ADULT ATTENTION DEFICIT DISORDER:

ITS IMPACT ON RORSCHACH SCORES

By

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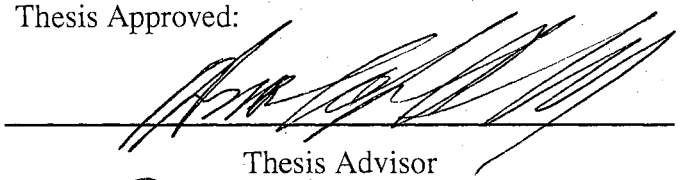

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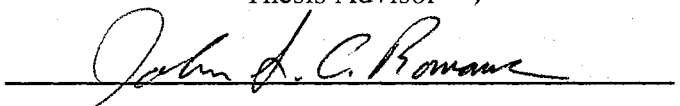

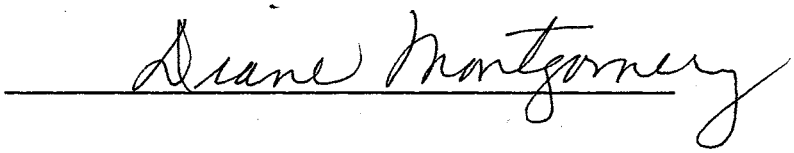

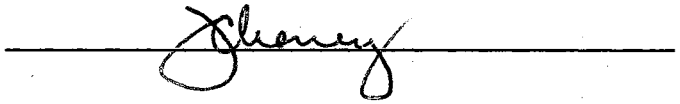

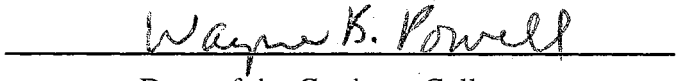

Dean of the Graduate College

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CHAPTER ONE

THE PROBLEM

Introduction

Attention deficit hyperactivity disorder (ADHD) is a common disorder in children. It is reported to affect at least 5% of children in the United States (Sneed, 1995). "Its toll on cognitive, social, and school functioning makes ADHD a significant public health problem, and, as such, it has generated much research" (Biederman, Faraone, Mick, Spencer, Wilens, Kiely, Guite, Ablon, Reed, & Warburton, 1995, p. 431).

In contrast, the concept of ADHD in adults is relatively new and has rarely been studied (Biederman, et al., 1995). As pointed out by Biederman, Faraone, Spencer, Wilens, Norman, Lapey, Mick, Lehman, & Doyle (1993, p.1793), "...because conceptual and methodological issues cloud the diagnosis, adult attention deficit disorder is not recognized in the official nomenclature and is infrequently a topic of investigation." As a result, adult ADHD "is a greatly under investigated area, requiring additional research related to diagnosis and treatment" (Kane, Mikalac, Benjamin, & Barkley, 1990, p.637).

Adding weight to the need for further study is the number of people suspected to suffer from adult ADHD. The range is suggested to be between 2% and 25% of the general population (Biederman et al, 1993; Boatwright, Bracken, Young, Morgan, & Relyea, 1995; Kane et al, 1990; Jaffe, 1995; Richardson, 1993; Shaffer, 1994; Sneed, 1995). This represents a significant portion of our adult population. As pointed out in

the American Journal of Psychiatry (1994), should the prevalence of ADHD in adults be only 3%, that would represent only a slightly lower rate than the rates of a number of other important adult psychiatric disorders. Regardless of incidence, adult ADHD is now and will become more so in the future, a reason for adults to undergo psychological assessment (Boatwright, et al, 1995; Biederman, Faraone, Knee, Munir, 1990; Kane et at., 1990).

At present, diagnosis of adult ADHD is problematic (Biederman, et al, 1993; Kane, et al, 1990; Ratey, Greenberg, Bemporad, Lindem, 1992). Although there are several well respected lists of diagnostic criteria for adult ADHD (Kane et al, 1990; Wender, 1987; Wood, 1986; Ratey, Hallowell, & Miller, 1995; Brown, 1995), they all differ - some slightly and others more significantly. What is needed is an agreed-upon set of criteria to facilitate diagnosis of adult ADHD (Jaffe, 1995).

A variety of standardized tests are available to aid clinicians in diagnosing psychiatric disorders. One such instrument is the Rorschach inkblot test. This test is a standardized instrument with a long tradition of aiding in the diagnosis of psychiatric disorders (Shontz & Green, 1992). "It is apparent from the amount of literature surrounding the Rorschach that investigators and professionals are using and are interested in studying the Rorschach as a diagnostic tool" (Shontz & Green, 1992, p. 150). Very often, it is part of the most frequently used clinical battery in adult diagnosis (Shontz & Green, 1992; Bellak, 1987). So, it appears likely that the Rorschach might be used along side the usual criteria lists, parent/self-report questionnaires, neuropsychological exams, and criteria from American Psychiatric Association's

Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV) in conceptualization and diagnosis of adult ADHD.

The Rorschach test has been used in the past to diagnose ADHD in children. Two studies and a 1996 American Psychological Association poster presentation were found which describe the Rorschach indices of ADHD children (Bartell & Solanto, 1995; Brissie & Fromuth, 1996; Gordon & Oshman, 1981). One other study was found which investigated Rorschach responses of learning disabled children (Acklin, 1990). It was included in this study for two reasons. First, the behaviors Acklin investigated closely coincide with DSM-IV (1994) criteria for ADHD. Second, Bellak (1987, p. 143) said, "What is called ADHD in the psychiatric literature (DSM-III) is currently also termed 'general learning disabilities' in the special-education or learning-disabilities literature." He asserts that, in the past, ADHD has been referred to by various terms that designate only pieces of the disorder now defined as ADHD. Moreover, it appears that learning disabilities are an expected symptom of ADHD. All four of the above discussed studies reported significant results for some Rorschach scales.

There are relatively few published research studies outlining the use of the Rorschach test in diagnosing adult ADHD. A computer search of the PSYCHLIT, MEDLINE, and ERIC data bases indicates only one book chapter suggesting the use of the Rorschach in diagnosing adult ADHD. In that chapter Bellak (1987) suggests which Rorschach clusters coincide with his definition of adult ADHD; but offers no empirical proof supporting his claim. Beyond Bellak's book chapter, there were no articles in the literature that mentioned the use of the Rorschach with ADHD, not withstanding empirically investigating that relationship.

Little appears to be known about the effect of adult ADHD on Rorschach response patterns. In this study, Rorschach responses of ADHD adults will be investigated to see how they may differ from a clinical control group of non-ADHD adults. Integration of resulting data may reveal some typical response patterns helpful in the diagnosis of adult ADHD. If a pattern existed between Rorschach responses of adults diagnosed with ADHD, this information could help pave the way toward developing a reliable tool for clinicians to use when diagnosing adult ADHD.

Statement of the Problem

In order to study ADHD one must first define the symptoms associated with it. There are certain core features of ADHD, namely, "inappropriate restlessness [hyperactivity], attentional difficulties, and impulsivity, which manifest themselves in different ways at different ages" (Weiss & Hechtman, 1993, p. 407). Exact manifestations differ slightly depending on which expert is describing them. Weiss and Hechtman (1993), Wender (1987), and Bellak (1985) offer three quite distinct yet compatible sets of symptoms of adult ADHD.

First, Weiss and Hechtman (1993) reported the common symptoms of adult ADHD from what appears to be a personality perspective. Their symptom list included attentional deficits; difficulty in organizing work and completing tasks; a tendency to make sudden decisions without thinking of the consequences; and restlessness that may feel like 'being driven.' These symptoms may manifest in some or all of the following behaviors: lack of social integration/interpersonal problems, restlessness, impulsiveness, dependent characteristics, obsessive-compulsive tendencies, depression, low self esteem,

lower education, poor concentration, explosiveness, sexual problems, and suicide attempts.

In contrast, Bellak's (1987) diagnostic clusters seem to approach adult ADHD from a psychoeducational or neurological perspective. He wrote that the syndrome may be divided into four categories. The first consists of perceptual-motor difficulties that may manifest in hypermotility, temper tantrums, high anxiety, and agitated depression. The second category is reading and language difficulties with the attending lack of organizational skills. The third is neurologic soft signs that may show up as perceptual integration problems. The fourth are the attendant emotional problems of low self esteem, agitated depression, high anxiety, and problems in social/peer relations.

Lastly, Wender (1987) developed a widely used and respected list of criteria for the diagnosis of adult ADHD. Called the Utah Criteria, it demands a history of the childhood disorder; persistent motor activity; and attention deficits. In addition, Wender requires two of the following: affective lability; inability to complete tasks; hot temper; impulsivity; or stress intolerance. He further notes a number of associated features including marital instability, as well as less success in academic and vocational areas than expected on the basis of intelligence and education.

The above three conceptualizations seem to approach the identification of adult ADHD from different directions. Weiss and Hechtman (1993) identify mostly personality traits; while Bellak (1987) concentrates on the neurological and psychoeducational aspects. Wender (1987) presents diagnostic criteria that embody etiology. Fortunately, all three approaches are mutually inclusive. A review of the literature provides consensus that all of the above behaviors and traits may be

characteristic of adult ADHD (American Journal of Psychiatry, 1994; Barkley, 1989; Biederman, et al, 1990; Klee, Garfinkel, Beauchesne, 1986; Shekim, Asarnow, Hess, Zaucha, Wheeler; 1990; Silver, 1992; Weinstein, 1994; Weiss, Hechtman, 1986; Wender, 1988); In addition the behaviors and traits are compatible with criteria from the DSM-IV (1994) fourth edition.

It should be noted that while a "list" of criteria may be easier for a researcher to quantify, there appear to be no unique symptoms for this disorder. So, to approach it from a list mentality could be to grossly misunderstand the complexity and deep interrelatedness of symptoms. Each symptom on the list must never be considered alone, but in the context of how it interacts with all other symptoms. Such an analysis should result in a geometric progression ending in a unique configuration for each individual.

With the preceding caution in mind, the above behaviors and criteria were collated. The following list of six symptoms for adult ADHD was compiled for use in this study. It is considered a starting place for diagnosis.

1. Attentional deficits including poor concentration that may manifest in lower achievement than expected on the basis of intelligence (impacting educational level, academic success, vocational placement).
2. Impulsiveness including sudden decisions without considering consequences, explosiveness, anger/emotional outbursts, poor self control, poor ego defense, poor judgment, and perceptual motor difficulties. Related to lack of regulation and control of drives is a tremendous need for constant stimulation; otherwise feelings of emptiness and depersonalization may be suffered. At times, impulses that are

subjectively overwhelming are projected onto external objects to which the ADHD adult then reacts inappropriately.

3. Persistent motor activity (usually called hyperactivity in children) including restlessness, perceptual-motor difficulties, and neurologic soft signs. These may manifest in physical incoordination or lack of confidence as one becomes aware of the disturbance of autonomous function.
4. Organizational deficits including difficulty with integrating and completing tasks, as well as reading and language difficulties.
5. Social/interpersonal/emotional problems including poor self image, insufficient individuation and failure to establish clean boundaries impair social skills, interpersonal skills, and emotionality. There may also be impairment in integration of thoughts for appropriate emotions. At times, poor reality testing (misunderstanding) may cause attempts to exert control over factors in the external environment (bossiness). There may also be difficulty in distinguishing left from right and impairment in sense of direction. There may be affective lability.
6. Stress tolerance inadequacy including anxiety, agitated depression, a sometimes low stimulus barrier, neurologic soft signs, and perceptual motor difficulties.

By inspecting the significant findings of studies on Rorschach responses of ADHD children, one can find a number of specific Rorschach indices that may measure the above-listed behavioral dimensions of adult ADHD. Table 1 depicts how the Rorschach responses of each study relate to the six behavioral dimensions of adult ADHD.

The earliest child study investigating Rorschach protocols of hyperactive children was reportedly done by Gordon and Oshman in 1981 (Bartell & Solanto, 1995). Gordon and Oshman reported that ADHD children had Rorschach results which displayed significantly lower human movement (M) and human content (H), while their percentage of responses with animal content (A) was significantly higher than the control group. These scores appear to suggest that the Rorschach may be sensitive to ADHD symptoms of impulsiveness, social/interpersonal problems, and affective lability.

Bartell and Solanto (1995), in an expansion of the Gordon and Oshman study, reported that ADHD subjects also had a higher percentage of responses with distorted form (X-%) and lower scores on SumM+WsumC (EA), form-color (FC), and color-form (CF). These last three scores are related to how color is incorporated in response patterns. When ADHD children comorbid for oppositional defiant disorder (ODD) were added to the group, there was additional significance for lower human content (H) and lower human movement (M) scores (as in the above Gordon and Oshman study). Since there was no significant difference in Rorschach scores between the ADHD group and the ADHD/ODD group, human content (H) and human movement (M) are retained as predicted variability between the adult ADHD group and the adult non-ADHD clinical control group. Interpretation of results from the Bartell and Solanto study suggests that Rorschach scores may be related to five of the six behavioral dimensions of adult ADHD: attentional deficits, organizational deficits, impulsiveness, persistent motor activity, and social/interpersonal problems.

