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Comparing Cognitive and Behavioral Profiles in School-Aged Children with Specific Learning Disorder and Attention Deficit/ Hyperactivity Disorder

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Comparing Cognitive and Behavioral Profiles in School-Aged Children with Specific Learning Disorder and Attention Deficit/Hyperactivity Disorder

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Presented to the Faculty of the

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George Fox University

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in Clinical Psychology.

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Approval Page

Comparing Cognitive and Behavioral Profiles in School-Aged Children with Specific Learning Disorder and Attention Deficit/Hyperactivity Disorder

by

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has been approved

at the

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as a Dissertation for the PsyD degree

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Abstract

Two of the most common childhood disorders are Specific Learning Disorder (SLD) and Attention Deficit/Hyperactivity Disorder (ADHD), frequently co-occurring, and both impacting academic performance. Given the overlap between these disorders on cognitive and behavioral/emotional factors, assessment research has explored how they are differentiated on standardized tests. The present study investigated cognitive functioning and behavioral/emotional functioning in school-aged children with SLD (n = 31), ADHD (n = 17), and ADHD + SLD (n = 18). The archival data for this study consisted of 66 students from a rural community. Results indicated that students with SLD demonstrated more difficulty with auditory processing than the other diagnostic groups. Behaviorally and emotionally, students with ADHD and ADHD + SLD were found to have increased behavior problems (aggression and hyperactivity). This research further contributes to the literature on determining the accuracy with which cognitive and emotional/behavioral test scores can discriminate these diagnostic groups.

Keywords: child cognitive assessment, child behavioral assessment, Specific Learning Disorder, Attention Deficit/Hyperactivity Disorder, Woodcock Johnson, Behavioral Assessment System for Children

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Chapter 1

Attention Deficit Hyperactivity Disorder (ADHD) and Specific Learning Disorder (SLD) are both categorized as neurodevelopmental disorders by the American Psychiatric Association (2013). Previous ADHD categorization in the fourth version of the diagnostic manual indicated primary concerns in traditional behavioral components. Research and clinical work have since highlighted cognitive and learning components as primary symptoms along with traditional behavioral components (American Psychiatric Association, 2013). With the broadening understanding of ADHD, researchers have begun exploring the similarities and differences between ADHD and SLD, including many areas of overlap (Becker & Koerner, 2021) and a high rate of co-occurrence (Crisci et al., 2021). The scope of this study is to compare behavioral and cognitive profiles in children with ADHD versus children with SLD and those with co-diagnoses of ADHD and SLD, which will be referred to as ADHD + SLD, to clarify patterns of co-occurring difficulties as well as areas of distinction. First, reviews of ADHD, SLD, and ADHD + SLD presentations are offered, followed by discussion of the cognitive, behavioral, and emotional areas of distinction and overlap.

Presentation of Attention Deficit/Hyperactivity Disorder

ADHD is a common neurodevelopmental disorder found within approximately 8%–11% of school aged children. ADHD is identified by persistent patterns of inattention and/or hyperactivity that negatively impact psychosocial functioning (American Psychiatric Association, 2013). Among others, inattentive behaviors are commonly identified as daydreaming, staring off into space, and lack of an ability to remain organized. Hyperactivity

refers to excessive movement (i.e., fidgeting), talking, or activeness that persists throughout inappropriate situations and locations. Impulsivity additionally often occurs in individuals with ADHD, resulting in hasty actions without fully processing potential outcomes or impacts (American Psychiatric Association, 2013).

Cognitive presentation of ADHD

Cognitive functioning in children with ADHD has been reported to be primarily impaired in the executive functions (EFs) of inhibition, planning, shifting, working memory, sustained attention, and processing speed (Child et al., 2019). Of these, working memory has shown the most empirical support for association with all forms of ADHD (inattentive, hyperactive, and combined type). Processing speed deficits have also been shown to be a primary predictor of ADHD inattentive symptomology (Child et al., 2019).

Behavioral/Emotional Presentation of ADHD

Individuals with ADHD externally display behaviors of inattention, hyperactivity/impulsivity, and at times, oppositional defiance (Dvorsky et al, 2016). Additional external behaviors such as excessive talking, interrupting, fidgeting, or moving out of turn have also been reported (American Psychiatric Association, 2013). Children with ADHD similarly display various internalizing emotional challenges. Common disorders that co-occur with ADHD include conduct disorder, disruptive mood dysregulation disorder, anxiety, and depressive disorders (American Psychiatric Association, 2013). Research has linked ADHD diagnoses with higher rates of anxious and depressed mood among children, often resulting in increased social impairment (Wilson et al., 2013).

Presentation of Specific Learning Disorder

According to the American Psychiatric Association (2013), a Specific Learning Disorder (SLD) is a neurodevelopmental disorder that affects 5% to 15% of school-aged students. SLD's have an onset within school aged children and can go unrecognized until adulthood. Learning disabilities refer to one's difficulties in learning in the areas of reading, writing and/or mathematics. These core deficits often project difficulties in daily tasks and requirements as well as learning history, mathematics, science, and social studies (American Psychiatric Association, 2013).

Cognitive presentation of SLD-Reading

Reading is the most prevalent form of SLD, representing 80% of learning disorders, also referred to as dyslexia (American Psychiatric Association, 2013). Deficits experienced by youth with reading disorders include difficulties in sounding out words in a phonological manner, rapid and automatic recognition of words, and/or comprehension. In most severe cases, those with an SLD in reading may experience multiple reading deficits characterized by impaired phonological and orthographic processing skills (Alfonso & Flanagan, 2018).

Cognitive Presentation of SLD- Written Expression

Writing is a critical, complex, communication skill necessary for academic success as well as social well-being. Early detection of writing difficulties is essential for academic and vocational success given between 10% and 30% of school aged children experience writing deficits (Chung et al., 2019). Unfortunately, writing abilities are often neglected, resulting in underdiagnosed and poorly treated writing disorders. Those with an SLD in writing may experience difficulties in having the knowledge of the meaning of words as well as the relationship between words. In addition, they may present difficulties in understanding meaning units of language such as prefixes, suffixes, and roots. There may also be complications in

forming letters as well as using grammar to form correct sentence structures (Alfonso & Flanagan, 2018).

Cognitive Presentation of SLD- Mathematics

It is estimated approximately 7% of school aged children will meet diagnostic criteria for an SLD in mathematics before graduating high school. Those with an SLD in mathematics tend to present more with developmental delays in making sense of numbers and procedures rather than deficits, meaning they tend to improve across grades. Nevertheless, students with an SLD in mathematics tend to be around 3 years behind academically to similarly aged peers. Students with an SLD in mathematics have persistent difficulties in remembering math facts (Alfonso & Flanagan, 2018).

Behavioral-emotional presentation of SLDs

Individuals with SLD present with both externalizing behavioral and internalizing emotional challenges. In terms of externalizing behaviors, children who experience academic underachievement or an SLD have been noted to display significant behaviors of inattention and hyperactivity typically rooted in frustration toward an inability to grasp concepts. As children age, they are more likely to begin displaying aggressive and delinquent behaviors (Horbach et al., 2019). However, self-reports have suggested externalizing behaviors are typically used to reduce or distract teachers and parents from internalizing behaviors of anxiety, low self-esteem, and low frustration tolerance (Horbach et al., 2019).

Presentation of Co-Occurring SLD and ADHD

Together, ADHD and SLDs are two of the most prevalent disorders impacting 7% to 9% of children internationally. According to Friedman et al. (2019), children who are diagnosed with ADHD are nearly 5 times more likely to receive a co-diagnosis of an SLD when compared to

peers their age. Research has indicated that children diagnosed with ADHD + SLD are often at a higher risk of developing greater neurocognitive, educational, and social impairments resulting in increased deficits in EFs, special education supports, and poorer social skills (Friedman et al., 2019). Additionally, individuals with co-occurring ADHD and SLD have been found to display various cognitive deficits in the areas of attention and response inhibition, processing speed, and working memory (Sexton et al., 2012).

Sahoo & Padhy's (2015) research suggested an SLD in reading is among the most common co-occurring SLD diagnoses with ADHD, with the rate of co-occurrence typically falling between 25% and 40%. The high co-occurrence between the two diagnoses has been primarily attributed to genetic and neuropsychological deficits (Sexton et al., 2012. Similar to difficulties mentioned above, children with ADHD and an SLD in reading tend to be at increased risk for academic failure, psychosocial consequences, and poor long-term outcomes (Sexton et al., 2012.

Researchers are continuing to determine why ADHD and SLDs tend to co-occur, with the most recent literature suggesting the multiple cognitive deficit model (Moura et al., 2017. The multiple cognitive deficit model hypothesizes that these disorders are rooted in various risk factors. Risk factors include a multitude of genetic and environmental aspects that can then lead to weaknesses across multiple neurocognitive domains. Due to these findings, researchers have overall been moving further away from a single primary neurocognitive deficit approach (Moura et al., 2017.

Cognitive Comparisons Between ADHD, SLD, and ADHD + SLD

Challenges of executive functioning (EF) in both ADHD and SLD have been well documented. For instance, while difficulties with EF, working memory and processing speed are

typically associated with ADHD, researchers have found that students with SLD also demonstrate difficulty with EF. Specifically, a recent study conducted in Italy found that children with SLD had lower scores on working memory (Giofrè et al., 2016). Similarly, Alloway et el., (2008) and Wiest et. al. (2022) found working memory impairment in students with SLD, suggesting that when working memory is impaired, bottleneck effects take place which further impact learning. Other researchers have identified associations between SLD and both visual and verbal processing speeds, finding that children with an SLD tend to perform lower when compared to typically developing peers (Child et al., 2019). Further, in a recent study conducted by Operto et al. (2021), researchers found children with an SLD displayed significant weaknesses in working memory and in processing speed skills.

