alcoholism: Clinical and Experimental Research*, *23*(6), 1070-1076.

Salbach-Andrae, H., Lenz, K., & Lehmkuhl, U. (2009). Patterns of agreement among parent, teacher and youth ratings in a referred sample. *European Psychiatry*, *24*(5), 345-351.

Sattler, J. M. (1992). *Assessment of children* (3rd ed.). San Diego: J. M. Sattler.

Sattler, J. M., and Hoge, R. D. (2006). Assessment of Children: Behavioral, social, and clinical foundations (5th ed.). San Diego, CA: Jerome M. Sattler, Publisher, Inc.

Sampson, P. D., Streissguth, A. P., Bookstein, F. L., Little, R. E., Clarren, S. K., Dehaene, P., et al. (1997). Incidence of fetal alcohol syndrome and prevalence of alcohol-related neurodevelopmental disorder. *Teratology*, *56*(5), 317-326.

SPSS software. (n.d.). *IBM*. Retrieved from http://www-01.ibm.com/software/analytics/spss/

Stratton, K. R., Howe, C. J., & Battaglia, F. C. (1996). *Fetal alcohol syndrome: diagnosis, epidemiology, prevention, and treatment.*. Washington, D.C.: National Academy Press.

Steinhausen, H., Willms, J., & Spohr, H. (1993). Long-term psychopathological and cognitive outcome of children with fetal alcohol syndrome. *Journal of the American Academy of Child & Adolescent Psychiatry*, *32*(5), 990-994.

Streissguth A. (1986). The behavioral teratology of alcohol: Performance, behavioral, and intellectual deficits in prenatally exposed children. *Alcohol and Brain Development*. New York, Oxford, 3-44.

Streissguth, A. P. (1997). *Fetal alcohol syndrome: a guide for families and communities*. Baltimore: Paul H. Brookes Pub.

Streissguth, A. P., & Giunta, C. *T*. (1988). Mental health and health needs of infants and preschool children with fetal alcohol syndrome. *International Journal of Family Psychiatry*, 9, 29–47.

Sullivan, W. C. (1899). A note on the influence of maternal inebriety on the offspring. *The*

British Journal of Psychiatry, *45*(190), 489-503.

Tarren-Sweeney, M. J., Hazell, P. L., & Carr, V. J. (2004). Are foster parents reliable informants of children's behavior problems. *Child: Care, Health & Development*, *30*(2), 167-175.

Tassé, M. J., & Lecavalier, L. (2000). Comparing parent and teacher ratings of social competence and problem behaviors. *American Journal on Mental Retardation*, *105*(4), 252.

Tabachnick, B. G. & Fidell, L. S. (2013) *Using multivariate statistics* [6th ed.]. Boston, MA: Pearson.

Thomas, S. E., Kelly, S. J., Mattson, S. N., & Riley, E. P. (1998). Comparison of social abilities of children with fetal alcohol syndrome to those of children with similar iq scores and normal controls. *Alcoholism: Clinical and Experimental Research*, *22*(2), 528-533.

Verhulst, F. C., & Akkerhuis, G. W. (1989). Agreement between parents' and teachers' ratings of behavioral/emotional problems of children aged 4-12. *Journal of Child Psychology and Psychiatry*, *30*(1), 123-136.

Women's Health Data. (n.d.). Fetal Alcohol Spectrum Disorder (FASD). Retrieved from http://www.womenshealthdata.ca/category.aspx?catid=119.

Curriculum Vitae

ALLISON WERLINGER, M.S.

gorelic2@unlv.nevada.edu

EDUCATION

University of Nevada, Las Vegas, Las Vegas, NV
Doctoral Graduate Student **August 2013 - Current**
School Psychology Specialization
Department of Educational Psychology and Higher Education
Anticipated Graduation: May 2016
Current Cumulative GPA: 4.00

University of Nevada, Las Vegas, Las Vegas, NV
M.S. in Educational Psychology **August 2012**
Department of Educational Psychology and Higher Education
Cumulative GPA: 4.00

University of New Mexico, Albuquerque, NM
B.S.Ed. in Elementary Education **August 2009 - May 2011**
Mathematics and Science
Cumulative GPA: 3.75
Honors: Magna Cum Laude; Dean's List 2006-2011