Brissie and Fromuth (1996) presented a poster at American Psychological Association Annual Convention, in which they investigated Rorschach indicators of

impulsivity and hyperactivity. Their research yielded findings that are significant for the symptoms of impulsiveness and persistent motor activity. First, they found that ADHD

Table 1

Rorschach Indices Which May Indicate ADHD Symptoms, According to Acklin, Brissie & Fromuth, Bartell & Solanto, and Gordon & Oshman Studies

Indices	Symptoms					
	Attentional Deficits	Impulsiveness	Persistent Motor Activity	Organizational Deficits	Social/ Interpersonal/ Emotional Problems	Stress Tolerance Inadequacy
AdjD	A	A		A	A	A
Afr		A			A	
A		GO			GO	
CF	BS	BS	BS	BS		
X+%	A	A		A		
F+%	A	A		A		
DQv/+	A	A		A		
DQv	A	A		A		
X-%	A	A, BS	A, BS	A, BS	BS	A
3r+(2)/R					A	
EA	BS	BS	BS	BS		
Es		BF	BF		A	A
FC	BS	BS	BS	BS		
H		BS			A, BS, GO	
M		BS, GO	BS		GO	
L				A	A	A
Zd	A	A	A	A		A
EB	A	A	A	A	A	A
Wsum6	A	A		A		

Note: A = Acklin, BF = Brissie & Fromuth, BS = Bartell & Solanto, GO = Gordon & Oshman.

subjects gave significantly more blended responses than they had expected. They predicted the number of blends to go down as level of hyperactivity increased, but found the opposite. No explanation was offered. Second, they found that the Rorschach ratio es may measure current stimulus demands to which the individual might respond in an undercontrolled and impulsive manner. The authors did not report direction of the es ratio, only that the correlation was significant in the expected direction. Their conclusion suggests the es ratio was weighted on FM+M side of the equation, therefore, reflecting the same results as Acklin (1990).

Acklin (1990) conducted a Rorschach study with learning disabled children who were classified with spatial disorder or a linguistic disorder. The rationale for inclusion of Acklin's research rests on Bellak's (1987) report that individual learning disabilities appear to be subsumed under the category of ADHD. The study may be of particular value as Acklin reported significance on more indices than the other studies and investigated more complex Rorschach scores. From comparison of responses between the two groups of learning disabled (LD) children, it was concluded that children with both visual and auditory processing deficits appear to be similar with respect to their Rorschach responses. However, there were significant differences between the LD children and their non-LD peers. LD children had significantly lower scores on conventional form (X+%), conventional pure form (F+%), developmental quality synthesized (DQv/+), developmental quality vague (DQv), weighted sum of the six special scores (Wsum6), affective ratio (Afr), egocentricity index (3r+(2)/R), and human content (H); and significantly higher scores for processing efficiency (Zd) and distorted form (X-%). Significant differences were also found for EB style, Adjusted D,

experienced stimulation (es) , and Lambda (L). Interpretation of results from the Acklin study suggest that Rorschach scores may be related to attentional deficits, organizational deficits, impulsiveness, persistent motor activity, social/interpersonal/emotional problems, and stress tolerance inadequacies.

From combining the significant results from the above studies it appears that 19 Rorschach indices may be related to symptoms of ADHD (see Table 1). The problem is that none of the Rorschach indices which were able to identify some symptoms of childhood ADHD have ever been investigated as they relate to ADHD adults. In fact, no published studies could be found investigating any aspect of the Rorschach with ADHD adults; so it is not known how (or, even if) Rorschach scores and ratios may identify ADHD adults. But, Biederman, et al (1993), suggest that ADHD adults "may have a pattern of demographic, psychosocial, psychiatric, and cognitive features that mirrors well-documented findings among children with ADHD" (p. 1787).

Purpose of the Study

The purpose of this study is to investigate the Rorschach profiles of ADHD adults. The possibility of a "typical" profile for ADHD adults was considered. If one is suggested, it may greatly help in diagnosis of a condition that is sure to become more widespread in the future (Boatwright, et al., 1995).

In addition there could be other implications for this study. Adult ADHD is not yet recognized as a separate category in the diagnostic manual (DSM-IV). Part of this condition may be due to the lack of agreed upon criteria and specific characteristics that differentiate the adult condition from the child condition. Because the Rorschach is a

standardized instrument (Shontz & Green, 1992), a Rorschach profile specific to adult ADHD could benefit those trying to establish a separate DSM category for adult ADHD. It could also help in determining a reliable incidence rate for the disorder. Finally, there may be findings which provide more information about the personality dimensions of ADHD adults.

Research Question

Due to the lack of information on the effect of adult ADHD on Rorschach scores, a question was formed to explore this relationship. The following research question will be addressed:

Is there a significant difference in Rorschach responses between the adult ADHD group and the non-ADHD clinical control group, on the following scores: EA (experience actual), AdjD (adjusted D score), es (experienced stimulation), EB(experience balance), L (Lambda), X-% (distorted form), X+% (conventional form), F+% (conventional pure form), CF (color-form response), FC (form-color response), Afr (affective ratio), Wsum6 (weighted sum of the six special scores), M (human movement), DQv/+ (developmental quality synthesized), DQv (developmental quality vague), Zd (processing efficiency), H (human content), A (animal content), and 3r+(2)/R (egocentricity index).

Definition of Terms

The definition of terms used in this study are listed below in alphabetical order. Exner's (1993, 1995) scoring system was used when scoring Rorschach protocols. The

operational definitions for the various terms pertaining to the Rorschach are from Exner (1993, 1995).

Adjusted D Score (EA-Adjes) (AdjD)--A derived score, symbolized AdjD, obtained from using the formula EA-Adjes. The result is applied against the D Score Conversion Table. It is the best direct single Rorschach index of the ability to maintain control under demand or stress situations.

Affective Ratio (Afr)--A ratio, symbolized Afr, that compares the number of answers to the last three cards (which are all depicted in color) with those given to the first seven cards (which are mostly black and white). It relates to interest in emotional stimulation. It provides a clue to impact of the external world on a subject's behavior -- how impacted by emotion.

Animal (A)--A content category, symbolized A, used whenever an answer involves the precept of a whole animal form. These responses signify seeing what everybody sees -- the easy and conventional. It may indicate thinking that is stereotyped, banal, commonplace, or unimaginative. It could indicate low intelligence.

Attention Deficit/Hyperactivity Disorder (ADHD)--This disorder is symbolized ADHD. For the purposes of this paper when ADHD represents the adult component/version of the childhood disorder, ADHD will be preceded by the word "adult." In the DSM-IV (1994) fourth edition, there is neither a separate category nor definition that distinguishes the adult disorder from the child disorder.

Color-Form Response (CF)--A determinant, symbolized CF, which is scored for a response based primarily on color and secondarily on form. CF represents a more

impulsive way of reacting, emotional liability, less restraint. Sometimes this may mean self-centeredness.

Content--All responses are coded for subject matter (or content) of a subject's response. There are 26 content categories. The content categories of interest to this study are Human and Animal.

Conventional Form (X+%)--A derived score, symbolized X+%, which is the proportion of + and o answers for the total record. It indicates the frequency rate for making conventional (i.e., not unusual) responses. Low scores usually equate with less conventional behaviors. In interpretation, the relationship of X+% and F+% should be noted.

Conventional Pure Form (F+)--a derived score, symbolized F+, which concerns the conventional use of contour in the pure F responses (responses related to only the shape of the ink blot). It represents the proportion of pure Form responses scored + or o. It is related to intellect and ability to effectively deal with stresses. It can also be used as an index of reality testing. The typical proportion is 75%, with the lower limit at 70%. The percentage is not expected to reach 100%. Some ideographic bending of reality is compatible with cognitive flexibility.

Determinant(s)--The feature(s) of the blot that contributes to or determines the formation of the subject's apperception.

Developmental Quality (DQ)--This score, symbolized DQ, increases the interpretation of location on the card by differentiating the quality of the area specification. There are four symbols used to designate Developmental Quality. They are +, v/+, o, v. This study will investigate v and v/+.

Developmental Quality, Synthesized (DQv/+)--The synthesized response, symbolized DQv/+, refers to unitary or discrete portions of the blot being articulated and combined into a single answer. Two or more objects are described as separate but related. None of the objects involved have a specific form demand, or are articulated in a way to create a specific form demand.

Developmental Quality, Vague (DQv)--The vague response, symbolized DQv, is recorded when a diffuse or general impression is offered to the blot or blot area in a manner that avoids the necessity of articulating specific outlines or structural features. The object reported has no specific form demand, and the articulation does not introduce a specific form demand for the object reported. For instance, the response, "cloud", would be a vague response; but a "cumulous cloud" would not be vague.

Distorted Form (X-%)--A derived score, symbolized X-%, which concerns the proportion of perceptual distortion that has occurred in the total record. Minus answers reflect some sort of distortion in translating input.

Egocentricity Index (3r+(2)/R)—A derived score, symbolized 3r+(2)/R, it is an index of self-concern. A low index suggests negative self-evaluation, insufficient self-focus, perhaps excessive concern for others and values of the external world. A high index suggests too much self-focus, perhaps at the expense of others and the external world.

Erlebnistypus (SumM:WsumC)(EB)--Also called Experience Balance, symbolized EB, is the ratio of the sum of the human movement responses to the sum of weighted color responses (SumM:WsumC). It reflects the response style of the individual. Individuals weighted in the M direction suggests introversiveness (more

prone to use inner life for basic gratifications). Individuals weighted in the C direction suggests extratensiveness (uses interaction between self and outer world for gratification of basic needs). Equal weighting suggests an ambiequal individual (flexible in regard to resources for gratification). EB is a relatively stable response style.

Experience Actual (SumM+WsumC)(EA)--This is a derived score, symbolized EA, that relates to available psychological resources. It is obtained by adding the two sides of EB together (SumM+WsumC). It represents the full volume of the organized activity (that which works for the individual rather than on him/her) available to the individual. Painful affects and needs working on the individual are not "organized." EA is relatively stable over time.

Experienced Stimulation (SumFM+m+SumShading) (es)--This is a derived score, symbolized es, using response features illustrating needs and affects which act on the individual rather than being more controlled psychological activities. They represent actions that are not "organized" in the sense that some other answers are (M and C, for example).

Form-Color Response (FC)--A determinant, symbolized FC, which is scored for a response based primarily on form and secondarily on color. FC represents controlled emotional expression, emotional maturity, emotional rapport with the environment.

Human (H)--A content category, symbolized H, involving the precept of a whole human form. It signifies interest in people and a willingness to relate to some degree with people. Absence of H suggests social withdrawal, avoidance of people, a desire not to relate closely with people, or more interest in other things.

Human Movement (M)--A determinant, symbolized M, which is scored for responses involving apperception of movement; the content of which must include humans, human-like figures, or animals exhibiting human behaviors. M is representative of inner living, good imagination, capacity for fantasy, creative mental activity, good intelligence -- an inner experience that appears to be deliberate. It does not appear to be a "conscious" process, but rather a form of cautious defensiveness through which the world, and potential responses to it, are sorted through.

Lambda (L)--The proportion of Pure Form (F) answers, symbolized L, occurring in the record. Normal range is .59 to .94. $L > 1.0$ may indicate affective constrictiveness and/or guardedness. $L < .50$ reflects probability that emotion is making significant impact on cognitive operations. As L extends outward from cut-off points, the degree of emotional constriction or lability increases. L is also a crude index of the extent to which a subject is willing to become involved in a new stimulus field.

Processing Efficiency (ZSum-Zest) (Zd)--A score, symbolized Zd, derived from subtracting Zest from Zsum. It suggests how effectively an individual is able to organize, especially as directed toward adaptation. A negative Zd suggests an under-incorporator, one who does not fully process a stimulus field. A positive Zd suggests an over-incorporator, perhaps a ruminative person.

Weighted Sum of the Six Special Scores (Wsum6)--This score, symbolized Wsum6, signals the presence of an unusual characteristic in the response. Using Special Scores permits quantification of qualitative responses and identifies if some difficulty has occurred in various aspects of thinking. There are fourteen Special Scores: six concern unusual verbalizations, two are used for perseveration and integration failure, four

involve special features of content, one is used when the answer is personalized, and one is used for a special color phenomenon.

Assumptions

1. Adult Attention Deficit Disorder is a unique disorder characterized by definable traits and behaviors.
2. The diagnoses of clinicians are accurate.
3. There are no scoring discrepancies between examiners.
4. All measures used in this study are of at least interval quality.

Limitations

1. The sample sizes are small and the participants are not randomly selected.
2. There is a lack of consensus criteria for diagnosing adult ADHD.
3. The lack of attention to comorbid disorders may confound the data.
4. This study is of an underinvestigated and underdefined population and is exploratory in nature.
5. Generalizations from this study should be made cautiously.

CHAPTER TWO

REVIEW OF RELATED RESEARCH

The literature reviewed includes those studies clearly related to the proposed research. The chapter is divided into two sections: Attention Deficit Disorder and Rorschach Inkblot Test.

Attention Deficit Hyperactivity Disorder

As stated previously, research on adult ADHD has been sparse. However, several areas pertinent to this study have been researched. These areas are: (1) history and current perspective, (2) incidence, and (3) assessment and diagnosis.

History and Current Perspective

The concept of Attention Deficit Disorder in Adults is a relative newcomer in the field. And, "...because conceptual and methodological issues cloud the diagnosis, adult attention deficit hyperactivity disorder is not recognized in the official nomenclature and is infrequently a topic of investigation" (Biederman, et al, 1993, p. 1793). Biederman et al (1993) call adult ADHD a diagnostic orphan and explain, "Clinicians who treat children do not usually follow up patients into adulthood, and adult attention deficit

disorder is not often considered in adult psychiatric settings"(p. 1797). Part of this present dilemma may be based in the history of Adult ADHD.

Until the early 1980's most professionals working with ADHD believed the disorder diminished in adolescence and disappeared in adulthood (Boatwright, et al., 1995; Wender, 1987). In the 1960's and 1970's clinicians who treated Attention-deficit Hyperactive Disorder (ADHD) in children were just beginning to observe and chart its course (Boatwright et al., 1995; Wender, 1987). By the late 1970's and early 1980's accumulated evidence indicated that ADHD frequently persists into adolescence and early adulthood (Jaffe, 1995; Wender, 1987).