A recent study comparing EF in adolescents diagnosed with ADHD or SLD found that those with an ADHD displayed overall lower functioning (Faedda et al., 2019). More specifically, individuals with ADHD showed more significant weaknesses in inhibition, cognitive flexibility, verbal memory, working memory, and full-scale IQ. Youth with an SLD diagnosis performed similar tasks, all scoring within the average range (Faedda et al., 2019). However, specific weaknesses in phonological awareness, verbal memory span, storytelling, and verbal comprehension were noted in SLD (Faedda et al., 2019).

As research progresses, individuals with ADHD + SLD have been found to display various EF deficits in the areas of attention and response inhibition, processing speed, and working memory, further supporting the multiple cognitive deficit model (Sexton et al., 2012; Crisci et al., 2021; Becker & Koerner, 2021). However, Crisci et al. (2021) explored the relationships of cognitive profiles among children with ADHD, SLD, and ADHD + SLD. Results indicated all three clinical groups displayed more overall cognitive impairment than the

typically developing control group. Notably, their research found the ADHD + SLD group to display similar cognitive profiles with no significant increase in EF impairment when compared to SLD and ADHD alone. Crisci et al. (2021) concluded EF impairments are not enough to differentiate between diagnoses, suggesting further research is needed to establish identifiable distinctions between the diagnostic categories.

Behavioral Comparisons Between ADHD, SLD and ADHD + SLD

In addition to its cognitive impacts, EF also plays a large role in emotion and behavior regulation. Given that children with SLD and ADHD both experience EF difficulties, it can be assumed that emotional-behavioral profiles may overlap. Researchers have found robust predictors and correlations between EF deficits and an individual's ability to self-regulate their behaviors. Research has found that EF skills can predict whether or not an individual is able to control emotional reactivity and employ emotion regulation strategies throughout the lifespan (Groves et al., 2021). While the relationship between EF and emotion regulation has been highly explored, results continue to show variability on which EFs impact emotion regulation most. For example, Wante et al. (2017) reports that better developed working memory is often correlated with more effective emotion regulation skills. Others have found inhibitory control to be a primary predictor of emotion regulation skills (Groves et al., 2021). Still other research has found primary EF predictors of emotional regulation to include working memory, set shifting, and impulsivity (Sulik et al., 2015).

Difficulty with behavioral inhibition and impulse control is another behavioral marker often present for both children with SLD and children with ADHD. Research has indicated that behavioral inhibition and impulsivity may be a key contributor to academic challenges among children with an SLD in reading and mathematics (De Weerdt et al., 2013). Similarly, a

consistent theme for students with ADHD is an ongoing presentation of inhibition challenges while engaging in academic tasks (Ahmad & Hinshaw, 2017). In addition to impulsivity and hyperactive symptoms, students with an SLD or ADHD diagnosis are commonly reported to display symptoms of inattention (i.e., spacing out, losing focus, easily distracted; Ahmad & Hinshaw, 2017).

As previously mentioned, research has shown that students with ADHD + SLD display increased risk of maladaptive behaviors such as aggression, violation of rules, hyperactivity, and attention problems within various settings (Al-Yagon et al., 2020; Operto et al., 2021). Symptoms of ADHD + SLD presenting in preschool years (i.e., attention problems, aggression, and learning deficits) may be indicative of higher elevated externalizing behavioral challenges such as aggression, delinquency, oppositional defiant disorder, or conduct disorder throughout adolescence (Sexton et al., 2012. However, other research has found that SLDs are often more commonly associated with ADHD symptoms of inattention, with less of a correlation between SLDs and hyperactive symptoms (Sexton et al., 2012; Operto et al., 2021).

Emotional Comparisons Between ADHD, SLD and ADHD + SLD

Internalizing comparisons between ADHD and SLD diagnoses have received less attention. Research so far has indicated that children with an SLD or ADHD are often reported to experience higher levels of anxiety and depression when compared to peers their age (Sexton et al., 2012). Children with SLD were reported to experience higher levels of anxiety than children with ADHD, thus marking it as a potential distinguishing factor. Both diagnostic groups have also reported lower levels of self-esteem and self-reliance (Sexton et al., 2012).

Internalizing emotional experiences for children with ADHD + SLD have been reported to be an additional contributing factor of academic dysfunction and socioemotional challenges

(Sexton et al., 2012). Students with ADHD + SLD are reported to experience higher levels of depression and anxiety when compared to typically developing peers their age. In addition, increased long-term challenges with social withdrawal have also been reported among the ADHD + SLD group (Al-Yagon et al., 2020).

In sum, ADHD and SLD are some of the most prevalent childhood disorders, and research on ADHD and SLD has uncovered a high rate of co-occurrence (Crisci et al., 2021). Additionally, there are many areas of cognitive, behavioral, and emotional overlap (Al-Yagon et al., 2020; Becker & Koerner, 2021; Crisci et al., 2021). Both ADHD and SLD lead to struggle with EF and difficulty with behavioral and emotional regulation, particularly in the academic setting. Further, children with ADHD + SLD have been found to struggle more than both ADHD and SLD groups on these factors. The large amount of overlap between the two disorders results in the need to explore characteristics that are specific to the disorders, including exploration of the adequacy of assessment methods in differentiating the disorders.

Current Study

Past research has explored how children with ADHD, children with SLD and children with ADHD + SLD differ from control groups on cognitive and emotional/behavioral scores. The scope of this study is to compare behavioral and cognitive profiles in children with ADHD, children with SLD and children with ADHD + SLD, to determine the accuracy with which cognitive and emotional/behavioral test scores can discriminate these diagnostic groups. Building on past research, the hypotheses are:

H1: Verbal Comprehension (WJ-COG Auditory Processing Index) is hypothesized to discriminate between ADHD, SLD, and ADHD + SLD diagnostic groups, with children with SLD showing more difficulty.

H2: Regarding executive functioning skills, it is hypothesized that cognitive inhibition (BASC Attention Problems) will discriminate between ADHD, SLD, and ADHD + SLD diagnostic groups, with individuals with ADHD showing more difficulty.

H3: Regarding behavioral regulation, hyperactivity, conduct problems, and aggression are hypothesized to discriminate between ADHD, SLD, and ADHD + SLD groups. Individuals with ADHD are hypothesized to show more difficulty with hyperactivity (BASC Hyperactivity) than children with SLD. In addition, children with ADHD + SLD are hypothesized to show more difficulty with conduct problems than the other two groups (BASC Conduct Problems, BASC Aggression).

H4: Regarding emotional regulation, anxiety, depression, and social withdrawal are hypothesized to discriminate between ADHD, SLD, and ADHD + SLD groups. Individuals with SLD are hypothesized to show higher anxiety than children with ADHD. Children with ADHD + SLD are hypothesized to experience higher levels of depression, anxiety, and social withdrawal.

Chapter 2

Methods

All data were gathered from an archived school database for this study. Data were obtained from rural schools located in the Northwest region of the United States under the supervision of Elizabeth Hamilton, PhD. The archival data set consists of 66 school-aged students who received comprehensive psycho-educational assessment between the years 2008–2021to inform eligibility for an IEP.

Participants

Participants included 66 students ranging from 7–18 years of age with males (n = 49) overrepresenting females (n = 17) mirroring the overall diagnostic trend of more boys being diagnosed with both ADHD and SLD (American Psychiatric Association, 2013). White participants accounted for 71.7% of the sample followed by Latino/Latina participants (21.3%), and biracial (1.6 %). The remaining 8.2% of the sample did not disclose their ethnicity. Informed consent was initially collected for the purposes of comprehensive psycho-educational assessment, informing eligibility for an IEP. Following IRB approval, participant files were screened and assigned based on the documented diagnosis.

Those that met diagnostic DSM-5 criteria for an SLD in reading, writing and or mathematics, Attention Deficit/Hyperactivity Disorder, or both, were used for this study. Of the 66 qualifying participants, 31 have a specific learning disability, 17 have ADHD, and 18 have both a specific learning disability and ADHD.

Those who had comorbid personality or mood disorder were excluded from this study. In addition, participants needed to partake in the Woodcock-Johnson Cognitive III (WJ-COG III) or the Woodcock-Johnson Cognitive IV (WJ-COG IV) alongside the Behavior Assessment System for Children 2nd Edition (BASC-2) or the Behavior Assessment System for Children 3rd Edition (BASC-3). Participants who did not participate in either version of the WJ-COG *and* the BASC did not qualify for this study.

Materials

Woodcock-Johnson Cognitive

Scores from the Woodcock-Johnson Tests of Cognitive Abilities (WJ-COG) will be used as a source of comparison (Schrank et al., 2014) The WJ-COG is a standardized, norm-referenced measure of cognitive strengths and weaknesses that contains eight domains. The eight

domains further consist of 14 subtests. The domains measure various cognitive abilities including Cognitive Processing Speed, Short-term Working Memory, Fluid Reasoning, Comprehension Knowledge, Auditory Processing, Long-term Retrieval, and Visualization (Schrank et al., 2014).

The 14 subtests assess individuals ability to rapidly perform simple and complex tasks (Cognitive Processing Speed), hold and manipulate transient information (Short-Term Working Memory), form concepts and flexibly solve novel problems on the spot (Fluid Reasoning), access crystalized intelligence of acquired knowledge (Comprehension Knowledge), encode, manipulate and discern auditory stimuli (Auditory Processing), store and retrieve learned information (Long-Term Retrieval), and think and reason with visual stimuli (Visualization; Schrank et al., 2014).

Scores on this measure were derived by comparing the performance of an individual to peers at a similar level. Performance was presented in standard scores with scores between 90 and 110 falling in the average range. Standard scores (SS) were calculated based on students of the same grade. The assessment reported median reliability and concurrent validity of .80 or higher for all tests. This suggests that the test is a consistent and accurate representation of one's general intellectual abilities. Depending on when data were collected, the WJ-COG III were examined. Concurrent validity showed correlations in the .70 range and reliability ranged from .80 – .90. Thus, this test contains 10 standard domains psychometrically related to the domains measured in the WJ-COG IV, with slightly different names. For clarity, WJ-COG IV domain names will be used (Schrank et al., 2014).