AWARDS

Graduate Assistantship, University of Nevada, Las Vegas **August 2011 – May 2015**
Access Grant, University of Nevada, Las Vegas **August 2011 - December 2011**

WORK EXPERIENCE

Clark County School District
Las Vegas, Nevada
School Psychologist Intern
Coordinating and performing multidisciplinary psychoeducational assessments (initial evaluations and reevaluations) while under the supervision of a licensed psychologist
Collaboration with teachers, staff, families, and the community
Creating and implementing recommendations for academic and behavioral interventions
Performing general duties to fulfill the needs of the position

University of Nevada, Las Vegas
Department of Educational and Clinical Studies
Predoctoral Intern **June 2015 – August 2015**
Coordinating and performing multidisciplinary psychological assessments for the University of Nevada, Las Vegas Center for Autism Spectrum Disorders under the supervision of licensed psychologists
Coordination of the Fetal Alcohol Spectrum Clinic

Performing general duties to fulfill the needs of the center

University of Nevada, Las Vegas
Department of Educational and Clinical Studies
Graduate Assistant **August 2012 – May 2015**
Clinic Coordinator
Coordinating and performing multidisciplinary psychological assessments for the University of Nevada, Las Vegas Center for Autism Spectrum Disorders
Coordination of the Fetal Alcohol Spectrum Clinic
Performing general duties to fulfill the needs of the center

University of Nevada, Las Vegas – Educational Research, Cognition, & Development
Graduate Assistant **August 2011 - August 2012**
Performing general duties to fulfill the needs of the department

TEACHING EXPERIENCE
Dennis Chavez Elementary, Albuquerque, NM
Substitute Teacher **2011**
Implemented lesson plans, as well as administered, graded and recorded tests, while fostering a respectful, educational environment

RESEARCH EXPERIENCE
University of Nevada, Las Vegas
Graduate Assistant **August 2011 - May 2012**
Utilizing research strategies for conducting comprehensive reviews of specialized research literature

PAPERS AND PRESENTATIONS
Werlinger, A. (2015). *The concordance of caregiver-teacher perspectives on the behavior of children with fetal alcohol spectrum disorders* (unpublished doctoral dissertation). University of Nevada, Las Vegas.

Crozier, S. E., Love, J. J., Davis, R., **Werlinger, A.**, More, C., & Bourji-Nassar, A. (2014). *White paper on autism spectrum disorders in nevada*. Unpublished manuscript, University of Nevada, Las Vegas, Las Vegas, NV.

Crozier, S., Love, J., Loe, S., Gaspar de Alba, M., **Werlinger, A.**, Beasley, J., Arin, D., Davis, R.E., Harvey, V., Arcia, A., & Bourji-Nassar, A. (2014, October). *Addressing the health disparity in children with autism spectrum disorders*. Panel presentation at the 2014 UNLV and UNSOM Interprofessional Health Equity Symposium, Las Vegas, NV.

Davis, R.E., Crozier, S., Kotchevar, J., Paul, M., Jones, W.P., Beasley, J., **Werlinger, A.,** Harvey, V., & Arcia, A. (2014, October). *Disparities in mental health care: Addressing the shortage of providers in Southern Nevada*. Poster presented at the 2014 UNLV and UNSOM Interprofessional Health Equity Symposium, Las Vegas, NV.

American Academy of Pediatricians – Nevada Chapter Four Seasons Hotel
Las Vegas, Nevada
August 2, 2013
Brief presentation on the UNLV Center for Autism Spectrum Disorders for professional pediatricians and pediatric residents in Nevada

Early Childhood Conference
Cimarron Memorial High School, Las Vegas, NV February 19, 2013
Co-presented a brief introduction to Functional Communication Training for professional community members

ACADEMIC AFFILIATIONS
American Psychological Association (APA)
National Association of School Psychologists (NASP)
Student Affiliates of School Psychology (SASP)

LANGUAGES
English – Native Language

REFERENCES
Dr. Scott Loe
Associate Professor, University of Nevada, Las Vegas
Scott.loe@unlv.edu

Dr. Shannon Crozier
Director, UNLV Center for Autism Spectrum Disorders
croziers@unlv.nevada.edu

Dr. Tara Raines
Assistant Professor, Unviersity of Denver
Tara.Raines@du.edu