Formal recognition of the adult disorder was in 1980, when, in response to emerging findings, it was included in the DSM-III (1980) third edition (Boatwright et al, 1996). The official designation for the adult form of ADHD in that manual was attention deficit disorder, residual type (ADD, RT). The manual explains ADHD, RT in the following rather general terms. It is the childhood version of ADHD that has evolved into adulthood minus the hyperactivity, but with the other major symptoms such as concentration problems, impulsivity, attentional deficits, impulsivity, and so forth (Jaffe, 1995; Wender, 1987). Information on incidence and symptoms specific to adults are not clearly stated in the DSM-III because empirical evidence was only just beginning to accumulate when the manual was published (Wender, 1987). Jaffe (1995) reports that the DSM III definition of adult ADHD never caught on; but, what did catch on were the hyperactivity-dependent Utah Criteria devised by Dr. Wender and his colleagues. In addition, the University of Massachusetts Protocol for Assessment of ADHD Adults was

also widely accepted (Kane, et al, 1990). Both sets of criteria were stricter than the DSM-III, and specifically excluded a number of its criteria.

By the late 1980s, investigators had increasing evidence on incidence to support that between 30% and 80% of those children diagnosed with ADHD would continue to have either the full syndrome or a variety of residual symptoms as adults (Wender, 1987; Kane et al, 1990; Weiss & Hechtman, 1993; Boatwright et al, 1995). During the same time period researchers listed symptoms they believed to be present in adults with attention deficit, while at the same time soliciting other studies to help confirm their findings (Wender, 1987).

In 1987, the next edition of the DSM was published, DSM III-R (1987) third edition, revised. That edition was perceived by many as a lost opportunity to publicize adult attention deficit and the results of recent research (Jaffe, 1995). That appears to be so because the DSM-III-R converted ADHD,RT (which was reported in the body of the text) into ADHD,RS (Attention-deficit hyperactivity disorder, residual state); and it did so in an appendix (Jaffe, 1995).

Nevertheless, from 1987 to 1995 both research and interest in adult ADHD increased impressively with the beginning of many support groups for clients and families, two treatment centers specifically for ADHD, newsletters, and most recently a spate of media coverage (Jaffe, 1995). Currently, adult ADHD is a reoccurring topic in popular magazines (Brush, 1996; Dranov, 1993).

Hopes were high for the 1994 edition of the DSM, DSM-IV, to provide a category for adult ADHD which lived up to the results of current research and the demands of both public and professional interest (Kane et al, 1990). Some researchers were pleased.

Boatwright et al (1995) say, "The description and criteria for ADHD in the recently published DSM-IV recognize even more clearly the continuation of the full or partial complement of symptoms into adulthood" (p. 107). But not everyone shared Boatwright's enthusiasm. Jaffe (1995) seemed to doubt that the new psychiatric diagnostic manual would promote professional acceptance of adulthood ADHD. Like its predecessors, DSM-IV has a section on childhood disorders, "Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence", most of which are lifelong conditions that first appear in childhood. Jaffe (1995) appears to suggest that the placement of adult ADHD along side the childhood disorder (in similar chapters in earlier DSMs) has contributed to its neglect by adult psychiatry. So, how can the newest category, Attention Deficit/Hyperactivity Disorder (AD/HD)-which is comparably placed- expect a different reception? Both Kane et al, (1990) and Jaffe (1995) go on to explain that while adult ADHD is represented in DSM-IV, it may be too quietly. For instance, there is still not a separate category for adults. The appendix listing from DSM-III-R has been omitted completely, and now, adult ADHD is only mentioned in the childhood disorders section - and then, not by name. However, the symptom list is updated to describe adults; mentioning 'work' as well as 'schoolwork' and 'tools' as well as 'toys'. So, while reviews are mixed, it appears the DSM-IV, like its predecessors, falls short of meeting the diagnostic needs of both the professional community and their clients (Jaffe, 1995).

Incidence of ADHD

The new DSM also continues to neglect the category of incidence in adult ADHD. The literature approaches this dilemma from two directions. One computes the

percentage of adult ADHD based on what percentage of childhood ADHD persists into adulthood. The other is a more straight forward approach which computes the percentage of adult ADHD in the general population.

Incidence of childhood ADHD in the general population is reported to be between 2% and 10%. However, clinical experience supports a much higher incidence, closer to 20% (Sneed, 1995). Depending on the study, research indicates between 10%-80% of those children become adult ADHD (Kane et al, 1990; Biederman et al, 1993; Boatwright et al, 1995) producing an adult incidence between 2% and 16% in the general population. But, as yet, the adult results do not appear stable enough to be very helpful. Jaffe (1995) questioned what part of the population is being described when discussing adult ADHD: 2%? 5%? 10%? In the popular press, a figure of 25% has recently been aired (Richardson, 1993). No matter what the actual incidence, "as the children diagnosed with ADHD in the 1970s and 1980s enter adulthood, the phenomenon of ADHD in adults is expected to become a major clinical and public health concern, because an increasingly large population of clients will seek services for assessment, differential diagnosis, and management of their condition" (Boatwright et al, 1995, p.107).

Assessment and Diagnosis of Adult ADHD

Because of varied criteria there are difficulties in assessment and diagnosis of adult ADHD. Kane, et al, (1990, p. 616) say, "The most difficult clinical problem in assessing and treating adults with attention deficits is differential diagnosis...It is the pattern of presenting symptoms and associated features that is important in diagnosis at

this point in the development of this new field, rather than any rigid adherence to specific yet unempirical criteria."

In addition to the DSM-IV, there are other lists of criteria such as the Utah Criteria (Wender, 1987), the Hallowell-Ratey criteria (Ratey, et al, 1995), the Brown Attention-Activation Disorder Scale 2 (Brown, 1995), and the University of Massachusetts Protocol for Assessment of ADHD Adults (Kane et al, 1990). These are respected and will no doubt continue to be used, but each represents a slightly different slant on both causal factors as well as behavioral manifestations. So, Kane, et al, (1990, p. 622) recommend employing a "relatively broad criteria in making a diagnosis of adult ADHD until more empirically based guidelines can be developed." And Jaffe (1995) offers a reminder that what is needed is an agreed-upon set of criteria.

Rorschach Inkblot Test

Despite the current popularity of studying adult ADHD, and the stated need for standardized diagnostic measures, there have been no attempts to explore adult ADHD performance on projective test instruments such as the Rorschach. This is interesting because validity for the Rorschach is reported to be as robust as the Minnesota Multiphasic Personality Inventory (MMPI) and nearly as good as the Weschler Adult Intelligence Scale-Revised (WAIS-R) (Atkinson, Quarrington, Alp, Cyr, 1986; Atkinson, 1986; Parker, 1983; Parker, Hanson, Hunsley, 1988; Shontz & Green, 1992).

Admittedly, there has been a long debate about the validity and reliability of projective tests in general (Parker, 1983) but, Atkinson (1986) suggests that the questionable status of the Rorschach was probably based on sociocultural factors, and not

scientific evidence. Based on results of their study, Atkinson, et al (1986) argued that "the Rorschach does indeed have some validity and that poor research is at least partly culpable for the Rorschach's perceived failure" (p. 360). Finally, Shontz and Green (1992) report on a personal communication with I. B. Weiner in which he said, "Anyone who currently believes that the Rorschach is an unsound test with limited utility has not read the relevant literature of the last 20 years, or having read it, has not grasped its meaning" (p. 150).

The above-discussed dissension regarding the Rorschach probably had little to do with the lack of literature on its use with ADHD, because the "past decade has seen the publication of four major meta-analyses on the psychometric properties of the Rorschach...and all concluded that the Rorschach is reliable and valid when properly used" (Shontz & Green, 1992, p. 149). So the lack of literature may have more to do with the current uneasy status concerning the adult ADHD diagnosis.

Nevertheless, two studies were found describing the Rorschach indices of ADHD children (Bartell & Solanto, 1995; Gordon & Oshman, 1981). Another study was found that examined Rorschach profiles of learning disabled children (Acklin, 1990). The investigated behaviors appear very similar to behaviors identified in ADHD children and Bellak (1987) indicates that the category of ADHD subsumes learning disabilities. Lastly, a poster presentation at the 1996 American Psychological Association National Convention reported on Rorschach indicators of impulsivity and hyperactivity in ADHD children (Brissie & Fromuth, 1996). All four studies reported significant results on some Rorschach indices and are more fully described below.

Gordon and Oshman (1981) compared the Rorschach protocols of 20 boys rated by their teachers as hyperactive with those of 20 non-hyperactive boys. The Connor's Teacher's Behavior Rating Scale was used for placement of subjects into the two groups. For each subject, scores on a combination of 16 Rorschach determinants and ratios were gathered, including R (number of responses), P (popular responses), M (human movement), FM (animal movement), C (color), CF (color-form), FC (form-color), SumC (total color responses), A% (animal content percentage) , H% (human content percentage), F+% (conventional pure form), Sum Shading (C'+T+V+Y), reaction time to chromatic cards, and reaction time to achromatic cards. As predicted, the hyperactives produced far fewer human movement (M) responses than the non-hyperactives. This finding may "reflect the ADHD child's inability to delay responding and to bind impulse as well as affect" (Gordon & Oshman, 1981, p. 706). It also reinforces the selection of impulsivity as a major dimension in ADHD. Contrary to expectation, the groups did not differ on any of the color determinants (color-form CF, color C). Gordon and Oshman (1981) offer two possible reasons. First, there was a very limited production of color responses by all subjects. Also it may be that hyperactive children in this study were not characterized by immaturity. According to Exner (1993, 1995), the last hypothesis may be closest to the truth. In his books, color-form (CF) and color (C) appear to measure lability more than immaturity. It is interesting to speculate that some investigators may consider lability as a sign of immaturity.

Gordon and Oshman thought their most interesting findings related to content categories. ADHD children produced far more animal (A) and fewer human (H) responses than the non-hyperactive group. Theoretically, they interpreted those responses

as indicating immaturity and less capacity for identification with others. So, they concluded that the content categories A and H may tap different sources of immaturity; or, perhaps what was thought to be immaturity is actually something else (like lability?). So, while results are mixed, the conclusion was that the "Rorschach might serve as an aid in the diagnosis of impulsivity for a clinic population" (Gordon & Oshman, 1981, p. 707).

Acklin (1990) administered the Rorschach to 41 learning disabled (LD) children and compared results with Rorschach archival data on 143 non-clinical children. Acklin's study is pertinent because the behaviors he examined are behaviors also common in ADHD. Also Bellak (1987) says that learning disabilities are subsumed in the larger ADHD category. Denckla (1993) seems to agree by suggesting that ADHD adults are most often characterized by combinations of linguistic or spatial dysfunction with executive dysfunction.

Results indicated the LD children deviated significantly in their perceptual accuracy and conventionality (conventional form X+%, conventional pure form F+%, distorted form X-%), scanning operations processing efficiency (Zd), and exhibited significantly greater constriction in response to emotional-laden stimuli (affective ratio Afr).

The LD children scored significantly lower on self-focus and self-esteem (egocentricity index, 3r+(2)/R). A greater portion of LD children were ambitent (EB style); had less stress tolerance and self-control (AdjD); had difficulty with accuracy and conventionality in responses (F+); showed greater emotional distress and dysphoria (es=FM+m<SumShading); greater rigidity (L); and deficits in understanding other persons (pureH).

Two conclusions were offered in this study. First, that several Rorschach characteristics may distinguish LD children from their non-LD peers in ways that have potent implications for their self-perceptions and emotional-behavioral adaptation to their social environment. Second, that Rorschach patterns do not appear sensitive to different classifications of LD children.

Acklin's conclusion is especially helpful to this study because some experts may not agree that learning disabilities are subsumed under the ADHD category. They may suggest just the opposite, that ADHD is actually one of many learning disabilities. If the latter should be true, then comorbidity of other learning disabilities would present a confound; and each type of learning disability might be suspected of altering Rorschach results in different ways. But regardless of what one believes concerning whether ADHD is or is not a learning disability, Acklin's finding suggests that comorbid learning disabilities will not confound results.

Bartell and Solanto (1995) compared the Rorschach protocols of 24 ADHD children with the normative data. It was predicted that the ADHD group would have more color dominant responses (CF), a lower FC:CF+C ratio, fewer human movement responses (M), lower EB (SumM:WsumC) ratios, poorer form quality (X-%), and would have the same number or more detail (D) responses. The results yielded support only for those hypotheses concerning M, X-%, and EB (sumM:WsumC).

The diagnosed group, predicted to have higher incidence of color determinants, actually had significantly lower mean frequencies of form-color and color-form. Gordon and Oshman (1981), also found color determinants not significantly higher. This fact

adds weight to the hypotheses that immaturity may not be a construct in ADHD or that lability may not necessarily be a sign of immaturity.

The frequency of human movement responses (M), human content responses (H), and the EA (sumM+WsumC) were also significantly lower in the diagnosed group. Gordon & Oshman also found lower M. These results strengthen the use of M as a measure of impulsivity.

Distorted form (X-%) was significantly higher in the diagnosed group. This is sometimes construed to mean serious ego impairment. But Bartell and Solanto (1995) prefer to interpret the findings differently. They suggest there was difficulty in mediation due to responding impulsively. They also point out the this score is not uncommon in children with learning disabilities.