Behavior Assessment System for Children

The Behavior Assessment System for Children Third Edition (BASC-3) is a norm-referenced measure that utilizes multiple respondents to assess for clinically significant emotional and behavioral concerns as well as adaptive functioning. The BASC-3 includes a Teacher Rating Scale (TRS), a Parent Rating Scale (PRS), and a Self-Report of Personality (SRP) all of which will be utilized for this study (Altmann et al., 2018). The use of multiple respondents in the BASC-3 allows for the comparison of a child's behavior across domains and perspectives.

The BASC-3's rating scales are helpful in identifying observable behaviors within different social and activity settings. The TRS and PRS are used to assess behavioral and emotional domains, as well as maladaptive and adaptive behavior, within the different settings of school and home. The TRS indices include: Externalizing Problems, Internalizing Problems, School Problems, Behavioral Symptom Index, and Adaptive Skills with an interrater reliability ranging from .89–.98 and clinical and adaptive scale interrater reliability between .77–.96. PRS indices include: Externalizing Problems, Internalizing Problems, Behavioral Symptom Index, and Adaptive Skills with an interrater reliability between .89–.97 on composite scores and .76–.93 on clinical and adaptive scale. The TRS and PRS's can be utilized in children and young adults ranging in age from 2–21 years (Reynolds & Kamphaus, 2015).

The SRP aids a child in reporting their thoughts, feelings, attitudes, and internal reactions to people and events. The SRP can be utilized in children and young adults aging 6 through 25 years-old (Reynolds & Kamphaus, 2015). Similar to the TRS and PRS, the SRP examines various areas within emotional and behavioral functioning. The indices included in the SRP are: School Problems, Internalizing problems, Inattention/Hyperactivity, Personal Adjustment, Emotional Symptoms Index, and Functional Impairment Index with an interrater reliability

between .86–.95 on composite scores and .61–.91 on clinical and adaptive scale. (Reynolds & Kamphaus, 2015).

Depending on when data were collected, the BASC-2 (Reynolds & Kamphaus, 2004) were examined. Updates between the BASC-2 and BASC-3 were intended to create more depth for interpretation. Correlations between the two tests and scales are extremely high with correlations between composite scores ranging between .95–.99 and clinical adaptive scales ranging from .84–.99. Due to the correlation values, generalizing research using the BASC-2 in combination with the BASC-3 is permitted (Reynolds & Kamphaus, 2004).

Procedure

Participants were identified through recommendations by school staff and faculty for psycho-educational assessment, informing eligibility for an IEP. Upon identification, parents were contacted through the school to obtain consent to begin testing. The IEP team selected testing batteries based on the student's presentation and current needs. Batteries typically include cognitive, behavioral and achievement measures. After completion of assessment batteries, IEP teams gather to discuss the action plan for both qualifying and unqualifying IEP students.

Upon IRB approval, student's files who met diagnostic criteria for an SLD in reading, writing and or mathematics (e.g., based on cognitive, achievement and behavioral profiles, school district guidelines as well as approved by supervisor) were reviewed. All scores from the WJ-COG III and IV as well as BASC-2 and 3 were recorded and analyzed.

Chapter 3

Results

Descriptives and Normality

The Statistical Package for the Social Sciences (SPSS, version 27.0) was used for all analyses. Differences found in all analyses were considered significant and reported, if reaching at least the .05 level of confidence. Skewness and kurtosis of each of the variables were explored using the Kolmogorov-Smirnov Test of Normality, and results are displayed in Table 1.

Table 1

Descriptives

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
Comprehension	SLD	84.48	11.021	0.004	-
(Levene's=.851, *p*=.432)	ADHD	95.71	11.251	0.2	-
	Combo	86.35	8.782	0.2	-
Fluid Reasoning	SLD	88.24	10.749	0.2	-
(Levene's=.78, *p*=.463)	ADHD	96.06	11.824	0.2	-
	Combo	91.41	8.79	0.2	-
Short-term Working Memory	SLD	85.93	10.951	0.098	-
(Levene's=.705, *p*=.498)	ADHD	87.82	11.365	0.163	-
	Combo	86.47	12.899	0.101	-
Cognitive Processing Speed	SLD	86.9	13.756	0.19	-
(Levene's=.414, *p*=.663)	ADHD	91.06	12.954	0.2	-
	Combo	84.41	15.448	0.2	-
Auditory Processing	SLD	81.41	12.138	0.034	-
(Levene's=.937, *p*=.398)	ADHD	97.82	14.492	0.071	-
	Combo	87.41	14.151	0.2	-
Long-term Retrieval	SLD	84.48	12.026	0.145	-
(Levene's=.862, *p*=.427)	ADHD	92.76	13.962	0.139	-
	Combo	81.47	15.867	0.2	-
Visual Processing	SLD	97.07	12.065	0.2	-
(Levene's=.45, *p*=.64)	ADHD	104.65	9.689	0.082	-
	Combo	99.59	9.689	0.051	-
SR Attitude to School	Total	51.29	11.834	0.2	0.017
	SLD	46	8.332	-	-
	ADHD	56.64	13.336	-	-
	Combo	56.92	12.419	-	-

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
SR Attitude to Teachers	Total	52.2	11.514	0.2	0.018
	SLD	46.72	7.602	-	-
	ADHD	60.27	11.367	-	-
	Combo	55.92	13.029	-	-
SR Atypicality	Total	49.12	9.623	0.001	0.139
	SLD	46.6	9.35	-	-
	ADHD	52.91	10.802	-	-
	Combo	50.77	8.308	-	-
SR Locus of Control	Total	62.33	88.487	0.159	0.386
	SLD	71.56	123.95	-	-
	ADHD	52.82	12.983	-	-
	Combo	52.62	9.456	-	-
SR Social Stress	Total	49.98	12.409	0.001	0.658
	SLD	46.24	10.216	-	-
	ADHD	52.36	14.144	-	-
	Combo	55.15	13.309	-	-
SR Anxiety	Total	49.33	9.905	0.152	0.334
	SLD	47.84	9.227	-	-
	ADHD	50.27	10.071	-	-
	Combo	51.38	11.296	-	-
SR Depression	Total	49.41	9.895	0.079	0.125
	SLD	47.16	8.811	-	-
	ADHD	50.45	9.689	-	-
	Combo	52.85	11.568	-	-
SR Sense of Inadequacy	Total	52.86	10.484	0.2	0.852
	SLD	49.28	9.454	-	-
	ADHD	57.55	10.27	-	-
	Combo	55.77	10.818	-	-
SR Attention Problems	Total	54.16	12.486	0.2	0.869
	SLD	47.36	8.276	-	-
	ADHD	62.18	13.797	-	-
	Combo	60.46	11.384	-	-
SR Hyperactivity	Total	50.57	10.632	0.2	0.146
	SLD	45.32	6.53	-	-
	ADHD	55.64	10.93	-	-
	Combo	56.38	12.238	-	-

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
SR Relations with Parents	Total	50.82	11.049	0.002	0.023
	SLD	54.44	9.372	-	-
	ADHD	42.55	12.291	-	-
	Combo	50.85	9.831	-	-
SR Interpersonal Relations	Total	49.94	12.574	0	0.638
	SLD	52.88	10.289	-	-
	ADHD	45.64	15.286	-	-
	Combo	47.92	13.659	-	-
SR Self-Esteem	Total	50.96	10.784	0	0.288
	SLD	51.72	10.143	-	-
	ADHD	52.82	8.577	-	-
	Combo	47.92	13.555	-	-
SR Self-Reliance	Total	47.14	9.813	0.2	0.531
	SLD	50.56	8.554	-	-
	ADHD	42.91	9.137	-	-
	Combo	44.15	10.9	-	-
TR Hyperactivity	Total	55.36	13.478	0.2	0.337
	SLD	49.15	10.181	-	-
	ADHD	61.24	16.006	-	-
	Combo	58.78	11.909	-	-
TR Aggression	Total	53.43	12.241	0.045	0.018
	SLD	47.65	8.428	-	-
	ADHD	61.88	14.895	-	-
	Combo	53.78	9.644	-	-
TR Conduct Problems	Total	54.38	13.482	0.007	0.103
	SLD	47.88	9.357	-	-
	ADHD	62.47	16.106	-	-
	Combo	56.11	11.641	-	-
TR Anxiety	Total	53.39	11.817	0.054	0.062
	SLD	50.27	9.946	-	-
	ADHD	56.88	12.088	-	-
	Combo	54.61	13.461	-	-
TR Depression	Total	55.79	11.929	0.091	0.05
	SLD	50.5	8.165	-	-
	ADHD	63.47	13.528	-	-

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
	Combo	56.17	11.403	-	-
TR Somatization	Total	49.15	9.453	0	0.08
	SLD	48.04	6.966	-	-
	ADHD	50.29	9.326	-	-
	Combo	49.67	12.598	-	-
TR Attention Problems	Total	60.48	10.63	0.01	0.199
	SLD	55.08	10.111	-	-
	ADHD	65	11.011	-	-
	Combo	64	7.491	-	-
TR Learning Problems	Total	65.21	11.721	0.2	0.202
	SLD	62.77	11.567	-	-
	ADHD	64.88	14.008	-	-
	Combo	69.06	8.861	-	-
TR Atypicality	Total	56.7	13.179	0.036	0.213
	SLD	53.27	11.102	-	-
	ADHD	57.88	13.486	-	-
	Combo	60.56	15.015	-	-
TR Withdrawal	Total	58.13	14.716	0.2	0.201
	SLD	55.12	15.713	-	-
	ADHD	57.59	9.944	-	-
	Combo	63	16.396	-	-
TR Adaptability	Total	42.82	10.181	0.2	0.31
	SLD	48.19	7.531	-	-
	ADHD	38.41	10.278	-	-
	Combo	39.22	10.282	-	-
TR Social Skills	Total	43.56	10.444	0.062	0.072
	SLD	45.31	11.599	-	-
	ADHD	43.47	8.194	-	-
	Combo	41.11	10.627	-	-
TR Leadership	Total	40.77	9.016	0.177	0.015
	SLD	43.27	10.997	-	-
	ADHD	40.12	7.721	-	-
	Combo	37.78	5.786	-	-
TR Study Skills	Total	38.74	9.522	0.003	0.155
	SLD	42.73	9.812	-	-
	ADHD	37.59	9.651	-	-

