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FAMILY FUNCTIONING'S RELATIONSHIP WITH COMPLIANCE IN FAMILIES
WITH A CHILD DIAGNOSED
WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER

by

Jackie Edward Ferrell

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education

Major: Counseling

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Dedication

As a Christian and a first generation college student, I would like to dedicate this work primarily to God who makes all things possible.

Also to my wife, Lisa, and to our children Cassie and Coy who supported me through the entire process that resulted in this document. They never complained about schedules always being made to fit school schedules, or a vacation afternoon where I snuck away to do homework, or sitting in the hall of Ball Hall waiting for me to get out of class... with only the promise of a trip to Disney World. I love you.

I would like to also dedicate this work to my parents, Charles and Helen Ferrell. They taught me many lessons and I have said many times, "if I'm half the parent they were, I'm doing okay." Mom you were not here to share in the finality but the journey would have never begun without your support, guidance and love. I love you both. Mom, I miss you.

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There are several individuals from academia I would like to acknowledge. Valerie Pylant: Who should know my area as well as I do with all of the read and reread she did. Dr. Hank Manle: Whose lectures made me excited about learning. Dr. Phil Hestand: Who has been a mentor ever since my first counseling course. Dr. Randy Perry: Who gave me a chance even when I did not deserve it.

Lastly, I would like to thank my committee for their guidance not only through the dissertation but the comprehensive examination as well. I'd like to especially acknowledge Dr. Dick James and Dr. Dan Lustig who have been a part of my doctoral studies from the beginning to the end.

Abstract

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The number of children with Attention Deficit/Hyperactivity Disorder [ADHD] is significant and growing (Pastor & Reuben, 2008). For example, the United States Census Bureau survey of medical issues reported that 4.5 million children, representing 7.8% of the population in the United States between the ages of 5 to 17, have been diagnosed with ADHD (National Health Interview Survey, 2006). Compliance in families with a child with ADHD has been a topic of research. A number of studies have specifically investigated medication compliance. It is reported that medication non-adherence can range from 20% to 70% (Stine, 1994). It is not only an issue for medication treatment. It is also reported that 51% do not complete behavioral interventions (Corkum, Rimer, & Schachar, 1999).

It is hypothesized that compliance with mental health treatment would have a positive impact on the outcome of treatment for ADHD. Thus, improvement of compliance would be a sought after goal, and ways to achieve compliance would be a beneficial area of research. If a relationship between family functioning and compliance can be established, then interventions directed towards improving family functioning could impact treatment compliance. The focus of the current study is to determine whether there is a relationship between family functioning and compliance with treatment for a child with a diagnosis of ADHD. The following research questions will be examined:

1. Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD?

2. Is there a relationship between family functioning and treatment compliance as perceived by a mental health professional for a family with a child diagnosed with ADHD?

Participants were a sample of 63 families who have a child in the home with a diagnosis of ADHD. Both a mental health professional that provided services to the family and a parent/guardian evaluated the family's functioning by each completing the Family Assessment Device [FAD] (Ryan, Epstein, Keitner, Miller, & Bishop, 2005) on the family. The mental health professional also completed a treatment compliance inventory, specifically designed for this study.

Significance was only found between the FAD subscale of behavior control and the treatment compliance inventory ($p < .001$) when the mental health professional completed the FAD. Interventions with families in the development of behavior control could have a positive impact on compliance with this sample. One question raised by this study is why was behavior control not significant when the FAD was completed by a parent?

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Chapter 1

Introduction

The number of children with Attention Deficit/Hyperactivity Disorder [ADHD] is significant and growing (Pastor & Reuben, 2008). For example, the United States Census Bureau reported that 4.5 million children, representing 7.8% of the population in the United States between the ages of 5 to 17, have been diagnosed with ADHD (National Health Interview Survey, 2006). *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* [DSM IV TR] (American Psychiatric Association, 2000) estimated that 3% to 7% of school age children met the criteria for a diagnosis of ADHD (American Psychiatric Association, 2000). In a report compiled by the National Center for Health and Statistics, the number of children with ADHD increased at a rate of 3% per year between 1997 to 2006 (Pastor & Reuben, 2008). Boys are more likely to be diagnosed with ADHD than girls, with 9.5% of boys as compared to 5.9% of girls diagnosed with ADHD (American Psychiatric Association, 2000; National Health Interview Survey, 2006).