Finally, the ADHD-only group was compared to a group of ADHD/ODD (oppositional defiant disorder); and no significant differences were found except that the ADHD/ODD group had even fewer human content responses than the ADHD group. This finding is interesting as adult ADHD is sometimes comorbid with Anti-social Personality Disorder (ASPD) - often considered the adult version of ODD. These results may suggest that comorbidity of ODD does not have much impact on ADHD, therefore posing the same question for adult ADHD and ASPD. An argument could be made against ODD being the same disorder considering that Bartell and Solanto (1995) also found the ODD group to have significantly higher aggression determinants than the ADHD group. But, when the ODD and ADHD groups were combined, aggression was not significant.

Brissie and Fromuth (1996) compared the Conners Abbreviated Parent Rating Scale (APRS) to 43 children's Rorschach responses in an attempt to support the validity of the Rorschach indicators said to measure impulsivity and hyperactivity. They predicted high scores on FM (animal movement), C (color), and R (total number of responses). They predicted low scores on Zf (number of z scores) and number of blends. The es ratio was predicted to be weighted on the FM+M side, and this was found to be true (as it also was in Acklin's study).

The only other hypotheses reaching significance was number of Blends, and it was in the opposite direction than predicted. The authors had speculated that the types of responses present when blends are scored would typically require forethought and organization, so higher scores on the Conners (indicating more significant ADHD symptoms) would be associated with a lower number of blends. No alternative hypotheses were offered for the opposite finding, but it may be due to flaws in design (as discussed below).

The authors seemed surprised by their findings, but their results of no significance on FM, C, R, Zf, Blends, as well as significance on es are the same as the other studies. They concluded that validity of the Rorschach is in question when measuring impulsivity and hyperactive mental activity.

Results of the previous studies might suggest that Brissie and Fromuth selected the wrong determinants to measure impulsivity. Other problems concern the possibility of an inappropriate sample. First, the sample was 63% female. In the ADHD child clinical population the average ratio of males to females is 6:1, and among non-referred children it is 3:1 (Barkley, 1989). Two thirds of the adults with ADHD are men

(Biederman, et al, 1993). So, it seems the sample in this study was not representative of the population. In their favor, however, Biederman, Faraone, Stephen, Spencer, Wilens, & Timothy (1994) suggest that males and females with adult ADHD are similar to each other in clinical behaviors. So, gender differences may not significantly effect ADHD behavior. But, they may effect Rorschach responses. Coursol (1995) found significant gender differences on Rorschach responses, including some that may relate to ADHD (like H, M, C). So Brissie and Fromuth's results may have skewed as a result of gender bias.

Finally, the authors reported that none of the sample scored in the clinical range on the Conner APRS. If that is interpreted to mean the sample displayed only mild symptoms of ADHD, it seems surprising that the Rorschach was sensitive to any significant behaviors. However, this explanation would lend weight to Bartell and Solanto's (1995) suggestion that the Rorschach may be sensitive to even the subtlest differences in behaviors.

The Rorschach inkblot test has a long tradition of aiding in the diagnosis of both child and adult psychiatric disorders. It is frequently part of the assessment battery (Bellak, 1987). In addition, it has shown power to discern some ADHD symptoms in the few studies conducted with children, suggesting its use with adults may do the same.

Adult ADHD is now and will become more so in the future, a reason for adults to undergo psychological assessment. Yet, there are no empirical data concerning how the Rorschach profiles of adult ADHD might differ from any other group including non-ADHD clinical adults or the reported norms. As suggested in the child studies, the Rorschach may be more sensitive to subtle diagnostic differences between groups than

are reflected in either the DSM-IV criteria or the self report questionnaires currently in use.

Several difficulties may be inherent in self report questionnaires. First, adults often do not remember what they were like as children (Mannuzza, Klein, Blesser, Malloy, LaPadula, 1993). Next, parents have more accurate recall, but it is unusual for clinicians to be able to communicate with parents of adult clients (Wender, Reimherr, Wood, 1981). Finally, questionnaires are easily faked (American Journal of Psychiatry, 1994).

Results from the Rorschach may help in several ways. The likelihood of faking is lessened by ambiguous stimuli and no recollections of childhood are required. Also Wender's (1987) question concerning what features distinguish adult ADHD may be answered. And finally, Wender (1987) emphasized that his research describing symptoms of adult ADHD must be confirmed by other researchers before it can be widely accepted.

CHAPTER THREE

METHODOLOGY

This chapter presents the sample, instruments, null hypotheses, and procedures for data collection and analysis. It should be noted that this study is one portion of a larger project entitled Adult Attention Deficit Disorder: A Multidimensional Validation Study. For the larger project subjects were administered additional diagnostic instruments not used in this study. Those instruments are the Conners Continuous Performance Task, the Attention Deficit Disorders Scale, the Boatwright-Bracken Scale, a short form the Wechsler Adult Intelligence Scale – Revised (WAIS-R), and an additional demographic questionnaire.

Sample

Subjects for this study were volunteers recruited by flyers offering free ADHD assessments for participating in a research study. Flyers were posted in prominent places throughout a small mid-western city and on the university campus in that city. Thirty-nine people responded to the advertisement and started the evaluation procedure. Of the 39 people who responded, 26 completed the required appointments, and became the subjects for this study. Of those 26 subjects, 19 were diagnosed as adult ADHD and

comprised the adult ADHD group. The remaining 7 did not receive the adult ADHD diagnosis and comprised the clinical non-ADHD group.

In the adult ADHD group there were 12 women (63%) and 7 men (37%). The age range was from 19 to 52 years of age with an average age of 35 years old. The group included 15 Caucasians, 3 Native Americans, and one white African. Their education level ranged from high school graduates to post graduate degrees. Nine were college students. Four smoked cigarettes. Six (32%) were on antidepressant medications (including 2 who also smoked cigarettes). None were color blind.

In the non-ADHD clinical group there were 4 women (57%) and 3 men (43%). The age range was from 21 to 55 years with an average age of 39 years. All were Caucasian. Four were college students, 2 had college degrees and 1 had a post graduate degree. One person in the group smoked cigarettes and that person was not on antidepressant medication. Three (43%) were on antidepressant medications. None were color blind.

No monetary payment was offered or paid to any subject. All subjects were advised at the time of recruitment and at the time of data collection that they were free to withdraw from the study at any time without repercussions. They all signed informed consents (see Appendix C).

Instruments

Five instruments were used to gather data for this study. A demographic questionnaire was filled out by each subject (see Appendix B). Questions regarding

sensory deficits were included in order to eliminate subjects who are color-blind. The inability to see color could have adverse effects on Rorschach results (Boswell, 1987).

The assessment of adult ADHD was made utilizing criteria from the DSM-IV in the form of a semi-structured interview (see Appendix D), the Wender-Utah Rating Scale (WURS), and the Beck Depression Inventory (BDI). The BDI was used to adjust the cutoff scores for the WURS – as suggested by Wender. Individuals who met the DSM-IV criteria and scored 36 or greater on the WURS (46 or greater if BDI scores fall in the clinically significant range) were classified as adult ADHD. The 19 subjects who were diagnosed as adult ADHD became the treatment group. The remaining 7 subjects who did not meet criteria for adult ADHD became the clinical control group. Finally, the Rorschach Ink Blot Test was administered to all subjects.

Semi-Structured Interview

The interview was constructed by the researcher for use in this study. Criteria for ADHD from the DSM-IV were rephrased into questions regarding daily activities applicable to adults. As in the DSM-IV, the questions were divided into two categories: one for inattention, and the other for hyperactivity and impulsivity. There were nine questions in each category plus four additional questions regarding symptoms in childhood, impact of symptoms, and the ruling out of other mental disorders. In order to reach diagnosis a subject had to endorse six or more items in one of the two categories plus report symptoms in childhood and indicate significant impairment from present symptoms.

Wender-Utah Rating Scale

The DSM-IV specifies 5 criteria for making a diagnosis of attention deficit disorder – one of which is attention deficit during childhood. The Wender Utah Rating Scale (WURS) was developed for that purpose. Since most adults being evaluated for attention deficit disorder in adulthood have not been diagnosed with ADHD in childhood, the WURS provides the information necessary to assist in retrospectively diagnosing childhood attention deficit disorder.

The WURS is a 25-item, self-report scale allowing adults to describe their childhood behavior, and is scored on a 0 to 4 point scale: 0 = Not at all or very slightly; 1 = mildly; 2 = moderately; 3 = quite a bit; 4 = very much. The 25 items were drawn from a 61 item pool of experimental questions (Ward, Wender, and Reimherr, 1993, pp. 885-890).

Scoring the WURS involves tallying the columns of 1's, 2's, 3's, and 4's at the bottom of the page, then adding across for a grand total. The range of possible scores are 0 to 100. A score of 36 is sufficient to receive the diagnosis of adult ADHD. However, if a subject is diagnosed as depressed by the BDI (a score of 16 or higher)– then, a score of 46 or higher is required to reach the diagnosis.

Instructions to the subject are as follows. "This test is to help us collect information about you during childhood and it should take less than 10 minutes to complete. The items concern children's behavior and problems they sometimes have. Read each item carefully and decide how much you think you were bothered by these problems as a child between the approximate ages of 6 and 11 years old."

Ward, et al (1993) administered the scale to 81 adult ADHD outpatients, 100 "normal adults", and 70 adult outpatients with unipolar depression. Results show that ADHD subjects had significantly higher mean scores on all items than did the two comparison groups. "A cutoff score of 46 or higher correctly identified 86% of the ADHD adults, 99% of the normal subjects, and 81% of the depressed subjects" (p. 885). Correlations between the WURS and Parents' Rating Scale were r=0.41 for ADHD adults and r=0.49 for the normal subjects. These seem a little low, but the authors called them "moderate, but impressive." They explain that the correlations were "obtained with two entirely different instruments filled out independently by two different individuals describing childhood behavior 25 or so years earlier" (Ward, et al, 1993, p. 886). In addition, the WURS may show ability to predict response to methylphenidate. Mean scores of subjects who did or not respond to the drug were 70.3 (SD=12.5) and 59.7 (SD=15.6), respectively ($T=2.13$, $df=36$, $p<0.025$, one-tailed). Split-half reliability correlation was r=.90 ($p<0.0001$, $N=100$) indicating satisfactory internal reliability.

Rossini and O'Connor (1995) measured the internal consistency and four-week temporal consistency and temporal stability of the WURS. They judged the test to have excellent internal consistency, significant temporal consistency, and good temporal stability.

Beck Depression Inventory

The Beck Depression Inventory (BDI) assesses for depression. Depression impacts the WURS scores and is frequently a comorbid disorder with adult ADHD. The BDI is one of the most widely used tests of depression (Sundberg, 1992). It was

originally developed in 1961 by Aaron Beck and his associates at the University of Pennsylvania School of Medicine. It was revised at Beck's Center for Cognitive Therapy of the University of Pennsylvania in 1971 and again in 1993. Although Beck is associated with the development of the cognitive theory of depression, the BDI was designed to assess depression independent of any particular theoretical bias (Stehouwer, 1994).

The BDI consists of 21 items with four options per item; answered on a 0 to 3 scale of severity of depressive problems. Subjects will be instructed to consider their feelings in the last week as they endorse items. It can be completed in 5 to 10 minutes, and if a subject answers more than one choice per item, the highest answer will be used to compute the total score. The total score is computed by adding the individual scores. In the manual, Beck and Steer (1993) suggest scoring guidelines as follows: 0 to 9, minimal depression; 10 to 16, mild depression; 17 to 29, moderate depression; and 30 to 63, severe depression.

Sunbery (1992) reports the following psychometric features. Test-retest reliability with psychiatric patients ranges from .48 to .86 and nonpsychiatric samples range from .60 to .90. The internal consistency is high: .86 with psychiatric patients, .88 with outpatients, and .81 with nonpsychiatric subjects.

Studies of concurrent and construct validity presented in the manual (Beck and Steer, 1993) reported high correlations between the BDI and clinical ratings of depression both in psychiatric samples (.72) and normals (.60). BDI correlations with MMPI-D, Zung Self-rating Depression Scale, Hopelessness Scale, and Hamilton Depression Scale

are moderate to high. The results of reliability and validity studies strongly support the use of the BDI in assessing depression (Stehouwer, 1986).

Rorschach Inkblot Test

The Rorschach Inkblot Test is a projective instrument which presents 10 stimulus cards, one at a time, and asks the subject to respond to the question, "What might this be?" Each card contains a single inkblot. Some cards contain color, others do not. It takes approximately one hour for most adults to complete.

The test is considered standardized much through the efforts of Exner (1993, 1995) who developed fixed procedures for administration and scoring which he calls "the comprehensive system." These are presented in Exner's (1995) book, A Rorschach Workbook For The Comprehensive System, 4th Ed.

In addition to standardized administration and scoring, Exner's 1993 book offers exhaustive information on a standardized method of interpretation. Exner reports that there are two common ways of interpreting the Rorschach. "Some have attempted to address the Rorschach from an almost strictly nomothetic approach. Others tend to rely much more on the impressions that they glean from the content of the test. Both approaches are wrong and potentially dangerous" (Exner, 1993, p.321). Although both may include information that is potentially correct, their accuracy and richness is diminished by not interpreting results in a fashion that has proven to provide a reasonably valid and realistic picture of the subject (Exner, 1993). That approach demands an integration of all the data--structural, sequential, and content (Exner, 1993).

Rorschach may never have intended his instrument to be used in this fashion. In fact, he "was very cautious about what kinds of conclusions might be drawn from the test data...indicating that he did not know how to differentiate manifest from latent systems, and questioned the value of the test for studying "unconscious" characteristics of thinking" (Exner, 1993, p. 322). Changing to a more standardized approach to the process of Rorschach interpretation may have been necessary for the survival of the instrument. But, one thing that has not changed about the Rorschach since its inception is the necessity of approaching and interpreting the test in its totality (Exner, 1993).