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
TR Functional Communication	Combo	34.06	6.467	-	-
	Total	39.97	9.801	0.2	0.314
	SLD	41.65	10.04	-	-
	ADHD	41.59	11.136	-	-
PR Hyperactivity	Combo	36	7.104	-	-
	Total	57.6	13.635	0.137	0.001
	SLD	49	6.481	-	-
	ADHD	60.31	13.288	-	-
PR Aggression	Combo	64.29	15.404	-	-
	Total	50.52	9.394	0.052	0.024
	SLD	47.33	6.366	-	-
	ADHD	50.54	7.601	-	-
PR Conduct Problems	Combo	53.93	12.536	-	-
	Total	52.55	10.906	0.2	0.122
	SLD	47.67	5.246	-	-
	ADHD	53.23	13.498	-	-
PR Anxiety	Combo	57.14	11.251	-	-
	Total	56.71	10.568	0.2	0.348
	SLD	52.53	8.442	-	-
	ADHD	59.31	13.913	-	-
PR Depression	Combo	58.79	8.078	-	-
	Total	54.71	11.82	0.2	0.555
	SLD	50.33	10.978	-	-
	ADHD	58.62	12.797	-	-
PR Somatization	Combo	55.79	11.005	-	-
	Total	53.98	12.132	0.184	0.038
	SLD	51.27	11.373	-	-
	ADHD	58.92	15.207	-	-
PR Attention Problems	Combo	52.29	8.686	-	-
	Total	57.6	11.527	0.2	0.112
	SLD	53.87	9.41	-	-
	ADHD	58.69	10.443	-	-
PR Atypicality	Combo	60.57	14.009	-	-
	Total	52.02	12.769	0	0.002
	SLD	46	4.243	-	-
	ADHD	54.23	12.484	-	-

Variable	Diagnostic group	*M*	*SD*	Normality (Kolmogorov-Smirnov *p*-value)	Homogeneity of variance (Levene's *p*-value)
PR Withdrawal	Combo	56.43	16.833	-	-
	Total	53.62	10.571	0.2	0.756
	SLD	49.67	10.56	-	-
	ADHD	54.15	10.262	-	-
PR Adaptability	Combo	57.36	10.089	-	-
	Total	48.88	8.454	0.2	0.82
	SLD	52.33	5.9	-	-
	ADHD	50.77	8.7	-	-
PR Social Skills	Combo	43.43	8.29	-	-
	Total	50.76	10.094	0.173	0.036
	SLD	55.4	6.727	-	-
	ADHD	50.46	9.735	-	-
PR Leadership	Combo	46.07	11.685	-	-
	Total	44.55	9.754	0.2	0.435
	SLD	49.53	6.479	-	-
	ADHD	42.92	12.718	-	-
PR Activities of Daily Living	Combo	40.71	7.64	-	-
	Total	43.38	9.438	0.2	0.145
	SLD	49.27	6.519	-	-
	ADHD	42.54	6.553	-	-
PR Functional Communication	Combo	37.86	11.044	-	-
	Total	43.86	8.825	0.2	0.64
	SLD	47.53	6.368	-	-
	ADHD	43.92	9.802	-	-
	Combo	39.86	8.969	-	-

Note. SR = self-reported, TR = teacher-reported, PR = parent-reported

Hypothesis 1

A stepwise discriminant analysis was conducted to determine the ability of various cognitive abilities (as measured by the WJ-COG- Comprehension-Knowledge, Fluid Reasoning, Short-term Working Memory, Cognitive Processing Speed, Auditory Processing, Long-term Retrieval, and Visual Processing) to predict diagnostic grouping between children with ADHD,

SLD, and ADHD + SLD. The analysis generated one function, $\Lambda = .787$, $\chi^2(2, N = 63) = 14.34$, $p < .001$, with 21.3% of the function variability explained by cognitive abilities. One variable, Auditory Processing, was entered into the function. The variables of Comprehension-Knowledge, Fluid Reasoning, Short-term Working Memory, Cognitive Processing Speed, Long-term Retrieval, and Visual Processing were excluded. The function was labelled Diagnostic Group. Classification results revealed that the original grouped cases were classified with only 51.6% overall accuracy. Accuracy by each group was 52.9% for ADHD, 70.0% for SLD, and 17.6% for ADHD + SLD. The cross-validated results supported original accuracy levels with 51.6% correctly classified overall. Group means for the function indicated that those with ADHD had a function mean of .776, those with SLD had a function mean of -.453, and those with ADHD + SLD had a function mean of -.004. These results suggest that individuals with SLD have more difficulty than the other two groups, followed by the ADHD + SLD group, and the ADHD group performed the best on Auditory Processing.

Hypotheses 2-4

A stepwise discriminant analysis was conducted to determine the ability of emotional and behavioral functioning scores (as measured by parent-, teacher-, and self-reported BASC subtests) to predict diagnostic grouping between children with ADHD, SLD, and ADHD + SLD. The analysis generated two functions. Function 1 was significant, $\Lambda = .448$, $\chi^2(2, N = 63) = 48.928$, $p < .001$, with only 49.84% of the function variability explained by emotional and behavioral functioning scores. Function 2 was also significant, $\Lambda = .893$, $\chi^2(2, N = 63) = 6.88$, $p < .05$, with only 10.69% of the function variability explained by emotional and behavioral functioning scores. Three variables were entered into the function: Self-Report Attention Problems, Teacher-Report Aggression, and Parent-Report Hyperactivity, respectively. All other

parent-, teacher-, and self-reported BASC subtest variables were excluded. Table 2 presents the correlation coefficients and standardized function coefficients.

Table 2

Correlation Coefficient and Standardized Function Coefficient for Diagnostic Grouping

	Correlation coefficient with discriminant function	Standardized function coefficient
Function 1		
Self-Report Attention Problems	.731	.646
Teacher-Report Aggression	.521	.414
Parent-Report Hyperactivity	.636	.482
Function 2		
Self-Report Attention Problems	-.095	.859
Teacher-Report Aggression	.762	-.05
Parent-Report Hyperactivity	-.527	-.646

The function was labelled Diagnostic Grouping. Classification results revealed that the original grouped cases were classified with 66.2% overall accuracy. Accuracy by each group was 47.1% for ADHD, 83.3% for SLD, and 55.6% for ADHD + SLD. The cross-validated results supported original accuracy levels with 61.5% correctly classified overall. Group means for the function indicated that those with ADHD had a function mean of .963, those with SLD had a function mean of -1.050, and those with ADHD + SLD had a function mean of .84. These results suggest that individuals with ADHD and ADHD + SLD demonstrated more self-report attention problems, teacher-report aggression, and parent-report hyperactivity than those with SLD.

Further Analysis

Multivariate Analysis of Variance (MANOVA) was also used, exploring more specifically where cognitive score differences lied between diagnostic groups (ADHD, SLD, ADHD + SLD). Cognitive scores included in the analysis were the following index scores: Comprehension, Fluid Reasoning, Short-term Working Memory, Cognitive Processing Speed, Auditory Processing, Long-term Retrieval, and Visual Processing. Results indicated that there were significant differences between diagnostic groups and cognitive index scores, V = .39, $F(2, 62) = 1.913$, $p = .032$, $\eta^2 = .92$, power = .98.

Univariate Analysis of Variance (ANOVA) and Least Significant Difference (LSD) post-hoc tests were conducted as follow-up tests. ANOVA results indicate that there are significant differences between diagnostic groups on comprehension, $F(2,62) = 6.37$, $p = .003$, $\eta^2 = .175$, power > .99, and post-hoc tests indicated that ADHD had significantly higher scores than both the SLD and ADHD + SLD, but there was no significant difference between SLD and ADHD + SLD.

Further analysis indicated that there are significant differences between diagnostic groups on auditory processing, $F(2, 60) = 8.1$, $p = .001$, $\eta^2 = .213$, power > .99, and post-hoc tests indicated that similarly, students with ADHD had significantly higher scores than both the SLD and ADHD + SLD group, but there was no significant difference between SLD and ADHD + SLD.

Lastly, results indicated that there are significant differences between diagnostic groups on Long-term Retrieval, $F(2, 60) = 3.196$, $p = .048$, $\eta^2 = .096$, power > .99, and post-hoc tests indicated that ADHD + SLD students had significantly lower scores than both the SLD and ADHD groups, but there was no significant difference between SLD and ADHD. Table 3 presents the MAOVA results.

Table 3

Cognitive MANOVA Results

	SS	*df*	*MS*	*F*	Sig.	η2	Power
Mean Diffs							
Comprehension	1414.331	2	707.165	6.37	0.003	0.175	>.99
Auditory processing	2886.028	2	1443.014	8.1	0.001	0.213	>.99
Long-term retrieval	1192.893	2	596.447	3.196	0.048	0.096	>.99
Error							
Comprehension	6660.653	60	111.011	-	-	-	-
Auditory processing	10689.623	60	178.16	-	-	-	-
Long-term retrieval	11196.535	60	186.609	-	-	-	-

Note. Computed using alpha = .05; MANOVA = Multivariate Analysis of Variance

Parent-Report MANOVA

MANOVA was also used to explore more specifically where parent-report emotional and behavioral subtest score differences lied between diagnostic groups (ADHD, SLD, ADHD + SLD). Parent-report emotional and behavioral subtest scores included in the analysis were the following subtests: Hyperactivity, Aggression, Conduct Problems, Anxiety, Depression, Somatization, Attention Problems, Atypicality, Withdrawal, Adaptability, Social Skills, Leadership, Activities of Daily Living, and Functional Communication. Results indicated that there were no significant differences between diagnostic groups on parent-report emotional and behavioral subtest scores, V = .76, $F(2, 28) = 1.176$, $p = .299$, $\eta^2 = .38$, power = .96.