Prevalence differs from state to state, with Colorado reporting the lowest prevalence (5%), and Alabama reporting the highest occurrence (11%). Regionally, the Southern United States exhibits higher levels of ADHD than any other region in the United States (National Health Interview Survey, 2006).

Family characteristics also impact prevalence. For example, families having parents with no more than a high school education are more likely to have a child with ADHD. Families with boys with ADHD are more likely to have family incomes under the poverty level (National Health Interview Survey, 2006).

Statement of the Problem

Attention Deficit/Hyperactivity Disorder. The *DSM IV TR* (American Psychiatric Association, 2000) diagnostic criteria for ADHD are divided into two categories: *inattention* and *hyperactivity-impulsivity*. To meet the criteria for diagnosis, the individual must have six symptoms from one of the two categories of inattention and hyperactivity-impulsivity. The symptoms associated with inattention are:

1. Difficulty giving attention to detail or makes careless mistakes,
2. Difficulty sustaining attention,
3. Difficulty in listening when directly spoken to,
4. Not following directives or finish school work,
5. Difficulty with organization,
6. Avoiding engagement in activities that require sustained concentration,
7. Losing items needed to complete tasks,
8. Easily distracted from external stimuli, and
9. Forgetting of daily activities.

Symptoms associated with hyperactivity-impulsivity are:

1. Fidgeting of the hands or feet, or squirming in their seat,
2. Difficulty staying in seat during structured activities,
3. Running and climbing excessively,
4. Difficulty engaging in quiet play,
5. Constantly moving, and seems driven to move,
6. Excessive talking,
7. Blurting out answers,

8. Difficulty waiting their turn, and
9. Interrupting frequently.

In addition, the symptoms must be present before the age of seven and must occur in two or more settings.

Symptoms of ADHD are often present as early as the toddler stage of development, even though diagnosis is difficult in these young children. Inattentive type ADHD may go undiagnosed until later childhood. It is reported that ADHD is prevalent in 3% to 7% of children. Males are more likely to be diagnosed with ADHD than females. There is evidence that ADHD is found more frequently with children whose biological parents were diagnosed or recall multiple symptoms of ADHD. This family pattern leads to the possible conclusion of a genetic link. There is no biological or neurological testing for ADHD, thus resulting in diagnoses based on observation and reports from family, schools and other involved adults (American Psychiatric Association, 2000).

Family Functioning. For the purpose of this study, family functioning is defined according to the *McMaster Model of Family Functioning*. The McMaster Model of Family Functioning, developed in the 1970s, is based on a family systems approach. Assumptions of the model are that all members of the family are interrelated and cannot be understood apart from the family system. Family organization and interaction among family members are important in understanding individuals in the family (Ryan et al., 2005).

The McMaster Model proposes that the function of the family is to meet the social, biological, and psychological needs of its members. These needs are divided into

basic tasks, developmental tasks, and hazardous tasks. Basic tasks are fundamental responsibilities such as food, shelter, money, and transportation. Developmental tasks relate to the family or to individual developmental issues, and especially to how transitions are maneuvered. These include transitional periods such as marriages, births, and the movement of adult children away from the family. The level of accomplishment of these family tasks is measured along a continuum. Family tasks are examined within six family dimensions; specifically, (a) problem solving, (b) communication, (c) roles, (d) affective responsiveness, (e) affective involvement, and (f) behavior control (Ryan et al., 2005).

The problem solving dimension involves two types of problems (*instrumental* and *affective*). Instrumental problems involve the family meeting daily needs. Affective problems involve the family meeting the members' emotional needs. The dimension of communication also includes instrumental and affective problems, but also incorporates into the subscale the variables of verbal and non-verbal communications (Ryan et al., 2005).