According to Exner (1993), there are three steps in interpretation. The first two are: (1) propositional, and (2) integration. The final step integrates findings to develop conclusions relevant to the assessment questions. In other words, step three is the report stage.

In the propositional stage the individual "data are addressed in groups of variables, each of which relates to specific characteristics of the components of the total personality" (Exner, 1993, p.322). These "groups of data" are called "variable clusters." There are eight such clusters related to the following psychological features: (1) affect; (2) capacity for control and stress tolerance; (3) cognitive mediation; (4) ideation; (5) information processing; (6) interpersonal perception; (7) self-perception; (8) situation-related stress. See Table 1 in this text as well as in Exner, 1993, p. 323, for Rorschach variable clusters related to several psychological features.

"As various component parts of each of these Rorschach clusters are surveyed, propositions or hypotheses are formulated. At this point, it is important that no reasonable hypothesis be rejected simply because it does not seem compatible with other

propositions generated from the review" (Exner, 1993, p. 324). The actual number of propositions generated from each cluster will depend on the richness of the subject's response coupled with the interpretive skill of the examiner (Exner, 1993).

Propositions for each cluster then wait to be modified, clarified, accepted, or rejected by comparison with all other clusters. This process begins the second stage of interpretation which is the integration phase. "The overall yield of the integration stage is essentially descriptive, designed to aid in understanding the subject...[while] recognizing the limitations of the Rorschach and the importance of other kinds of data" (Exner, 1993, p. 326-327). This approach appears to show that Exner and Rorschach support an important ethic in psychological testing: that it is dangerous to make diagnoses on the strength of any one test. But in keeping with the recommendations of Beck, Klopfer, and Piotrowski (other interpreters of the Rorschach), Exner (1993) encourages users of the Comprehensive System to begin their interpretation *in the blind.* "That means developing hypotheses in the propositional stage only from the Rorschach data, and merging these postulates into a meaningful description of the subject during the integration stage" (Exner, 1993, p. 329).

The third step is completing the final report. It is important to remember that the information from steps one and two, now integrated and ready to report in step three, provide a description of the subject as he or she is <u>now</u> (Exner, 1993). It is in this stage that the interpreter may, finally, take off the "blinders." "The issue facing the interpreter in the third stage is how to best use that description in a way that combines it with other data available concerning the subject to create a final report in terms of the issues that have been presented in the assessment referral" (Exner, 1993, p. 329-330). Exner reports

that, obviously, the success of this step depends heavily on the expertise and wisdom of the interpreter.

In addition to Exner, other researchers often report on statistical features of the Rorschach. In the past decade there have been four major meta-analytic studies on the psychometric properties of the Rorschach (Shontz & Green, 1992). These have demonstrated that the Rorschach and the Minnesota Multiphasic Personality Inventory (MMPI) have roughly equivalent psychometric properties (Shontz & Green, 1992). The meta-analysis by Parker, et al, (1988) examined nine Rorschach indices from Exner's system. They were color, weighted sum of color responses, achromatic color, lambda, affective ratio, egocentricity index, experience actual, percentage of good pure form, and percentage of pure form. The overall estimate of reliability, including internal consistency and inter-rater agreement was .86 (95% CI: .82-.90); stability, which is the correlation with itself over time was .85 (95% CI: .79-.89); convergent validity, which is the extent to which the test correlates with relevant criteria was .41 (95% CI: .31-.51); and unknown validity (based on findings that lacked a theoretical or empirical rationale) was .07 (.95 CI: .01-.12) (Schontz & Green, 1992; Parker et al, 1988). Schontz and Green, 1992, found the unknown validity difficult to interpret but declared that it "probably has little bearing on conclusions regarding the usefulness of the Rorschach in situations where research objectives are clear" (p. 149).

Much of the research on the Rorschach has been concerned more with appropriate research methodology than psychometric features. The consensus appears to be that using the appropriate research design renders Rorschach results sufficiently valid and reliable to approach comparison with the WAIS-R; and to reach comparison with the

MMPI (Atkinson, 1986; Parker, et al, 1988; Atkinson, et al, 1986; Parker, 1983; Shontz & Green, 1992). The studies have identified how the Rorschach can be used in research with a reasonable expectation of reliability and validity. "When researchers have used dependent measures derived for the Rorschach to test hypotheses supported by empirical or theoretical rationales, using powerful statistics, the test has proven to be both reliable and valid" (Parker, 1983, p. 231).

Ten years ago, Atkinson et al (1986) refuted a remark by Jensen (1965) and it seems their rebuttal still stands. They said, "We can say with certainty that Jensen was premature in propounding that the rate of scientific progress in clinical psychology may be judged by the speed with which it disposes of the Rorschach, the future lies, rather, in the direction of better conceptualized research" (p. 362).

Procedures

Participants were recruited from advertisements posted in public places throughout the town and on the college campus (see Appendix A). Places included a large department store, the hospitals, grocery stores, laundromats, the student union, and the university counseling centers. The flyers solicited volunteers for a university research study which would assess whether or not they had Adult Attention Deficit Disorder. The flyer further advised that the evaluation would be free of charge, and a written report would be provided. Interested persons were instructed to contact this researcher by calling the phone number on the flyer.

There were four members on the assessment team (including this researcher). When interested persons contacted this researcher, they were given a short synopsis of the

research, and that that the assessment would take place in two sessions. Those persons desiring to take part in the study then became subjects and were given appointment times based on their preference and availability of examiners from the assessment team.

The assessment of adult ADHD was made utilizing the criterion from the DSM-IV in the form of a semi-structured interview, the Wender-Utah Rating Scale (a highly respected ADHD rating scale), and the Beck Depression Scale (used to adjust the cutoff scores for the Wender-Utah as suggested by Wender). Individuals who met the DSM-IV criteria and scored 36 or greater on the Wender-Utah (46 or greater if BDI scores fell in the clinically significant range of 16 or greater) were classified as ADHD adults.

In order to control for examiner bias, the primary diagnostic battery (DSM-IV interview, WURS, and BDI) was given by one examiner in one of the two sessions and the Rorschach was given by a different examiner. These assessments were done at two different times and the two examiners were blind to each other's results. Which session came first was based on availability of examiners at the subject's appointment time. Three examiners were counseling psychology doctoral students who had successfully completed the Rorschach course offered by their university. The fourth examiner was a Master's level community counseling student. All four examiners administered diagnostic batteries, however, only this researcher and one other doctoral level examiner administered Rorschachs. After each participant completed all of the tests, his or her assessment battery was scored by the examiner who administered it. The results were then reported to this researcher who subsequently prepared and mailed to each participant a report based upon the results of the diagnostic battery. The report was in letter form and let the participant know whether, according to the diagnostic criteria, they had Adult

Attention Deficit Disorder. The letter mailed to participants who met criteria for adult ADHD also included recommendations for education and treatment. The letter mailed to participants who met criteria for depression included recommendations on how to treat that disorder. All letters invited the subject to contact the research team if they had questions or comments. In two cases, adult ADHD subjects requested and received reports to give to their physicians. (See Appendix E for a sample letter).

As mentioned above, all data for each subject was collected in two prearranged sessions. During the first session, each participant was advised that he/she may decide not to participate in the study at any time during the experiment, with no repercussions. Next the participant signed an informed consent (see Appendix C). Each participant then completed a demographic data form (see Appendix B). After that, based on available examiners, subjects received either the diagnostic battery or the Rorschach from one examiner and returned another time to take the remaining portion from another examiner. See Table 2 for results of the diagnostic battery.

The Rorschach was administered to all subjects according to the procedures set forth by Exner (1995, 1993). It was administered by this researcher and only one other member of the assessment team. Scoring was done only by this researcher who completed a Sequence of Scores sheet for each subject. Scoring was done by hand. The scores were then fed to a computer program, RIAP-3, which rendered a Structural Summary for each subject. The institutional review board approved this study before data collection began.

Table 2

Means and Standard Deviations of the BDI, WURS, and Semi-Structured Interview for the ADHD Group (n=19), the Non-ADHD Group (n=7), and the Total Sample

	ADHD		Non-ADHD		Total	
	Mean	SD	Mean	SD	Mean	SD
BDI	13.42	8.11	11.28	5.28	12.84	7.09
WURS	63.57	11.18	34.28	20.14	55.57	17.68
Interview	14.53	1.73	8.42	2.29	13.46	2.98

Hypothesis

The null hypothesis for this study was that there is no significant difference between ADHD adults and non-ADHD adults on the following Rorschach scores: EA (experience actual), AdjD (adjusted D score), es (experienced stimulation), EB (experience balance), L (Lambda), X-% (distorted form), X+% (conventional form), F+% (conventional pure form), CF (color-form response), FC (form-color response), Afr (affective ratio), Wsum6 (weighted sum of the six special scores), M (human movement), DQv/+ (developmental quality synthesized), DQv (developmental quality vague), zd (processing efficiency), H (human content), A (animal content), and 3r+(2)/R (egocentricity index).

Analysis of Data

Contrary to the original plan, data could not be analyzed using inferential statistics because of the small sample size. However, to assess differences between the sample of ADHD adults and the published norms, z-tests were conduced for all the variables in the original research question.

CHAPTER FOUR

RESULTS

This chapter reports the results of the study. The problem addressed by this exploratory study was to investigate the impact of adult ADHD on 19 selected Rorschach scores with the idea of using the Rorschach as a diagnostic tool which might distinguish adult ADHD populations. The Rorschach scores selected for investigation were those that had shown significance in studies on the impact of childhood ADHD on Rorschach scores.

The following null hypothesis was planned to be examined in this study. There is no significant difference between ADHD adults and non-ADHD adults (who present for assessment for adult ADHD) on the following Rorschach scores: EA (experience actual), AdjD (adjusted D score), es (experienced stimulation), EB(experience balance), L (Lambda), X-% (distorted form), X+% (conventional form), F+% (conventional pure form), CF (color-form response), FC (form-color response), Afr (affective ratio), Wsum6 (weighted sum of the six special scores), M (human movement), DQv/+ (developmental quality synthesized), DQv (developmental quality vague), zd (processing efficiency), H (human content), A (animal content), and 3r+(2)/R (egocentricity index).

Due to the small sample size inferential statistics could not be used to test the null hypothesis. However, the means and standard deviations of the participants' scores on

the Rorschach variables are presented in Table 3. Three scores appear to be clinically significant in that they differ by at least one standard deviation. AdjD and 3r+(2)/R are higher in the adult ADHD subjects than in the non-ADHD subjects. One score, es, was lower in the adult ADHD subjects than the non-ADHD subjects.

Additional analyses were performed to assess for differences between the adult ADHD subjects and the published normative data. Specifically, z-tests (comparing the adult ADHD group to the norms) were conducted for all the variables in the original research question. To reduce the risk of attaining significance by chance (Type I Error) and to keep power at a reasonable level, alpha was reduced to .01which resulted in a critical z-value of +/-2.57. See Table 4 for results of the z-tests.

The Rorschach scores that showed a statistically significant difference between adult ADHD subjects and the published norms were Afr (affective ratio), CF (color-form response), X+% (conventional form), DQv/+ (synthesized developmental quality), X-% (distorted form), EA (experience actual), es (experienced stimulation), FC (form-color response), H (human content), M (human movement), L (lambda). EB (experience balance) showed a clinical difference. All other Rorschach scores showed no significant differences between adult ADHD subjects and the published norms.

Nine of the 12 significantly different scores were lower than the published norms. They are: Afr, CF, X+%, DQv/+, EA, es, FC, H, and M. EB showed that the majority of adult ADHD subjects are ambitent (opposed to published data indicating that most people are either extratensive or introversive). The remaining two scores, L and X-%, were higher than the published norms. Seven Rorschach scores showed no significant

difference between the adult ADHD subjects and the published norms. They are: AdjD, A, F+%, DQv, 3r+(2)/R, Zd, and Wsum6.

Table 3

Means and Standard Deviations of ADHD (n=19) and Non-ADHD (n=7) Subjects for Variables on the Rorschach Inkblot Test

Variable	ADHD		Non-ADHD	
	Mean	SD	Mean	SD
Adj D	0.158	0.602	-0.714	1.380
Afr	0.499	0.157	0.520	0.181
A	7.632	3.166	8.000	3.786
CF	0.368	0.597	0.429	0.787
X+%	0.631	0.146	0.463	0.124
F+%	0.669	0.155	0.706	0.586
DQv/+	0.000	0.000	0.000	0.000
DQv	0.684	1.003	1.286	1.113
X-%	0.118	0.099	0.167	0.079
3r+(2)/R	0.429	0.230	0.280	0.087
EA	5.447	3.013	5.786	2.514
Es	5.053	3.749	10.143	5.699
FC	1.105	1.100	2.286	2.360
H	2.263	1.593	1.143	0.690
M	1.789	1.182	1.714	0.756
L	1.355	1.121	0.824	0.257
Zd	0.289	3.084	0.929	2.317
Wsum6	4.053	4.916	7.714	10.468

Table 4

Means and Standard Deviations of ADHD Subjects (n=19) and the Standardized Norms for Variables on the Rorschach Inkblot Test

Variables	ADHD		Norms		Z-value
	Mean	SD	Mean	SD	
AdjD	0.158	0.602	0.20	0.87	-0.21
Afr	0.499	0.157	0.69	0.16	-5.162 **
A	7.632	3.166	8.18	2.04	-1.171
CF	0.368	0.597	2.36	1.27	-6.845 **
X+%	0.631	0.146	0.79	0.08	-8.83 **
F+%	0.669	0.155	0.71	0.17	-1.05
DQv/+	0.000	0.000	0.41	0.66	-2.72 **
DQv	0.684	1.003	1.30	1.26	-2.13
X-%	0.118	0.099	0.07	0.05	4.36 **
3r+(2)/R	0.429	0.230	0.40	0.09	1.38
EA	5.447	3.013	8.83	2.18	-6.77 **
Es	5.053	3.749	8.20	2.98	-4.61 **
FC	1.105	1.100	4.09	1.88	-6.93 **
H	2.263	1.593	3.40	1.80	-2.76 **
M	1.789	1.182	4.31	1.92	-5.73 **
L	1.355	1.121	0.58	0.26	12.92 **
Zd	0.289	3.084	0.72	3.06	-0.614
Wsum6	4.053	4.916	3.28	2.89	1.166

** significant at .01 confidence level

CHAPTER FIVE

SUMMARY, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents a summary of the study, a discussion based on the results, implications for practice, and recommendations for future research.