Teacher-Report MANOVA

Next, MANOVA was used to explore more specifically where teacher-report emotional and behavioral subtest score differences lied between diagnostic groups (ADHD, SLD, ADHD + SLD). Teacher-report emotional and behavioral subtest scores included in the analysis were the

following subtests: Hyperactivity, Aggression, Conduct Problems, Anxiety, Depression, Somatization, Attention Problems, Learning Problems, Atypicality, Withdrawal, Adaptability, Social Skills, Leadership, Study Skills, and Functional Communication. Results indicated that there were significant differences between diagnostic groups on teacher-report emotional and behavioral subtest scores, V = .74, $F(2, 60) = 1.752$, $p = .023$, $\eta^2 = .37$, power = .99.

Univariate Analysis of Variance (ANOVA) and LSD post-hoc tests were conducted as follow-up tests. ANOVA results indicate that there are significant differences between diagnostic groups on hyperactivity, $F(2, 60) = 5.731$, $p = .005$, $\eta^2 = .165$, power > .99, and post-hoc tests indicated that ADHD and ADHD + SLD groups had significantly more hyperactivity than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results indicated that there are significant differences between diagnostic groups on aggression, $F(2, 60) = 8.751$, $p = .000$, $\eta^2 = .232$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more aggression than students with an SLD and ADHD + SLD students, but there were no significant differences between SLD and ADHD + SLD groups.

Further analysis indicated that there are significant differences between diagnostic groups on conduct problems, $F(2, 60) = 7.596$, $p = .001$, $\eta^2 = .208$, power > .99, and post-hoc tests indicated that students with ADHD and ADHD + SLD had significantly more conduct problems than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results also showed there are significant differences between diagnostic groups on depression, $F(2,60) = 7.385$, $p = .001$, $\eta^2 = .203$, power > .99, and post-hoc tests indicated that

students with ADHD had significantly more depression than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD.

Results further indicated that there are significant differences between diagnostic groups on attention problems, $F(2, 60) = 7.075$, $p = .002$, $\eta^2 = .196$, power > .99, and post-hoc tests indicated that students with ADHD and ADHD + SLD had significantly more attention problems than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results also demonstrated that there are significant differences between diagnostic groups on adaptability, $F(2, 60) = 7.767$, $p = .001$, $\eta^2 = .211$, power > .99, and post-hoc tests indicated that students with ADHD and ADHD + SLD had significantly more adaptability problems than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Lastly, results indicated that there are significant differences between diagnostic groups on study skills, $F(2, 60) = 5.234$, $p = .008$, $\eta^2 = .153$, power > .99, and post-hoc tests indicated that ADHD + SLD students had significantly more study skill challenges than students with an SLD, but there was no significant difference between SLD and ADHD, and ADHD and ADHD + SLD groups. Table 4 presents the MANOVA results.

Table 4

Teacher-Report MANOVA Results

	SS	*df*	*MS*	*F*	Sig.	η2	Power
Mean Diffs							
TR Hyperactivity	1798.511	2	899.256	5.731	0.005	0.165	>.99
TR Aggression	2084.158	2	1042.079	8.751	0	0.232	>.99
TR Conduct Problems	2263.661	2	1131.83	7.596	0.001	0.208	>.99

	TR Depression	1732.994	2	866.497	7.385	0.001	0.203	>.99
	TR Attention Problems	1329.367	2	664.683	7.074	0.002	0.196	>.99
	TR Adaptability	1313.749	2	656.875	7.767	0.001	0.211	>.99
	TR Study Skills	831.626	2	415.813	5.234	0.008	0.153	>.99
Error								
	TR Hyperactivity	9101.555	58	156.923	-	-	-	-
	TR Aggression	6906.76	58	119.082	-	-	-	-
	TR Conduct Problems	8642.667	58	149.011	-	-	-	-
	TR Depression	6805.235	58	117.332	-	-	-	-
	TR Attention Problems	5449.846	58	93.963	-	-	-	-
	TR Adaptability	4905.267	58	84.574	-	-	-	-
	TR Study Skills	4608.177	58	79.451	-	-	-	-

Note. Computed using alpha = .05, TR = teacher-reported

Self-Report MANOVA

Finally, MANOVA was used to more specifically explore where self-report emotional and behavioral subtest score differences lied between diagnostic groups (ADHD, SLD, ADHD + SLD). Self-report emotional and behavioral subtest scores included in the analysis were the following subtests: Attitude to School, Attitude to Teachers, Atypicality, Locus of Control, Social Stress, Anxiety, Depression, Sense of Inadequacy, Attention Problems, Hyperactivity, Relations with Parents, Interpersonal Relations, Self-Esteem, and Self-Reliance. Results indicated that there were significant differences between diagnostic groups on self-report emotional and behavioral subtest scores, V = .98, $F(2, 48) = 2.333$, $p = .002$, $\eta^2 = .490$, power = .99.

Univariate ANOVA and LSD post-hoc tests were conducted as follow-up tests. ANOVA results indicate that there are significant differences between diagnostic groups on attitude to

school, $F(2, 48) = 6.196$, $p = .004$, $\eta^2 = .212$, power >.99, and post-hoc tests indicated that ADHD and ADHD + SLD groups had significantly more challenges in regard to attitude to school than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results indicated that there are significant differences between diagnostic groups on attitude to teachers, $F(2, 48) = 8.036$, $p = .001$, $\eta^2 = .259$, power > .99, and post-hoc tests indicated that ADHD and ADHD + SLD groups had significantly more challenges in regard to attitude to teachers than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Further analysis indicated that there are significant differences between diagnostic groups on sense of inadequacy, $F(2, 48) = 3.357$ $p = .044$, $\eta^2 = .127$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more sense of inadequacy than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD.

Results also showed there are significant differences between diagnostic groups on attention problems, $F(2,48) = 10.728$, $p = .000$, $\eta^2 = .318$, power > .99, and post-hoc tests indicated that ADHD and ADHD + SLD groups had significantly more attention problems than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results further indicated that there are significant differences between diagnostic groups on hyperactivity, $F(2, 48) = 8.082$, $p = .001$, $\eta^2 = .260$, power > .99, and post-hoc tests indicated that students with ADHD and ADHD + SLD had significantly more hyperactivity problems than

students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups.

Results also demonstrated that there are significant differences between diagnostic groups on relationship with parents, $F(2, 48) = 5.202$, $p = .009$, $\eta^2 = .184$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more challenges in regard to relationship with parents than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD.

Lastly, results indicated that there are significant differences between diagnostic groups on self-reliance, $F(2, 48) = 3.466$, $p = .040$, $\eta^2 = .131$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more challenges in regard to self-reliance than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD. Table 5 presents the MANOVA results.

Table 5

Self-Report MANOVA Results

		SS	*df*	*MS*	*F*	Sig.	η2	Power
Mean Diffs								
	SR Attitude to School	1426.531	2	713.266	6.196	0.004	0.212	>.99
	SR Attitude to Teachers	1647.814	2	823.907	8.036	0.001	0.259	>.99
	SR Sense of Inadequacy	671.925	2	335.963	3.357	0.044	0.127	>.99
	SR Attention Problems	2380.067	2	1190.033	10.728	0	0.318	>.99
	SR Hyperactivity	1410.938	2	705.469	8.082	0.001	0.26	>.99
	SR Relations with Parents	1080.767	2	540.384	5.202	0.009	0.184	>.99
Error								
	SR Self-Reliance	605.239	2	302.619	3.466	0.04	0.131	>.99
	SR Attitude to School	5295.469	46	115.119	-	-	-	-

	SS	*df*	*MS*	*F*	Sig.	η2	Power
SR Attitude to Teachers	4716.145	46	102.525	-	-	-	-
SR Sense of Inadequacy	4604.075	46	100.089	-	-	-	-
SR Attention Problems	5102.627	46	110.927	-	-	-	-
SR Hyperactivity	4015.062	46	87.284	-	-	-	-
SR Relations with Parents	4778.58	46	103.882	-	-	-	-
SR Self-Reliance	4016.761	46	87.321	-	-	-	-

Note. Computed using alpha = .05, SR = Self-reported

Chapter 4

Discussion

Children with ADHD, SLD, and ADHD + SLD have been found to be at increased risk for several areas of overlapping emotional and behavioral dysregulation and cognitive challenges (Al-Yagon et al., 2020). Early identification and appropriate intervention can serve as a protective factor for long-term outcomes for these students (Sexton et al., 2012). However, given overlapping emotional, behavioral, and cognitive characteristics across the diagnostic groups, it is important to understand how these groups are distinguished on behavioral/emotional and cognitive measures. Past research highlights that verbal comprehension has been found to discriminate between ADHD and SLD, with children with SLD showing more difficulty (Faedda et al., 2019). Regarding executive functioning, previous research has suggested those with an ADHD diagnosis displayed overall lower EF functioning when compared to individuals with an SLD (Faedda et al., 2019). Crisci et al. (2021) concluded ADHD + SLD profiles showed no significant increase in EF impairment when compared to SLD and ADHD alone. In terms of behavioral factors, previous research has identified behaviors of hyperactivity/impulsivity, and oppositional defiance as key difficulties for students with ADHD (Groves et al., 2021; De

Weerdt et al., 2013; Al-Yagon et al., 2020; Operto et al., 2021). Further, students with ADHD have historically presented with higher ratings of externalizing challenges as opposed to internalizing challenges due to the level of disruptive behaviors taking place within the home and school environments (Wilson et al., 2013). In regard to emotional factors, researchers are suggesting EF skills can predict whether or not an individual is able to control emotional reactivity and employ emotion regulation strategies (Groves et al., 2021). Saxton et al. (2012) found that when directly comparing students with an SLD to students with ADHD, those with an SLD were reported to experience higher levels of anxiety, thus marking it as a potential distinguishing factor. Other researchers have also identified challenges with anxiety and depression within the ADHD as well (Sexton et al., 2011; Al-Yagon et al., 2020). In addition, increased long-term challenges with social withdrawal have also been reported among the ADHD + SLD group (Al-Yagon et al., 2020).