The roles dimension focuses on the family's attainment of resources such as food and money, or nurturing and support, or adult sexual gratification, or personal development, and maintenance on the management of the family. The affective responsiveness dimension focuses on how well the family addresses needs, as they relate to welfare and emergency emotions. The *affective involvement dimension* focuses on the level of support the family has for each family member's interests. Finally, the *dimension of behavior control* focuses on physical dangers, psychological needs, and socialization in and out of the family (Ryan et al., 2005).

An ADHD diagnosed child in a family and the level of family's functioning are related (Biederman, Milberger, Faraone, & Kiely, 1995; Pressman et al., 2006). Evidence supports a relationship between family conflict and cohesion and the level of impairment of the ADHD child (Biederman et al., 1995; Pressman et al., 2006). In an unpublished manuscript using the *Family Assessment Device* [FAD], a significant difference was found between a parent's perception of the family with an elementary school age child with a diagnosis of ADHD and mental health providers working with the family's perception on their level of functioning (Ferrell, 2009). The mental health providers found family functioning as lower than the family perceived its own functioning. This study speculated that family functioning will affect the family's level of compliance to treatment and recommends supportive services may be needed to boost compliance.

Other studies also provide evidence of a relationship between family functioning and having a family member with ADHD. In a study by Kendall, Leo, Perrin, and Hatton (2005), a positive correlation was found between the distress of the mother and the behavioral problems of the child and between family conflict and the child's inappropriate behavior. Lange et al. (2005) examined the relationship between family functioning and having a child in the family with ADHD. This study found lower family functioning in families with a child diagnosed with ADHD and an emotional disorder than families that did not have these diagnoses. The study also found that ADHD families had a higher level of authoritarian parenting than the control group and families with a child with only an emotional disorder diagnosis.

Harris, Boots, Talbot, and Vance (2006) found that these families scored in the clinical range for five of the six subscales of the FAD, with problem solving being the only subscale that was not in the clinical range. Pressman et al. (2006) examined families having two children with a diagnosis of ADHD and mothers with a mood disorder. Using the *Family Environment Scale*, a significant positive correlation between family conflict and difficulties related to family functioning was found. In addition, there was a significant negative correlation between family cohesion and difficulties related to family functioning. In a study comparing the functioning of families without a child with an ADHD diagnosis to families with an ADHD diagnosed child, families with a child with an ADHD diagnosis functioned at a lower level than those without a child with an ADHD diagnosis (Biederman et al., 1995). In addition, the study found that families with an ADHD diagnosed child had greater conflict and less cohesion than those without. Also, families with a child diagnosed with ADHD were more likely to have a parent with a mental health diagnosis (Biederman et al., 1995).

These studies provided evidence that family functioning and having a child with ADHD are intimately related. For many of these families, treatment by mental health professionals is an important aspect of assisting the family to cope with a family member with ADHD. It is also posited that the family's perception of functioning is an important aspect of treatment effectiveness. A family that does not understand that family functioning and child behaviors are related and has an inaccurate view of their family's functioning may be resistant or noncompliant, with respect to following the intervention recommendations of the professional working with the family.

Family Compliance. Compliance in families with a child with ADHD has also been studied. A number of studies have investigated medication compliance. It is reported that compliance non-adherence can range from 20% to 70% for stimulant treatment (Stine, 1994). Another study reported a 20% dropout rate in children receiving medication treatment, by the fourth month of treatment (Corkum et al., 1999). This number increases with time with a reported dropout rate of 45% by the tenth month of treatment. With respect to behavioral compliance, Corkum et al. (1999) reported that 55% of families with a child with ADHD did not complete behavioral interventions. Knowledge about ADHD does not appear to be related to treatment compliance. For example, Bennett, Power, Rostain, and Carr (1996), in a study of 91 parents of children with ADHD, found no relationship between counseling feasibility, counseling acceptability, and medication acceptability and compliance to treatment. In contrast, Corkum et al. (1999) found that parents with greater knowledge of ADHD were more likely to enroll their child in a treatment program. There was no relationship between increased knowledge and adherence to treatment.

Compliance may be linked to the severity of the symptoms. In a study comparing a group of parents who remained in a parenting program to those who dropped out, the researchers concluded that the more disruptive the behaviors of the child, the more likely they were to drop out. In addition, families who dropped out of treatment were more likely to view the parenting techniques taught as not being effective (Friars & Mellor, 2007). An aspect that was not addressed in this study is the family functioning of the families that dropped out.