Summary

The problem addressed by this exploratory study was to investigate the impact of adult ADHD on 19 selected Rorschach scores with the idea of using the Rorschach as a diagnostic tool that might distinguish adult ADHD populations. The Rorschach scores selected for investigation were those that had shown significance in studies on the impact of childhood ADHD on Rorschach scores.

The Rorschach and an ADHD diagnostic battery were administered to 26 adults who volunteered for the study. Nineteen subjects were diagnosed with adult ADHD and comprised the treatment group. The remaining 7 subjects did not meet criteria for adult ADHD and comprised the clinical control group. All data were collected during the spring and summer of 1997.

The following null hypothesis was proposed for this study. There is no significant difference between the ADHD adults and non-ADHD clinical adults on the following Rorschach scores: EA (experience actual), AdjD (adjusted D score), es

(experienced stimulation), EB(experience balance), L (Lambda), X-% (distorted form), X+% (conventional form), F+% (conventional pure form), CF (color-form response), FC (form-color response), Afr (affective ratio), Wsum6 (weighted sum of the six special scores), M (human movement), DQv/+ (developmental quality synthesized), DQv (developmental quality vague), zd (processing efficiency), H (human content), A (animal content), and 3r+(2)/R (egocentricity index).

Because of the small sample size, data could not be analyzed using analyses of variance, testing the effect of ADHD on each of the 19 Rorschach scores. However, the data (except EB) were analyzed using z-tests to compare the difference between the Rorschach scores of the adult ADHD subjects and the published norms. EB was not analyzed because there is no published normative data for that score. In order to reduce the risk of getting significance by chance, alpha was reduced to .01 resulting in a critical z-value of +/-2.57.

Significance was found for the following 11 Rorschach scores: Afr (affective ratio), CF (color-form response), X+% (conventional form), DQv/+ (synthesized developmental quality), X-% (distorted form), EA (experience actual), es (experienced stimulation), FC (form-color response), H (human content), M (human movement), and L (lambda). EB (experience balance) appears to have clinical significance based on Exner's (1993) description of usual scoring patterns. All other Rorschach scores showed no significant or clinical differences between ADHD subjects and the published norms.

Nine of the 11 significantly different scores were lower than the published norms. They are: Afr, CF, X+%, DQv/+, EA, es, FC, H, and M. Two scores, L and X-%, were higher than the published norms. EB demonstrated an ambitent style contrary to the

majority of people who are usually extratensive or introversive. The 7 Rorschach scores that showed no significant difference between the adult ADHD subjects and the published norms. They are: AdjD, A, F+%, DQv, 3r+(2)/R, zd, and Wsum6.

The findings reported from the analyses of the data reported in Chapter 4 are made within the framework of the following limitations:

1. The sample sizes are small and the participants are not randomly selected.
2. There is a lack of consensus criteria for diagnosing adult ADHD.
3. The relative lack of attention to comorbid disorders may confound the data.
4. This study is of an underinvestigated and underdefined population and is exploratory in nature.
5. Generalization from this study should be made cautiously.

Discussion

In this section, each of the 19 Rorschach scores will be discussed according to the findings of the study. Much of what is said in this discussion is my opinion. There are other possible interpretations. Caution should be used in generalizing or applying these results because in addition to being very small, the sample of ADHD adults is atypical because the majority are female and they also appear to be a relatively healthy functioning group.

Exner (1993) cautions against interpreting individual Rorschach scores and suggests they be viewed in related categories that make interpretation of scores more easily understood and more easily applicable in clinical practice. This discussion places the investigated Rorschach scores in the appropriate categories and discusses the specific

meaning of the statistical differences between the adult ADHD subjects and the normative data. Following that is a discussion of possible clinical differences between the adult ADHD subjects and the non-ADHD subjects. Finally, there is a proposed personality profile of ADHD adults based on the findings of this research.

The scores investigated in this study fall in six categories: (1) psychological resources and stressors, (2) mediation, (3) affect, (4) intellectual operations, (5) interpersonal skills, and (6) self-perception. Following is an in depth discussion of each category.

Psychological Resources and Stressors

The scores that relate to psychological resources and stressors are EA (experience actual), AdjD (adjusted D score), es (experienced stimulation), and EB (experience balance).

EA (Experience Actual)

EA is a derived score that relates to available psychological resources. It is obtained by adding the two sides of EB together (SumM+WsumC). The resulting sum is a combination of all answers involving human movement and the weighted value of all responses involving chromatic colors (FC, CF, C). It represents the full volume of the organized activity that works for the individual rather than on him/her. It may be considered as an index of resources that are accessible to the individual and drawn on when necessary to formulate decisions and implement those decisions in deliberate behavioral activity. An increase in EA is the expected outcome of therapy and indicates

the development of more inner life and affective experience, thereby constituting a broadening of available resources (Exner, 1993).

EA was significantly lower for adult ADHD subjects (M=5.45) than the norm (M=8.83). This appears to indicate that the adult ADHD subjects have fewer psychological resources available to draw upon in times of need. The fact that studies (Bartell & Solanto, 1995) of ADHD child populations also reported lower EA may indicate a similarity between the childhood and adult conditions in regard to lowered availability of psychological resources.

AdjD (Adjusted D Score)

AdjD and EA are usually interpreted together since AdjD is a derived score obtained from using a formula that manipulates EA (EA-Adj es). The result is applied against the D Score Conversion Table. Exner (1993) describes AdjD as the best direct single Rorschach index of the ability to maintain control under demand or stress situations. He goes on to say that most adults, whether patients or non-patients, will have an AdjD of zero. If the score exceeds zero it signifies a greater capacity for control and a greater tolerance for stress because the resources available for use are well in excess of the demands for responses.

There was no significant difference for AdjD scores between the adult ADHD subjects (M=0.158) and the published norms (M=0.20); a condition that appears to indicate adequate stress tolerance. However, Exner (1993) cautions that AdjD must be considered in relationship to EA which results in an adult ADHD pattern of low EA coupled with normal AdjD.

Exner (1993, p. 373) describes people with the specific configuration of low EA coupled with AdjD of zero or greater as "more chronically vulnerable to becoming disorganized by many of the natural everyday stresses of living in a complex society. They function most efficiently in environments that are well structured and reasonably free of ambiguity." Interestingly, "structuring" of the environment is a common and effective treatment for ADHD, which appears to further uphold the findings of this study.

These results appear to support that an AdjD score of near zero coupled with a low EA score may accurately identify the adult ADHD symptom of low stress tolerance. And low stress tolerance most likely contributes to other ADHD symptoms such as attention deficit, organizational deficit, impulsivity, and social/interpersonal/emotional problems (as found by Acklin, 1990).

es (Experienced Stimulation)

This score represents an index of demands being experienced by the subject (Exner, 1993). It is a derived score (SumFM+m+SumShading) which is the sum of all non-human movement responses and all the responses with shading. It represents needs and affects that act on the individual rather than being more controlled psychological activities that act for him/her. (In this way it is the opposite of the EA score which represents available psychological resources working for the individual). The es score represents actions that are not "organized" in the sense that some other answers are (M and C, for example).

This score, es, was significantly lower for adult ADHD subjects (M=5.05) than the norm (M=8.20). Exner (1993) says low es illustrates that the person has fewer needs

and affects which act on him/her. Combining this lower es with the also lower EA, it appears that while the adult ADHD subjects may experience fewer demands on their psychological resources than the normative sample; they also have fewer psychological resources to deal with those demands than the normative sample.

In other words, it appears that the adult ADHD subjects have less than average resources to deal with stress, but they also experience less stress than most people. It is interesting to speculate that adults with ADHD may unconsciously limit their subjective stress because they have fewer internal resources to deal with stress.

The lower es for adult ADHD subjects replicates similar findings in the studies of children with ADHD (Acklin, 1990; Brissie & Fromuth, 1996). These results appear to support that low es may accurately identify the adult ADHD symptoms of impulsiveness, stress tolerance inadequacy, social/interpersonal/emotional problems, and possibly persistent motor activity.

EB (Experience Balance)

"Rorschach considered the Erlebnistypus (EB) as one of the most important characteristics of the test (Exner, 1993)." It reflects the underlying preferential response/coping style of the individual and is relatively stable over time. EB is the ratio of the sum of the human movement responses to the sum of weighted color responses (SumM:WsumC). Individuals weighted in the M direction are introversive and more prone to use inner life for basic gratification and problem solving. Individuals weighted in the C direction are extratensive and use interaction between themselves and the outer

world for gratification of basic needs and problem solving. Equal weighting suggests an ambitent individual. Ambitent individuals do not possess a consistent response/coping style that often results in ineffective problem solving and more vulnerability to emotions.

It was not possible to statistically compare the EB of adult ADHD subjects to the norm because there are no published norms, nonetheless perusal of the data offers some interesting information. In the population as a whole, most individuals are either extroversive or introtensive. It is believed that ambitent individuals constitute a minority in the adult population. However, in the sample of ADHD adults 53% (10 out of 19 subjects) were ambitent. In Acklin's (1990) child study, he also reported the majority of his subjects were ambitent.

Exner (1993, p426) says that "the ambitents are clearly less efficient...[And] they use more time to solution, but more important, they repeat more operations and repeat more errors than either of the other groups...It would appear that the ambitent needs to verify each maneuver or operation, and apparently does not profit as much from mistakes as do either of the other kinds of subjects. The ambitent is probably more prone to vacillate during problem solving...tending to fluctuate between alternatives rather than manifest a consistent coping approach. The lack of consistency can breed more vulnerability to disruption under stress conditions. This does not mean that ambitents are less well adjusted or effective, but a lack of consistency can become a significant liability under various circumstances."

Acklin (1990) believed the ambitent style contributed to all six ADHD symptoms: attention deficit, organizational deficit, impulsivity, motor activity, social/interpersonal/emotional problems, and low stress tolerance. So, it appears that an

ambitent EB style may be one of the most salient Rorschach indices with respect to behavioral impact of ADHD.

Mediation, Perceptual Accuracy, and Conventionality

The scores that relate to mediation including perceptual accuracy and conventionality are X+% (conventional form), L (pure form), X-% (distorted form), F+% (conventional pure form), and Wsum6 (the weighted sum of the six special scores).

X+% (Conventional Responses)

This is a derived score which is the proportion of + (better than ordinary) and o (ordinary) answers for the total record. It indicates the frequency rate for making conventional (i.e., not unusual) responses. Low scores usually equate with less conventional behaviors. Acklin (1990) describes the score as an indication of perceptual accuracy as well as conventionality.

X+% was significantly lower in adult ADHD subjects (M=0.63) the norm (M=0.79). So, adult ADHD subjects appear less conventional than the norm. Exner (1993, p.465) reports that "if the X+% if less that 70%, it can be assumed that the subject is oriented toward making more unconventional translations of stimuli than do most people. This usually equates with patterns of less conventional behaviors." However, he goes on to say that being unconventional does not necessarily equate to behaviors that are unacceptable or antisocial. It could represent strong individualism, or possibly be the byproduct of social alienation. However, X+% is another Rorschach index that is best interpreted in combination with at least one other score, L (Lambda).

L (Lambda)

Lambda is the proportion of pure form answers occurring in the record. The normal range is 0.59 to 0.94. L> 1.0 may indicate affective constrictiveness and/or guardedness. L< .50 reflects probability that emotion is making significant impact on cognitive operations. As L extends outward from cut-off points, the degree of emotional constriction or lability increases. Exner (1993) describes L as a crude index of the extent to which a subject is willing to become involved in a new stimulus field.

L was significantly higher for adult ADHD subjects (M=1.36) than the norm (M=0.58). Exner (1993) says that when L exceeds 0.99 (as the adult ADHD subjects did) it indicates a response style that is oriented toward reducing stimulus situations to their most easily managed level. He says, "this often requires a narrowing or simplification of the stimulus field. In doing so, the subject tends to minimize the importance of, and/or ignore some elements of the stimulus field ...As a result, their behaviors, at times, may be less effective in terms of the requirements of the situation and, at times, can even run contrary to social expectations (p.405)."

The adult ADHD subjects in this study have an X+% that is less than 70%, coupled with a high L. The combination often results from subjects having a "strong orientation to maintain distance from, and thus cope with an environment that is perceived as threatening, demanding, and unforgiving (Exner,1993, p.465)." In other cases the unconventional behaviors can result from difficulties with cognitive processing or perceptual accuracy.

These results appear to support that low X+% coupled with high L may accurately identify adult ADHD symptoms of attention deficit, organizational deficit, and impulsiveness. Acklin (1990) reported similar findings in his study of ADHD children.

X-% (Distorted Form)

This is a derived score that concerns the proportion of perceptual distortion that has occurred in the total record. According to Exner (1993) minus answers reflect some sort of distortion in translating input. He states that almost all subjects give some minus responses, "and when the frequency is low, it probably represents no more than a glimpse into some personal preoccupation or some mediational casualness on the part of the subject."