The scope of this study was to compare outcomes from commonly used behavioral/emotional and cognitive measures in children with ADHD, children with SLD, and children with ADHD + SLD, to determine the accuracy with which cognitive and behavioral/emotional test scores can discriminate between these diagnostic groups.

Cognitive Functioning Results

Verbal Comprehension

Verbal Comprehension (WJ-COG Auditory Processing Index) was hypothesized to discriminate between ADHD, SLD, and ADHD + SLD diagnostic groups, with children with SLD showing more difficulty. Results of discriminant analysis indicated that individuals with SLD had more difficulty with Auditory Processing than the other two groups, followed by the ADHD + SLD group, and the ADHD group performed the best. These findings are

commensurate with past research on verbal comprehension (Faedda et al., 2019), highlighting that students with an SLD alone may display more significant weaknesses in auditory processing when compared to students with ADHD or ADHD + SLD. These verbal processing difficulties are more likely to be primary concerns in children with SLD, as compared to children with ADHD whose primary areas of concern are likely to be more executive-functioning related.

Executive Functioning

Regarding EF skills, it was hypothesized that cognitive inhibition (BASC Attention Problems) would discriminate between ADHD, SLD, and ADHD + SLD diagnostic groups, with individuals with ADHD showing more difficulty. Results of this study indicated that students with ADHD and ADHD + SLD demonstrated more self-reported attention problems than students with SLD. No significant differences were found within parent and teacher reported attention problems at this time. These results further clarify previous research suggesting students with ADHD and ADHD + SLD have more self-reported attention problems than students with SLD (Faedda, 2019).

Regarding the disparate results between parent-, teacher-, and self-report inattention, all of the BASC Attention Problems T-scores across reporters and diagnostic groups fell between 55 and 65, except for the self-report of children with SLD, whose reported fewer difficulties with inattention than their parents or teachers described, and fewer than the children with ADHD or ADHD + SLD. These mixed reports coincide with the mixed findings presented in past research on executive functions in these groups. One possible reason for the finding of this study could be that academic difficulty presented in the classroom may be more related to underlying verbal comprehension/auditory processing deficits, though it may look like inattention to external observers.

Behavioral Functioning Results

Regarding behavioral regulation, hyperactivity, conduct problems, and aggression were hypothesized to discriminate between ADHD, SLD, and ADHD + SLD groups.

Hyperactivity

Individuals with ADHD were hypothesized to show more difficulty with hyperactivity than children with SLD. Discriminant analysis results of this study suggest that children with ADHD and ADHD + SLD demonstrated more parent-reported hyperactivity than the SLD group. Further analysis was used to explore this finding, using ANOVA to explore differences between diagnostic groups on hyperactivity. ANOVA results indicated that there are significant differences between diagnostic groups on teacher-report hyperactivity, $F(2, 60) = 5.731$, $p = .005$, $\eta^2 = .165$, power > .99, and post-hoc tests indicated that ADHD and ADHD + SLD groups had significantly more hyperactivity than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups. In sum, these findings are commensurate with prior research findings suggesting that externalizing behaviors can distinguish children with ADHD from children with SLD alone (Groves et al., 2021; De Weerdt et al., 2013; Al-Yagon et al., 2020; Operto et al., 2021).

Conduct Problems

Children with ADHD + SLD were hypothesized to show more difficulty with conduct problems than the other two groups. Discriminant analysis results indicated that the Conduct Problems scale did not distinguish between diagnostic groups. However, using ANOVA to explore differences between diagnostic groups on conduct problems, significant differences between diagnostic groups on teacher-report conduct problems, and post-hoc tests indicated that students with ADHD and ADHD + SLD had significantly more teacher-reported conduct

problems than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD groups. The latter finding has a higher risk of a Type I error, however, due to only including the teacher-report behavioral and emotional variables as opposed to an equation including the variables from all the reporters.

Aggression

Individuals with ADHD were hypothesized to show more difficulty with hyperactivity than children with SLD. Discriminant analysis results of this study suggest that children with ADHD and ADHD + SLD demonstrated more teacher-reported aggression than the SLD group. MANOVA results aligned with this finding as well. These findings are again commensurate with prior research findings on increased externalizing behaviors in children with ADHD versus children with SLD alone (Groves et al., 2021; De Weerdt et al., 2013; Al-Yagon et al., 2020; Operto et al., 2021).

Emotional Functioning Results

Regarding this research and emotional regulation, anxiety, depression, and social withdrawal were hypothesized to discriminate between ADHD, SLD, and ADHD + SLD groups. Individuals with SLD were hypothesized to show higher anxiety than children with ADHD. Children with ADHD + SLD were hypothesized to experience higher levels of depression, anxiety, and social withdrawal. Using discriminant analysis, no significant results were found. However, using ANOVA on teacher-reported behavioral/emotional variables, significant differences were found between diagnostic groups on depression, $F(2,60) = 7.385$, $p = .001$, $\eta^2 = .203$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more depression than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD. In addition, ANOVA results indicated

significant differences between diagnostic groups on sense of inadequacy, $F(2, 48) = 3.357$ $p = .044$, $\eta^2 = .127$, power > .99, and post-hoc tests indicated that students with ADHD had significantly more sense of inadequacy than students with an SLD, but there was no significant difference between ADHD and ADHD + SLD, and SLD and ADHD + SLD. These ANOVA findings may suggest that children with ADHD are at higher risk for internalizing problems than children with SLD, perhaps suggesting more of a widespread impact of ADHD (at home, school, and with friends), as compared to children with SLD alone whose primary impacts are felt at school. More research is needed to confirm these mixed findings.

Implications

The results of this study provide valuable insight when considering interpretation and diagnostic clarification tools. Some cognitive and behavioral/emotional domains have better discriminant ability between the diagnostic groups studied. Students with SLD are more likely to display lower scores in auditory processing and verbal comprehension. Overall, behavioral findings from this study found that students with ADHD and ADHD + SLD presented with significantly more teacher and self-reported difficulties when compared to students with an SLD alone. Together, these results provide helpful insight on establishing accuracy with which emotional/behavioral test scores can discriminate these diagnostic groups.

Limitations and Future Studies

There are several limitations of the current study that must be considered when interpreting these findings. First, the number of participants between diagnostic groups varied (SLD = 31, ADHD = 17, SLD + ADHD = 18) suggesting current results should be interpreted with caution. Gender and racial differences were not analyzed within and between groups due to limited sample pool. The small sample size was partially due to the use of an archival clinical

database, which collected its participants from a rural, lower SES school system. Future research would benefit from using a larger, more diverse sample size that can be easily generalized beyond this population.

Second, a non-clinical control group was not included in the analysis. Including a non-clinical control group may allow for a more effective accounting of confounding variables (i.e., demographics, living situation, age, previous experience, etc.). As such, the sample and respective results may not be representative of more urban settings and would benefit from a more diverse pool in future replication studies.

Another barrier to the current study was that all ADHD subtypes (i.e., hyperactive, inattention, combined type) and all SLD subtypes (i.e., writing, reading, mathematics, or combinations) were placed under the diagnostic categories of ADHD or SLD. The subtypes of each diagnostic group present with varying cognitive and behavioral profiles not specifically accounted for in this study. For example, processing speed deficits may be more prevalent in children with ADHD inattentive subtype rather than hyperactive subtype (Child et al., 2019). Moving forward, a more in depth look on the cognitive and behavioral differences between specific ADHD diagnosis and SLD diagnosis may be helpful.

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Appendix A

Informed Consent

Yamhill Carlton School District

Phone:
Fax:

Parent/Guardian Consent for Individual Evaluation

Student Name: Home Phone: Date:
Date Of Birth: Home Address:
Student No.: Student State ID:

Age	Gender	Grade	Home School	Attending School

Ethnicity	Primary Language - Date Determined	Home Language - Date Determined

Parent/Guardian

Name	Home	Name	Home Phone
	Work Phone	Address	Work Phone
	Emergency Phone		Emergency Phone

Dear Parent / Guardian / Adult Student:

Parents, adult students, and emancipated minors have certain consent rights under the Individuals with Disabilities Education Act (IDEA).

The school must get your written informed consent before evaluating your child/student and before providing special education services for the first time. Providing consent to an initial evaluation does not mean consent to provision of special education services.

A copy of procedural safeguards must be provided to you for all requests to conduct an initial evaluation.

There are some exceptions to consent for evaluation.

Except for tests of intelligence and personality, if you do not respond to a request for a reevaluation of a student who is already eligible for special education, that evaluation may be conducted without your consent.

This consent describes the proposed evaluation(s), test(s), and/or procedures planned for the student.

If you have any questions regarding this material and/or the evaluation process, please contact _____ at _____ for assistance.

Sincerely,
Yamhill Carlton School District

Special Education Department

Name | Date of Birth | Student Number | Document Date

In order to best meet the individual needs of the student, it is recommended that the student be individually evaluated by Yamhill Carlton School District personnel.

This evaluation is being proposed because:

Due to:

To determine potential eligibility or continued eligibility for Special Education services, an evaluation will be conducted by a multidisciplinary team.