The vehicle for treatment delivery can also affect compliance. For example, Carpenter, Frakel, Marina, Duan, and Smalley (2004) in study of parent-adolescent conflict training delivered via internet, found that internet delivery of the intervention was effective in maintaining parental follow-through. Of the six that began the study, four completed the study. Of these four, all but one maintained a pattern of regular log-ins to receive the training. The authors of the study felt that their findings were promising, as they concluded their delivery style promoted coherence to treatment.

Research suggests a relationship between family functioning and compliance to treatment interventions for families with a member with ADHD. If a relationship between family functioning and compliance can be established, then interventions directed towards improving family functioning would also impact treatment compliance, when directed towards the member with ADHD. The focus of the current study is to determine whether there is a relationship between family functioning and compliance to treatment.

Purpose of the Study

The purpose of this study is to investigate the relationship between family functioning and compliance to treatment. This study will examine the relationship between dimensions of family functioning and the level of compliance to treatment for families with a child with a diagnosis of ADHD.

The following research questions will be examined:

1. Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD?

2. Is there a relationship between family functioning and treatment compliance as perceived by a mental health professional for a family with a child diagnosed with ADHD?

The following hypotheses were tested:

Hypothesis 1: There will be no relationship between family functioning, as measured by the Family Assessment Device, and treatment compliance, as measured by a researcher generated scale, as rated by parents with children diagnosed with Attention Deficit Hyperactivity Disorder.

Hypothesis 2: There will be no relationship between family functioning, as measured by the Family Assessment Device, and treatment compliance, as measured by a researcher generated scale, as rated by mental health professionals concerning families with children diagnosed with Attention Deficit Hyperactivity Disorder.

Definition of Terms

Attention-Deficit/Hyperactivity Disorder: Attention-Deficit/Hyperactivity Disorder is an exaggerated pattern of both or either difficulty maintaining attention and focus, or difficulty with impulsiveness and hyperactivity. Subtypes include Attention-Deficit/Hyperactivity Disorder, Combined Type, Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type, and Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type (American Psychological Association, 2000).

Family Assessment Device: Family Assessment Device is a sixty item assessment based on the McMaster Model of Family Functioning. The assessment measures functioning along seven subscales. These subscales are affective involvement, affective

responsiveness, behavior control, communication, problem solving, roles and general functioning (Ryan et al., 2005).

Mental Health Professional: A mental health professional is defined as either a masters level therapist or a bachelors level case manager that has worked with the family for at least six months.

Parent: A parent is defined as a long term caregiver living in the home that is an active contributor to the mental health treatment.

Treatment Compliance: Treatment compliance refers to engagement with treatment planning and regulations in the area of medical, clinical, and technical as defined by the program in which the client is enrolled.

Treatment Compliance Inventory: The Compliance Inventory is a researcher generated inventory that uses compliance areas as identified by the Arkansas Medicaid Program known as Rehabilitation Services for Persons with Serious Mental Illness [RSPMI]. RSPMI is a specialty Arkansas Medicaid program that provides those that qualify and extensive mental health treatment regimen that includes individual, family, and group therapy; medication management; case management; and day treatment services. This inventory consists of 12 items scored on a Lickert-type scale that ranges from 7, “Always”, to 1, “Rarely.”

Chapter 2

Literature Review

The purpose of this literature review is to determine what research has been conducted in the realm of ADHD diagnoses, compliance, and family functioning. In an attempt to be thorough, the literature review begins by exploring research of a general nature that addresses compliance. Literature searches were then conducted for compliance associated with certain DSM IV TR (American Psychiatric Association, 2000) diagnoses, with particular attention to the diagnosis of ADHD. Exploration then incorporated compliance along with a DSM IV TR diagnosis related to family functioning and psychosocial factors. Again, special attention was given to the diagnosis of ADHD.