X-% was significantly higher for adult ADHD subjects (M=0.12) than the norm (M=0.07). However these results are not as negative as it might appear. Exner (1995) states that the X-% value is expected to be less than 15 %, and that 2 or 3 minus responses usually is not cause for major concern. In this study the number of X- responses given by adult ADHD subjects ranged from 0 to 9, representing from 0% to 39% of the total record. The average number of X- responses for adult ADHD subjects was 2.42 and the average percentage was 12%. So, it appears that the adult ADHD subjects in this study had enough distorted responses to differ from the norm, but most of the subjects had an X-% of less than 15% which represents no more perceptual inaccuracy and/or mediational distortion than most people. However, the adult ADHD group definitely shows a trend toward perceptual inaccuracy and/or mediational distortion which might be better defined in a larger sample. It should also be noted that a higher X-

% has been associated with creativity. Nevertheless, these findings replicate the results of child studies by Acklin (1990) and Bartell & Solanto (1995) who counted mediational difficulties as a factor in all six major ADHD symptoms: attentional deficits, impulsiveness, persistent motor activity, organizational deficits, social/interpersonal/emotional problems, and stress tolerance inadequacy.

F+% (Conventional Pure Form)

This is a derived score which concerns the conventional use of contour in the pure F responses (responses related to only the shape of the ink blot). It represents the proportion of pure form responses scored + (better than ordinary) or o (ordianry). It is related to intellect and ability to effectively deal with stresses. It can also be used as an index of reality testing. The typical proportion is 75%, with the lower limit at 70%. The percentage is not expected to reach 100%. Some ideographic bending of reality is compatible with cognitive flexibility.

There was no significant difference in the adult ADHD subjects (M= 0.67) and the norm (M=0.71). In addition, there did not appear to be any difference between the adult ADHD subjects and the non-ADHD subjects. This finding is in contradiction to one study of the impact of childhood ADHD or Rorschach responses. In that study (Acklin, 1990) found significantly lower responses in ADHD children indicating either poor reality testing, poor stress tolerance or both.. One explanation for the difference in this study of ADHD adults may be that ADHD is manifested differently in children than in adults. Another possible explanation is that both reality testing and cognitive flexibility have improved with age and maturity. Also, perhaps the sample is atypical due to high

functioning. It seems unlikely that non-significance indicates ability to handle stress because other significant data in this study refute that the adult ADHD have adequate psychological resources to handle stress.

Wsum6 (Weighted Sum of the Six Special Scores)

Wsum6 signals the presence of an unusual characteristic in the response. Using special scores permits quantification of qualitative responses and identifies if some difficulty has occurred in various aspects of thinking. There are fourteen special scores: 6 concern unusual verbalizations, two are used for perseveration and integration failure, 4 involve special features of content, one is used when the answer is personalized, and one is used for a special color phenomenon.

There was no significant difference between in Wsum6 between the adult ADHD subjects (M=4.05) and the norm (M=3.28). This finding is contrary to the child study by Acklin (1990) who reported significantly higher Wsum6 for ADHD children. The difference may indicate that adult ADHD subjects have acquired maturity of cognitive functions, compensation skills, or have become conditioned to respond in a typical fashion.

Affect

The scores involved with affect include CF (color-form response), FC (form-color response), Afr (affective ratio), and WsumC (weighted sum of chromatic color responses). EB will also be discussed again because it relates to affect. CF and FC are discussed together because they are so closely related.

CF (Color Form) and FC (Form Color)

CF is a determinant which is scored for a response based primarily on color and secondarily on form. CF represents a more impulsive way of reacting, emotional lability, and less restraint. Sometimes this may mean self-centeredness.

FC is a determinant which is scored for a response based primarily on form and secondarily on color. FC represents controlled emotional expression, emotional maturity, emotional rapport with the environment.

Adult ADHD subjects had significantly fewer chromatic color responses than the norm. The mean CF is 0.37 for adult ADHD subjects and 2.36 for the norm. The mean FC is 1.10 for adult ADHD subjects and 4.09 for the norm. According to Exner (1993) chromatic color responses are related to affect. FC represents controlled emotional expression, while CF represents a more impulsive emotional expression. Bartell & Solanto (1995) attributed low color responses to attention deficit, organizational deficit, impulsivity, and motor activity. This examiner also suggests that low chromatic color responses may indicate lack of inclination to deal with affective material as also indicated by the low Afr.

Afr (Affective Ratio)

Afr compares the number of answers to the last three cards (which are all depicted in color) with those given to the first seven cards (which are mostly black and white). It relates to interest in emotional stimulation. It provides a clue to the impact of the external world on a subject's behavior – how the subject is impacted by emotion.

Afr was significantly lower for adult ADHD subjects (M=0.49) than the nomt (M=0.69). According to Exner (1993) scores in this range suggest that the subject is either less interested or less willing to process emotional stimuli. Acklin's (1990) study also reported a lower Afr which was interpreted to relate to ADHD symptoms of impulsivity and social/interpersonal/emotional difficulties.

EB (Experience Balance)

EB has been explained in detail in the section on psychological resources, but the EB style also plays a part in affect. Most (53%) of the adult ADHD subjects in this study were ambitent. Exner (1993, p490) says, "it is likely that the emotions of the [ambitent] subject are inconsistent in terms of their impact on thinking, problem solving and decision-making behaviors. In one instance, the subject's thinking may be strongly influenced by feelings, whereas in a second instance, even though similar to the first, emotions may play only a peripheral role. Because the role of emotions in psychological functioning is not very consistent, the subject is often more vulnerable to their effects."

Intellectual Operation, Mental Complexity, and Processing

Rorschach scores in that reveal information concerning cognition are M (human movement), DQv/+ (vague synthesized developmental quality), DQv (vague developmental quality), and zd (processing speed).

M (Human Movement)

This determinant is scored for responses involving apperception of movement; the content of which must include humans, human-like figures, or animals exhibiting human behaviors. M is representative of inner living, good imagination, capacity for fantasy, creative mental activity, good intelligence -- inner experience that appears to be deliberate. It does not appear to be a "conscious" process, but rather a form of cautious defensiveness through which the world, and potential responses to it are sorted through.

M was significantly lower for adult ADHD subjects (M=1.78) than the norm (M=4.31). According to Exner (1993) M responses involve the elements of reasoning, imagination, and a higher form of conceptualization. It also relates to higher levels of intellectual operation which are required for delaying activity so that a more deliberate form of ideation occurs. It can be seen that a low number of M responses could be linked to ADHD symptoms of impulsivity and increased motor activity (as demonstrated by Bartell& Solanto, 1995; Gordon & Oshman 1981).

DQv/+ (Vague Synthesized Developmental Quality)

Exner (1993) provides four different ways to score developmental quality (DQ): + (synthesized response), o (ordinary response), v/+ (vague synthesized response), and v (vague ordinary response). DQv/+ refers to unitary or discrete portions of the blot being articulated and combined into a single answer (synthesized). Two or more objects are described as separate but related. None of the objects involved have a specific form demand, or are articulated in a way to create a specific form demand (vague).

Synthesized responses are the most complex responses and require a high level of cognitive action utilizing greater mental complexity and flexibility than more simple or concrete responses. An example of a simple response (o) is "a bat". Made into a synthesized response (+) it becomes "a bat swooping downward through the night." So, it can be seen that synthesized responses represent general "enrichment' of the overall answer. The vague synthesized response (DQv/+) is unique because it involves 2 or more objects which are described as separate but related and none of the objects involved have a specific form. An example of such a response is "the reflection of a cloud in a body of water." DQv/+ is the least frequent of the four types of developmental quality answers.

None of the adult ADHD subjects had any DQv/+ responses which resulted in a significant difference between the adult ADHD subjects (M=0.0) and the norm (M=0.41). This is interpreted to mean that ""cognitive activity is less sophisticated and/or complex than might be expected (Exner, 1993, p.458)." Acklin (1990) also found lower DQv/+ in his child study. These results appear to suggest that ADHD adults, like their child counter-parts, experience attentional deficits, organizational deficits, and impulsiveness.

DQv (Vague Developmental Quality)

DQv differs from DQv/+ in that it only includes a single object (rather than two or more) without any form. It is recorded when a diffuse or general impression is offered to the blot or blot area in a manner that avoids the necessity of articulating specific outline or structural features. The object reported has no specific form demand, and the articulation does not introduce a specific form demand for the object reported. For

instance, the response "cloud" would be a vague response; but a "cumulous cloud" would not be vague.

There was no significant difference in DQv scores between the adult ADHD subjects (M=0.68) and the norm (M=1.30). This condition is different from the child study (Acklin, 1990) which reported significantly lower DQv for ADHD subjects. The difference may relate to the acquisition of more sophisticated abilities by adult intellectual ADHD subjects.

zd (Processing Efficiency)

This score is derived from subtracting Zest from Zsum. It suggests how effectively an individual is able to organize, especially as directed toward adaptation. A negative zd suggests an under-incorporator, one who does not fully process a stimulus field. A positive Zd suggests an over-incorporator, perhaps a ruminative person.

There was no significant difference in zd scores between the adult ADHD subjects (M=0.29) and the norm (0.72). This finding is different from a study (Acklin, 1990) on ADHD children which reported a significantly lower DQv. The difference in the findings of the two studies may be due to the acquisition of more sophisticated abilities by adult intellectual ADHD subjects.

Interpersonal Skills

The two scores that related to interpersonal skills are H (human content) and A (animal content).

H (Human Content)

H is a content category involving the precept of a whole human form. It signifies interest in people and a willingness to relate to some degree with people. Low H suggests social withdrawal, avoidance of people, a desire not to relate closely with people, or more interest in other things.

H was significantly lower in adult ADHD subjects (M=2.26) than the norm (M=3.40). Human content, H, was also found to be significantly lower in all four of the ADHD child studies (Acklin, 1990; Brissie & Fromuth, 1996; Bartell & Solanto, 1995; Gordon & Oshman, 1981). It makes intuitive sense that the behaviors associated with childhood ADHD may cause difficult and painful interactions with people. This may be particularly so in the education system where ADHD children have proven difficulty. It is not hard to deduce that painful social interactions may lead to redirection of interests away from people into less painful endeavors.

A (Animal Content)

Animal content is used whenever an answer involves the precept of a whole animal form. These responses signify seeing what everybody sees – the easy and conventional. It may indicate thinking that is stereotyped, banal, commonplace, or unimaginative. It could indicate low intelligence.

There was no significant difference in A scores for adult ADHD subjects (M=7.63) and the norm (M=8.18). One study of childhood ADHD (Gordon & Oshman, 1981) reported significantly higher A, and associated it with immaturity below the chronological age. This may mean that the ADHD adults in this study are not immature,

and that is an interesting speculation. Since ADHD children and adolescents often exhibit behavior that is labeled immature, it has been speculated that adults with ADHD will continue to display immature behaviors. In view of this finding, that does not appear to be the case. Instead, it seems that ADHD adults may "catch up" to an appropriate maturity level.

Self-Perception

The only score in this category is the egocentricity index, 3r+(2)/R.

3r+(2)/R (egocentricity index)

This derived score represents the proportion of "pairs" and "reflections" in the total record. It is an index of self-concern and relates to self-esteem. A low index suggests negative self-evaluation, insufficient self-focus and perhaps excessive concern for others and values of the external world. A high index suggests too much self-focus, perhaps at the expense of others and the external world.

There was no significant difference in 3r+(2)/R scores between adult ADHD subjects (M=0.43) and the norm (M=0.40). This appears to indicate that adult ADHD subjects have about the same amount of self esteem as everyone else. This is a surprising finding because Acklin (1990) reported significantly lower self esteem in his study of children with ADHD. Lowered esteem makes intuitive sense given the difficulties faced by individuals with ADHD. However, ADHD people have been observed to be less conscious of social cues, which in some ways may shield them from negative interactions that could produce low esteem. It addition, the adult ADHD subjects in this study were

all "doing pretty well" educationally, and career-wise; so they might be different in some way from adults who were diagnosed as children.

Three Clinically Significant Differences Between the Adult ADHD Subjects and the Non-ADHD Clinical Subjects

An inspection of data reveals some interesting clinical differences between the adult ADHD subjects and the non-ADHD subjects. Three scores appear to be different by at least one standard deviation. AdjD and 3r+(2)/R are higher in the adult ADHD subjects than in the non-ADHD subjects. One score, es, was lower in the adult ADHD subjects than the non-ADHD subjects. This appears to indicate that the adult ADHD subjects possess better self esteem than the non-ADHD subjects in this study. And, while the ADHD subjects possess better stress tolerance, they are also experiencing less stress than the non-ADHD subjects. No attempt to interpret these results is offered, but it should be remembered that adults volunteering for this study probably suspected that they might have problems.

Summary of Adult ADHD Personality Style

If all the scores are considered together, a personality picture of the ADHD adult begins to emerge. The ADHD adult appears not to have adequate psychological resources for the demands being subjectively experienced (EA, AdjD). This may be complicated by less efficient problem solving (EB). The ADHD adult may compensate for a lack of psychological resources by successfully attempting to reduce stimulus situations (es). In order to do that the ADHD adult may cope by maintaining distance

from any environment that is perceived as threatening, demanding, and unforgiving – especially emotional material (CF, FC, Afr). This may include unwillingness to relate to some degree with people (H). While the aforementioned tactics may reduce stress on the system, the result can be less effective behaviors which sometimes run contrary to social expectations (X+%, L). There may also be a trend toward inaccurate perception because the field is purposefully narrowed (X-%). There may also be a trend towards creativity (X-%).