THIS EVALUATION WILL INCLUDE (see checked areas below):

- ☐ Achievement: Assessments of achievement towards age or grade appropriate learning standards.
- ☐ Intelligence: Standardized tests of intelligence or tests that may yield a composite/full-scale IQ score.
  *Always requires consent
- ☐ Behavior: Standardized checklists of behavior by individuals familiar with the student.
- ☐ Developmental History: The Parent Questionnaire and Case History Form is designed to gather information from a parent or other informed care provider about a child's developmental, social, and medical history. The report is considered confidential and is only to be used for purposes of evaluation and eligibility determination under the Individuals with Disabilities Education Act.
- ☐ Other Assessments (specify):

Selected Evaluation Procedures/Assessments/Tests

Test Name	Description
Woodcock-Johnson Tests of Achievement-3rd Edition	Woodcock-Johnson Tests of Achievement-3rd Edition measures academic readiness in reading, math, and written language.
Woodcock-Johnson Tests of Cognitive Abilities-III	The Woodcock Johnson III/Tests of Cognitive Ability (WJCOG) measures different aspects of cognitive ability for people between the ages of 2 through 90.
Behavior Assessment System for Children-Child	Behavior Assessment System for Children-II (BASC-II): Child --measures social, emotional and behavioral difficulties in children.

This Portion To Be Completed By Parent(s)/Guardian(s)/Adult Student

- ☐ I give my consent for the evaluation or re-evaluation. I understand my consent is voluntary and may be revoked for any evaluation or reevaluation that has not yet been conducted.
- ☐ I refuse consent for the evaluation.

_____ Signature of Parent/Guardian/Adult Student

_____ Date

Date Received _____

Received By _____

PLEASE RETURN THIS FORM TO: _____/_____

Appendix B

Abbreviations

ADHD- Attention Deficit Hyperactivity Disorder

ASD- Autism Spectrum Disorder

BASC- Behavior Assessment System for Children

BASC-2- Behavior Assessment System for Children Second Edition

BASC-3- Behavior Assessment System for Children Third Edition

DSM-5- Diagnostic and Statistical Manual of Mental Disorders Fifth Edition

IEP- Individualized Education Program

IQ- Intelligence Quotient

PR- Parent Reported

PRS- Parent Rating Scale

SLD- Specific Learning Disability

SPSS- Statistical Package for the Social Sciences

SR- Self-Reported

SRP- Self-Report Personality

SS- Standard Score

TR- Teacher Reported

TRS- Teacher Rating Scale

WJ-COG Woodcock Johnson Cognitive

WJ-COG-III- Woodcock Johnson Cognitive Third Edition

WJ-COG IV- Woodcock Johnson Cognitive Fourth Edition

Appendix C

Curriculum Vita

Anna van Asselt, MA

28711 SW Costa, Cir E. Wilsonville, Oregon 97070 | 620-755-2759 | avanasselt18@georgefox.edu
Applicant Code Number: 17508

EDUCATION

2018 – Present **Doctorate of Clinical Psychology – Child and Adolescent Track**
George Fox University, Newberg, Oregon (APA Accredited)
Expected graduation 2023

2018 – 2020 **Master of Arts in Clinical Psychology**
George Fox University, Newberg, Oregon (APA Accredited)

2014 – 2018 **Bachelor of Science – Psychology**
Bachelor of Arts – Christian Spiritual Formation
Friends University, Wichita, Kansas
-Summa Cum Laude
-Alpha Chi Honors
-Psychology honors

CLINICAL EXPERIENCE

August 2021-Present **Student Behavioral Health Clinician**
The Children's Clinic, Newberg and Tualatin, Oregon
Supervisor: Collin Dean, Psy.D.
Number of Integrated Reports: TBD

Population:
- Birth to 21 years and parents presenting to a pediatric primary care clinic ranging in gender, disability status, race/ethnicity, spirituality, sexual orientation/gender identity, and socioeconomic status.

Clinical Responsibilities:
- Behavioral health consulting in the form of short-term integrated care (usually 3-5 sessions) and assisting pediatricians via warm handoffs within a pediatric primary care setting.
- Contribute to the interdisciplinary approach and treatment of all clients visiting The Children's Clinic.
- Consult pediatricians and nurses on behavioral health questions and concerns (i.e., anxiety, depression, suicidal ideation, sleep disturbances, tantrums).

Assessment Responsibilities:
- Conduct intake interviews, administration and scoring of various psychological testing measures, and report writing.

- Measures utilized: WISC-5, BRIEF, BASC3, ASRS, SCARED, GAD-7, PHQ-9, Vanderbilt.

August 2020 - June 2021

Student Clinician
Northwest Anxiety Institute, Portland, Oregon
Supervisors: Hayley Dauterman, Ph.D., Kevin Ashworth, MA LPC

Population:

- All age ranges of individuals with Panic Disorder, Obsessive Compulsive Disorder, Social Anxiety, Specific Phobias, Generalized Anxiety Disorder, Post-Traumatic Stress Disorder, Avoidant Personality Disorder, and Hoarding.

Clinical Responsibilities:

- Provide short-term and long-term individual and group therapy using CBT and ERP techniques accompanied by validated outcome measures throughout the treatment process.
- Provide intensive care for patients utilizing the Intensive Outpatient Program (IOP).
- Provide parent training around parenting anxious children by utilizing SPACE training, behavioral techniques, and psychoeducation in the individual and group context.
- Contribute substantively to interdisciplinary approach and treatment of all NWAI clients.
- Utilize telehealth services for the majority of treatment sessions due to the COVID-19 pandemic.

Assessment Responsibilities:

- Anxiety measures utilized on as needed basis.
- Measures utilized: DASS, IUS, PSWQ, SCARED, BDD-YBOCS, OCD-YBOCS, CGCQ, PDSS, SIAS, SPS.

September 2020 - June 2021

Neuropsychology Practicum Student
Oregon Science and Health University, Portland, Oregon
Doernbecher Children's Hospital Child Development & Rehabilitation Center (CDRC)
Pediatric Hematology/Oncology Unit
Supervisor: Justin Lee, Ph.D.
Number of Integrated Reports: 24

Population:

- Children and adolescents with various oncology histories seeking neuropsychological evaluation experiencing late effects of cancer treatment.

Clinical Responsibilities:

- Complete an interdisciplinary comprehensive evaluation in an outpatient hospital context.

- Assemble a neuropsychological battery based on each individual child's needs, scoring, chart review, interviewing the child and the family, report writing, and providing feedback.

Assessment Responsibilities:

- Conduct comprehensive neuropsychological evaluations to children and young adults between ages 6 and 21 in the hematology/oncology unit.
- Measures utilized: WISC-V, WAIS, WASI, D-KEFS, NEPSY, PPVT, EVT, WRAML, CVLT-C, CVLT, Rey-O, Grooved Pegboard, Beery VMI, WRAT, BASC, ABAS, BRIEF

Fall 2019 - Spring 2020

Clinical Practicum Student
Rural Child and Adolescent Psychology (RCAPS)
Yamhill-Carlton Intermediate School, Yamhill Carlton, Oregon
Supervisor: Elizabeth Hamilton, Ph.D., Chris Spromberg, Psy.D.
Number of Integrated Reports: 4

Population:

- K-12, regular and special education students. Rural community consisting of individuals in K-12, ranging in gender, disability status, race/ethnicity, spirituality, sexual orientation/gender identity, and socioeconomic status (with greatest representation of lower-SES households).

Clinical Responsibilities:

- Short- and long-term therapy for individuals and groups.
- Established and ran a "Strong Kids" group for 6th graders.
- Flexibility and investment in working as part of an interprofessional team.
- Served as a consultant for educators and administrators regarding mental health and/or behavioral concerns.
- Additional tasks include psychoeducation, program development, crises interventions, and outcome research.

Assessment Responsibilities:

- Provided comprehensive batteries including intellectual, academic, behavioral, and psychological to inform eligibility for an IEP.
- Established test batteries, provided comprehensive testing, scored, wrote a report, and provided feedback at IEP meetings.
- Assessments utilized: WJ-Cog IV, WJ-Ach IV, BRIEF, BASC-3, MACI.

Fall 2018 - Spring 2019

Student Therapist
George Fox University, Newberg, Oregon
Supervisor: Glena Andrews Ph.D., ABPP; Laurie Meguro, MA

- Provide outpatient, individual, client-centered psychotherapy from initial assessment to termination to undergraduate students in a university setting.
- Sessions were videotaped, reviewed, and discussed in individual and group supervision.

RESEARCH EXPERIENCE, PUBLICATIONS, AND PRESENTATIONS

Young, D., Hamilton, E., **van Asselt, A**., Flores, M., Wingerter, R., (2021) *Cognitive profiles on the WJ-IV for youth with Specific Learning Disorders or trauma exposure.*
Presented at American Psychiatric Association in August 2021.

Young, D., Hamilton, E., Flores, M., **van Asselt, A.,** Wingerter, R., (2021) *Analysis of BASC-3 Profiles for trauma exposed, rural youth compared to unexposed peers.*
Presented at American Psychiatric Association in August 2021.

Holman, B., **van Asselt, A.,** Richmond, A., Andrews, G. (2020) *Social engagement development: A longitudinal study of children with dysgenesis of the corpus callosum.*
Presented at International Neuropsychological Society in July 2020.

Richmond, A., Underriner, M., Price, L., **van Asselt, A.,** Andrews, G. (2020) *Internalizing differences between FASD and ACC: 11–13-year-olds.*
Presented at American Psychiatric Association in August 2020.

Recinos, E., Hamilton, E., Richmond, A., Bigon, J., Flores, M., **van Asselt, A.** (2020) *Comparison of adaptive functioning measures in rural youth.*
Presented at American Psychiatric Association in August 2020.

van Asselt, A., Price, L., Underriner, M., Richmond, A., Andrews, G. (2019) *Externalizing differences between FASD and ACC: 11–13-year-olds.*
Presented at National Academy of Neuropsychology on November 15, 2019.

Emeola, S., Padilla, B., Mitchell, G., Couey, M., **van Asselt, A.** (2017*) A year in the life: Sustaining chapter vitality*.
Poster presentation at Great Plains Convention; Hays, KS.

van Asselt, A. (2017) *Gender and perceived flirtation styles: Interacting with the other half of the world.*
Oral presentation at Association for Psychological and Educational Research in Kansas and Alpha Chi National convention; Portland, OR.