While ADHD adults show no evidence of being emotionally labile, they may appear to be so because of their inconsistent emotional response. In one instance the person's thinking may be strongly influenced by feeling, whereas in a second instance, even though similar to the first, emotions may play only a peripheral role. Because the role of emotions is not very consistent, the subject may be more vulnerable to their effects (EB).

Lastly, ADHD adults are impulsive and their cognitions may be less complex than expected for their age (DQv/+, DQv). However, they possess the same amount of self-esteem as the population as a whole.

Implications for Practice

Results of this exploratory study give support to the continued investigation of Rorschach scores to help describe adults with ADHD. Eleven of the 19 investigated scores were significantly different from the normative sample for the ADHD subjects, and may offer important material for distinguishing personality characteristics of adults with ADHD. Those scores are Afr, CF, X+%, DQv/+, X-%, EA, es, FC, H, M, and L.

There were 7 scores that did not reach statistical significance. Those scores are AdjD, A, F+%, DQv, 3r+(2)/R, Zd, and Wsum6. The final score, EB, showed the ambitent style to be present in over half of the ADHD adults. This finding was also reflected in the only child study that investigated EB (Acklin, 1990). When interpreting Rorschach protocols, an ambitent response style may be a signal to investigate the possibility of adult ADHD.

This study was intended to help break ground in the relatively new area of diagnosing and/or describing adult ADHD, and give clinicians some guidelines in using tools with which they are already familiar until more specific tools are developed. Hopefully the results obtained from this study will give clinicians more insight into the personality profile of ADHD adults as well as earmarking a few Rorschach indices, such as EB, that may direct the clinician towards considering the possibility of adult ADHD.

Several Rorschach characteristics may distinguish ADHD adults from their non-ADHD peers in ways that have potent implications for their self-perceptions and emotional-behavioral adaptation to their environment. It was gratifying to identify strengths that may be associated with adult ADHD. For instance, subjects in this study had as least as much self-esteem as the norm and seemed, in some ways, to be able to insulate themselves from stress. In addition, there may be a trend toward creativity in development of compensatory behaviors to avoid unwanted stimuli. Finally, the ADHD subjects in this study appeared to be more psychologically healthy than the non-ADHD clinical sample, and were not characterized by immaturity or emotional lability as some research has suggested.

It is hoped that this study may assist future researchers design diagnostic tools for adult ADHD as well as further define the personality traits of the adult with ADHD. It

is also hoped that future descriptions of adult ADHD may include strengths suggested by this investigation. Finally, this exploration may be used as a starting place for future studies of the impact of adult ADHD on Rorschach indices.

Recommendations for Future Research

Based on the conclusions and implications of this study, it is recommended that a comprehensive study be undertaken to further assess and expand upon the relationships between Rorschach scores and adult ADHD. Future researchers may want to include Rorschach scores not investigated in this study. Of particular interest may be EBPer and Rorschach clusters. Of interest with EBPer may be reaction time to chromatic verses achromatic cards. An investigation of X-% as it relates to creativity may also prove enlightening. Given the small sample size of this study, it is recommended that further studies with larger sample sizes be used to replicate and help support these findings using inferential statistics.

Future researchers may want to measure the difference between subjects within the category of ADHD as well as between the categories of ADHD and non-ADHD adults. For instance, the ADHD sample for this study may possess different personality configurations than other ADHD adults – especially those diagnosed as children. The differences that may impact Rorschach scores include the facts that none of the current ADHD sample had been in therapy before, and all were either gainfully employed or successfully attending college. Also, the majority of the sample was female which is the opposite of ADHD incidence data, and some studies (Barkley, 1989; Coursol ,1995) found significant gender differences on Rorschach responses. Many subjects were taking

antidepressant medications, and it is unknown how that may influence Rorschach scores. It might also be helpful to know more about history of employment, relationships, and alcohol/drug abuse. Finally, it would be interesting to know how many ADHD subjects had children with ADHD.

Finally, it may be interesting to re-validate the hyperactivity-dependent Utah Criteria as presented by Wender (1981). The present research suggested a minimal amount of physical hyperactivity. If proven, the absence of hyperactivity in adult ADHD would verify the DSM III (1980) contention that the condition evolved to adulthood minus the hyperactivity.

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APPENDIX A

FLYER USED TO INVITE PARTICIPANTS

Adult Attention Deficit Disorder

Screenings

A research project is currently underway on Adult Attention Deficit Disorder (AADD). A four hour time commitment is necessary. You will receive a report which will address whether or not you meet criteria for AADD. For more information, call Sandy at 743-0204.

There is no charge for this service.

Appointments available through July 31.

Sandy 743-0204
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APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

DEMOGRAPHIC INFORMATION

1. Name:

2. Age:

3. Gender:

4. Ethnicity: Hispanic
   African American
   Asian American
   Native American
   Caucasian
   Pacific Islander
   Other

5. Major or Occupation:

6. Classification (if student)
   Freshman
   Sophomore
   Junior
   Senior
   Graduate

   Years of Schooling (if not a student)
   Grade School
   Jr Hi/ Middle School
   High School
   Some College
   Graduated College

7. Do you smoke? ____yes ____no

8. Are you taking any psychotropic medications such as Ritalin or antidepressants?
   If so, please list_____.

9. Do you have any visual impairments?
   Nearsighted
   Farsighted
   Astigmatism
   Colorblindness
   Other
   None

APPENDIX C

INFORMED CONSENT FORM

CONSENT FOR PARTICIPATION IN RESEARCH

I_____, fully consent to participate in the OSU research investigation entitled "Adult Attention Deficit Disorder: A multidimensional Validation Study.

I understand that my participation will take about 4 hours divided into two sessions and will involve taking the following tests: The Conners Continuous Performance Task, The Adult Attention Deficit Disorders Evaluation Scale, the Boatwright-Bracken Attention Deficit Scale, the Rorschach inkblot test, appropriate subtests of the WAIS-R, DSM-IV semi-structured interview, Wender-Utah Rating Scale, Beck Depression Inventory, and a Demographic Questionnaire.

I understand that after completion of all tests, I will receive a report based upon the diagnostic battery indicating whether or not results indicate that I may have adult Attention Deficit Hyperactivity Disorder.

I further understand that the information gathered during the experiment will be kept confidential and only used anonymously for research purposes. The one exception is that my name will be known to researchers in association with any diagnosis for the purpose of reporting that diagnosis to me. After such report is made, my name will be removed from all records and replaced with a number that cannot be traced to me.

I also know that participation in this study is voluntary. There is no penalty for refusal to participate, and I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director.

I may contact Dr. Donald Boswell of OSU's Counseling Psychology department either at Willard Hall or by calling 405/744-6036. I may also contact Jennifer Moore, IRB Executive Secretary, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078; Telephone: 405/ 744-5700.

The purpose of this investigation is to further knowledge on adult attention deficit hyperactivity disorder and its diagnosis. Results will also increase our understanding of the personalities of adults with ADHD. Thank you for your participation!

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date:_____ Time:_____(a.m./p.m.)

Signed_____
Signature of Subject

I certify that I have personally explained all elements of this form to the subject before requesting the subject to sign it.

Signed_____
Project Director or his authorized representative

APPENDIX D

SEMI-STRUCTURED INTERVIEW FOR ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

STRUCTURED INTERVIEW FOR ADULT ATTENTION DEFICIT DISORDER

A. Either (1) **or** (2) is required for the diagnosis:

(1) **six or more** of the following symptoms of **inattention** have persisted for a least 6 months to a degree that is maladaptive and inconsistent with developmental level:

____ Do you often fail to give close attention to details or make careless mistakes in schoolwork, work, or other activities?
____ Do you often have difficulty sustaining attention in tasks or leisure activities?
____ Do others often comment that you are not listening to them even when they are speaking to you directly?
____ Do you often not follow through on instructions or not complete chores, or duties at work?
____ Do you often have difficulty organizing tasks and activities?
____ Do you dislike, avoid, or are reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)?
____ Do you often lose things necessary for tasks or activities such as assignments, pencils, books, or tools?
____ Are you easily distracted by extraneous stimuli such as outside street noises or the television in another room?
____ Are you often forgetful in daily activities? Do you require a list to keep on track, for instance?

(2) **six or more** of the following symptoms of **hyperactivity/impulsivity** have persisted since childhood to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity
____ Do you often fidget with your hands or feet, or squirm in your seat?
____ Do you often leave your seat in situations in which remaining seated is expected (church, school, board meetings)?
____ Do you often feel restless or actually run about or climb excessively in situations in which it is inappropriate?
____ Do you often have difficulty engaging in leisure activities quietly?
____ Are you often "on the go" or act as if you are "driven by a motor"?
____ Do you talk a lot or too much?

Impulsivity
____ Do you often blurt out answers before questions have been completed?
____ Is it hard for you to wait for your turn?
____ Do you often intrude on or interrupt others (butt into conversations/games)?

B. ____ Can you remember having some of the above symptoms since around age 7?
C. ____ Are these symptoms causing you problems in two or more settings (home, office, school)?
D. ____ Tell me more about how these symptoms are interfering with your functioning at home, socially, or at work (school). [**Must be clear evidence of impairment**].
E. ____ These symptoms are not accounted for by another mental disorder and are not happening exclusively during another mental disorder (mood, anxiety, dissociative, personality, schizophrenia, developmental, or psychotic).

APPENDIX E

SAMPLE REPORT SENT TO ADHD SUBJECTS

OSU

Applied Behavioral Studies in Education
434 Willard
Stillwater, Oklahoma 74078-3063
405-744-6040

August 26, 1997

Sandy Locke
Oklahoma State University
Adult ADD Research Team
415 Willard Hall
Stillwater, OK 74078

Dear Ms.

Thank you for participating in our study. One purpose of the study is to provide documentation of the existence of behaviors in you which may be representative of Adult Attention Deficit Disorder. We used the following listed criteria to determine results, and *based on these* you do meet diagnostic criteria for Adult Attention Deficit Disorder.

1) DSM-IV Diagnostic Criteria

- Six or more symptoms of inattention or hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.
- Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.
- Some impairment from the symptoms is present in two or more settings.
- There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
- The symptoms are not better accounted for by another mental disorder.

2) A score of 36 or greater on the Wender-Utah Rating Scale (46 or greater if Beck Depression Inventory falls within clinically significant range).

It is very important to note that you did reach criteria for Adult Attention Deficit Disorder on other tests in the battery, as well. Should you wish to obtain a second opinion, we would be glad to send the raw data from all instruments to any licensed psychologist you choose.

If you have concerns about yourself and Adult Attention Deficit Disorder, following are some options you may want to consider: seek a second opinion; consult a physician for possible medication therapy; enter individual counseling/psychotherapy; join a support group for adults with Attention Deficit Disorder; and read about the condition. There are a number of good titles on the subject, and following are three that have informative sections on adults with Attention Deficits.

1. The Hyperactive Child, Adolescent, and Adult - Attention Deficit Disorder Through the Lifespan by Paul H. Wender, M.D.

2. Hyperactive Children Grown Up - ADHD in Children, Adolescents, and Adults, Second Edition,by Gabrielle Weiss, M.D., F.R.C.P.[C] and Lily Trokenberg Hechtman, M.D., F.R.C.P.[C].

3. Attention Deficit Disorder: A Different Perception by Thom Hartman.

Please, be advised that we did not assess for other psychological disorders. If you have any further questions, please feel free to contact Charla Hall, Sandy Locke, or Donald Boswell at 405/744-6040.

Sandy Locke, M.A.
Examiner

Donald L. Boswell, Ph.D.
Supervising Psychologist
License #638

APPENDIX F

IRB FORM

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 03-31-97 **IRB#: ED-97-088**

Proposal Title: ADULT ATTENTION DEFICIT DISORDER: A MULTIDIMENSIONAL VALIDATION STUDY

Principal Investigator(s): Donald L. Boswell, Terry A. Stinnett, R. Sandy Locke

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature: _____ Date: April 7, 1997

Chair of Institutional Review Board

cc: R. Sandy Locke

VITA

Sandy R. Locke

Candidate for the Degree of

Doctor of Philosophy

Dissertation: ADULT ATTENTION DEFICIT DISORDER: ITS IMPACT ON RORSCHACH SCORES

Major Field: Applied Behavioral Studies

Biographical:

Education: Graduated from Central High School, Muskogee, Oklahoma in May 1963; received Bachelor of Arts degree in Special Education and Speech Therapy from Northeastern State University, Tahlequah, Oklahoma in December 1967; received Master of Arts degree in Speech Pathology from the University of Tulsa, Tulsa, Oklahoma in May 1971. Completed the requirements for the Doctor of Philosophy degree at Oklahoma State University in December 1998.

Professional Experiences: Speech Pathologist for Oklahoma Department of Human Services, 1966-1975; Speech Pathology Consultant to Muskogee VA Hospital, 1973-1975; Sales Associate, Fite-Reynolds Real Estate Company, Muskogee, Oklahoma, 1975-1978; Executive Director, Muskogee County Community Action Program, 1978-1979; Counselor/ Family Liaison, Muskogee Alternative High School, 1989-1992; Speech/ Language Pathologist, Muskogee Public Schools, 1992-1994; Graduate Teaching Assistant, Oklahoma State University, 1994-1997; Counselor, Personal Counseling Services-West, Oklahoma State University, 1994-1995; Psychotherapist, Edwin Fair Community Mental Health, Stillwater, Oklahoma, 1995-1996; Psychotherapist, Osage Nation Counseling Center, Pawhuska, Oklahoma, 1996-1997; Psychology Intern, VA Hospital, Phoenix, Arizona, September, 1997-September, 1998; Green Country Mental Health, Muskogee, Oklahoma, September, 1998-present.