March 2019 – Present
Research Vertical Team Member
George Fox University Graduate Department of Clinical Psychology
Supervisor: Celest Jones, Psy.D. ABCCAP

- Collaborate and design various research projects with team members, formal presentations of research projects and results via posters and publications

PROFESSIONAL TRAINING AND WORKSHOPS

August 2018 – Present
Clinical Team
George Fox University Graduate Department of Clinical Psychology

Supervisor: Kris Kays, Psy.D., Christina Wise, Psy.D., Kristie Knows His Gun, Psy.D., Winston Seegobin, Psy.D.

Meetings are conducted weekly and include case conceptualizations and consultation from the team from various clinical perspectives and theoretical orientations.

October 2021 **Erotic Transcendence: Integrating Faith with what's new in Sex Research**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Elisabeth Esmiol Wilson, Ph.D., LMFT

March 2021 **Gender Diverse Clients: Therapy and Intervention Readiness Assessments**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Chloe Ackerman, Psy.D.

February 2021 **Saying 'Yes' to Your Embodied Life: An Invitation to Psychotherapists**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Janelle Kwee, Ph.D.

November 2020 **Complex PTSD: Advanced Case Conceptualization, Assessment and Treatment Approaches in Trauma Population**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Jason C. Steward, Ph.D.

October 2020 **Examining the Role of Neuropsychology within the Pediatric Cancer Setting**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Justin Lee, Ph.D.

Mitigating the Effects of ACES and Transforming Primary Care through Resilience Building and Compassionate Connection
George Fox University Graduate Department of Clinical Psychology
Facilitator: Amy Stoeber, Ph.D.

November 2019 **Hot Topics in Pediatric Neuropsychology**
National Academy of Neuropsychology
Presenters: Lana Harden, Ph.D., ABPP
Joy Neumann, Psy.D
Arthur Maerlender, Ph.D., ABPP-CN
Adam R. Cassidy, Ph.D., ABPP

How your Microbiome Speaks to your Brain
National Academy of Neuropsychology
Presenter: Rob Knight, Ph.D.

Emerging Research in Pediatric Neuropsychology
National Academy of Neuropsychology

Topics: Memory Malingering in Children
Impact of Puberty on Adolescents Inhibition Over Time
Trauma Influence on Post-concussive Symptom Recovery
Academic Outcome in Pediatric Stroke
Pediatric Sickle Cell Disease

Pediatric Grand Rounds
National Academy of Neuropsychology
Discussants: Robert M. Gray, Ph.D., ABPP-CN
Lana Harder, Ph.D., ABPP-CN
Arthur Maerlender, Ph.D., ABPP-CN

Unilateral Neglect
National Academy of Neuropsychology
Presenter: Kenneth M. Heilman, M.D.

Medication Overuse and Implications for Dementia
National Academy of Neuropsychology
Presenter: Laura A. Hart, PharmD, MS, BCPS, BCGP

The Teen Brain
National Academy of Neuropsychology
Presenter: Jay N. Giedd, M.D.

October 2019 **Intercultural Communication**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Cheryl Foster, Psy.D.

September 2019 **Promoting Forgiveness**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Everett Worthington Jr., Ph.D.

March 2019 **Foundations of Relationships Therapy – The Gottman Model**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Douglas Marlow, Ph.D.

October 2018 **Old Pain in New Brains**
George Fox University Graduate Department of Clinical Psychology
Facilitator: Scott Pengelly, Ph.D.

September 2018 **Spiritual Formation & Life of a Psychologist: Looking at Soul-Care**
George Fox University Graduate Department of Clinical Psychology
Facilitators: Mark McMinn, Ph.D., ABPP; Lisa McMinn, Ph.D.

September 2018 – May 2019 **Clinical Foundations**
George Fox University Graduate Department of Clinical Psychology
Peer Supervisor: Laurie Meguro, MA

Evaluate, implement, and process clinical case conceptualizations, simulate psychotherapy with peers and undergraduate clients, and practice record keeping, legal and ethical guidelines, and case management

TEACHING EXPERIENCE

January 2021 – May 2021 **Teacher Assistantship**
George Fox University, Newberg, Oregon
Child and Adolescent Cognitive Assessment
Amber Nelson, Psy.D.

Manage a lab group comprised of 18 graduate level students.
Conduct weekly supervision meetings to review course material, practice assessment skills, and process additional components related to the course.
In addition to weekly supervision meetings, conduct individual meetings with students throughout the semester to monitor progress, growth, and experience.
Grade all assignments, including protocol scoring, administration, video review, score interpretations, and assessment report writing.
Assessment measures: WISC-5 and WIAT-4

May 2020 – August 2020 **Teacher Assistantship**
George Fox University, Newberg, Oregon
Child and Adolescent Assessment
Elizabeth Hamilton, Ph.D.

- Review, evaluate, and provide regular feedback to students on their cognitive assessment reports, including client history, test interpretation, clinical impressions, and recommendations.
- Conduct weekly supervision meetings to review course material, practice assessment skills, and process additional components related to the course.
- Responsible for transitioning class to function well as a hybrid online/in-person class.
- Assessment measures: Woodcock Johnson IV Cognitive and Achievement, ABAS, BASC 3, BRIEF 2, Roberts 2, MACI, Weschler Nonverbal.

January 2020 – May 2020 **Teacher Assistantship**
George Fox University, Newberg, Oregon
Personality Assessment
Nancy Thurston, Ph.D., ABPP

- Review, evaluate, and provide regular feedback to students on their personality assessment reports, including client history, test interpretation, clinical impressions, and recommendations.
- Provide consultation regarding test result interpretations,

strengths/weaknesses, personality conceptualizations, diagnostic impressions, and report writing.
- Personality measures: MMPI-2, MMPI-2 RF, PAI, MCMI-IV, 16-PF.

August 2019 – December 2019 **Teacher Assistantship**
George Fox University, Newberg, Oregon
Lifespan Development
Celest Jones, Psy.D. ABCCAP

- Review, evaluate, and provide regular feedback to students on their development of knowledge over important psychological developments that occur throughout the life span.
- Lead small groups to prepare for midterm and final exams.
- Responsible for grading all course assignments, providing feedback on all reports, and entering all student grades into the online grading system.

PROFESIONAL DEVELOPMENT

Spring 2019-Spring 2021 **Child and Adolescent Special Interest Group**
George Fox University, Newberg, Oregon

Co-leader and facilitator of the child and adolescent special interest group for all George Fox Psy.D students. Plan and coordinate events centered around the pediatric population. Topics include: Fetal Alcohol Spectrum Disorder, Medication Usage, Severe Psychosis, Pediatric Bipolar.

Fall 2019-Spring 2021 **Community Gathering Leadership Team**
George Fox University, Newberg, Oregon

Effective planning of community events for all Psy.D students and faculty at George Fox University. Plan and facilitate conversation and activities to establish a space for connection and growth.

Fall 2018-Spring 2019 **Admission Committee**
George Fox University, Newberg, Oregon

Collaboratively review incoming doctoral applications with a committee comprised of faculty and cohort representatives. Responsible for rating applications and assisting in the decision process of inviting applicants to attend George Fox's Clinical Psychology program.

Fall 2018-Fall 2020 **Acrobatics Dance Instructor**
Element Dance Studio, Hillsboro, Oregon

Work with an established competitive dance studio with a tight family of instructors and dancers. Responsible for teaching beginner to advanced skills with ages ranging from 5 to 18. Proficient in teaching basic skills as

wells as more advanced skills such as handsprings, tucks, aerials, tumbling combinations as well as flexibility training and balances. Skilled in working with students in high stress.

Fall 2017-
Spring 2018 **Senior Resident Assistant**
Friends University, Wichita, Kansas

Work directly alongside the residence hall coordinator to plan large scale events. Provide emotional, spiritual, and physical support for freshman residents and Resident Assistants living and serving within the hall. Perform senior level duties in addition to the responsibilities of a resident assistant.

Fall 2016-
Spring 2018 **Apprentice Ambassador**
Apprentice Institute, Wichita, Kansas

Plan and coordinate logistics and materials for Apprentice Outreach Team events. Lead events centered on apprenticeship with Jesus to youth groups around Kansas and in other states. Assist in recruiting for the Christian Spiritual Formation program offered at Friends University.

Fall 2015-
Spring 2017 **Resident Assistant**
Friends University, Wichita, Kansas

Provide counseling, support, and other resources to freshmen residents from around the nation. Serve as the first point of contact for emergencies and other housing issues; work effectively with campus security and residence directors to ensure compliance with all housing regulations. Plan events, create and implement creative advertisements and marketing strategies to increase student attendance and engagement.

Summer 2017 **Missions and Justice Internship**
Antioch Church, *Bend, Oregon*

Independent study, outreach, and service with a primary focus on connecting with local partners for missions within the community of Bend, Oregon, working with two specific organizations: Shepherd's House Women's & Children's Center and Family Kitchen.

PROFESSIONAL AND ACADEMIC AFFILIATIONS

Student Affiliate, American Psychological Association, Division 54
Student Affiliate, American Psychological Association, Diversity SIG
Student Affiliate, National Academy of Neuropsychology
Student Affiliate, American Psychological Association
Member, Alpha Chi
Member, Psi Chi

AWARDS AND RECOGNITIONS

Fall 2019 **Women in Leadership Sponsorship**
National Academy of Neuropsychology

The Women in Leadership (WIL) Committee of NAN selects 3-4 promising graduate students or postdoctoral fellows to shadow "behind the scenes" conference activities and spend one-to-one time with leaders in the field of neuropsychology.

May 2018 **Graduation Speaker**
Summa Cum Laude
Friends University, Wichita, Kansas

REFERENCES

Hayley Dauterman, Ph.D.
Clinical Psychologist
hayley@nwanxiety.com
Clinical Supervisor
Northwest Anxiety Institute

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