Compliance to Treatment

A review of the research related to treatment compliance indicates that research focuses on both internal and external factors that impact compliance to treatment. The external factors included the impact of the clinic organization, the training of the clinician, and the approaches of the clinician. Internal factors included the belief of the benefit of treatment and the lack of a perceived problem. It should be noted that compliance to mental health treatment has been shown to positively impact the outcome of treatment (Kazdin & Wassell, 1998). Thus, improvement of compliance would be a sought after goal, and ways to achieve compliance would be a beneficial area of research. Exploration of the research supports this premise, revealing numerous articles on the topic.

Clinic Structure and Compliance. A clinic's approach to organizing the delivery of treatment has an impact on compliance. Lazaratou, Anagnostopoulos, Vlassopoulos, Tzavara, and Zelios (2006) compared compliance patterns for children and adolescents during two time periods at a community mental health facility in Athens, Greece. The first time period was between 1990 and 1994, with the second time period being 2000 to 2002. Time frames were selected to produce similar sample sizes for each period. The results of the study showed a decrease in early termination from treatment from the earlier time to the latter time. This was attributed to a streamlining of the logistics of treatment delivery. For example, the agency developed procedures that more efficiently processed treatment initiation and the development of a diagnosis. They also pointed out an improved follow-up on clients and a greater focus on the outcome of treatment as having a positive impact on compliance.

Clinicians' Impact on Compliance. Clinician training also impacts compliance. Dye, Ducharme, Johnson, Knudson, and Roman (2009) explored how the level of training the staff had impacted compliance. The study examined the credentials of the staff that oversaw therapeutic communities used to treat addictions and how it impacted compliance. The researchers found that therapeutic communities whose staff had greater training also exhibited more compliant client behaviors.

Clinicians' approaches impacts compliance. Hogue, Liddle, and Rowe (1996) examined compliance with family therapy and concluded that extensiveness of treatment had a positive relationship with treatment. They defined extensiveness in terms of the thoroughness of interventions and the frequency of interventions. Their conclusion was

that session compliance was greater if multiple interventions were used for brief periods of time during a session.

Not only is compliance impacted by the actions, beliefs, and training of the clinician, but also it is influenced by the beliefs of the client and his or her guardian. Famularo, Kinscherff, Bunshaft, Spivak, and Fenton (1989) found parents who were court ordered to undergo treatment did not necessarily have better results with compliance, with up to 48.49% of court ordered families being non-compliant with treatment. This study was supported by Hansen and Warner's (1994) study of compliance of families with a history of maltreatment of family members. They found maltreating families, as a group, were likely to be non-compliant with treatment. The article attributed non-compliance partially to their lack of identifying that there was a problem. This study reported compliance issues not only in the area of session attendance, but also in the area of homework assigned. Nock, Ferriter, and Holmberg (2007) compared compliance to the parental view of treatment credibility and the parental expectations of treatment. The result of the study was that treatment credibility and expectations were significant predictors of compliance to treatment.

Compliance Related to Medication and Psychotherapy

This section will explore the literature that addressed the use of psychotherapy to support medication treatment as related to compliance. It will also identify potential causes of non-compliance related to factors that could be addressed with psychotherapy.

Historically, research supports that a combination of medication and psychotherapy has a positive impact on compliance (Joost, Chessare, Schaeufele, Link, & Weaver, 1989; Paykel, 1994). Recent articles continue to support pharmacotherapy being

combined with some form of talk therapy. Dietz, Mufson, Irvine, and Brent (2008) found involvement in family therapy to be beneficial to medication compliance. Marhefka, Tepper, Brown, and Farley (2006) supported the positive impact psychotherapy had on medication compliance had regarding the treatment of HIV positive children. The children were more likely to be compliant with the HIV treatment when it was combined with psychotherapy. Stine (1994) examined factors associated with noncompliance with medication. Two constructs he identified were that of psychosocial variables and psychodynamic variables. Psychosocial factors included such factors as oppositional behaviors of children, resulting in their being unwilling to take the medication, and passivity of the parent, resulting in their not providing an atmosphere of support for compliance. Psychodynamic factors included such variables as family structure, expectations, myths held, and belief systems. One can quickly see the benefits of combining psychotherapy as a means to address psychodynamic issues that are problematic to treatment and deter compliance to treatment.

Compliance Related to Individuals with a DSM IV TR Diagnosis

A large body of research was associated with compliance related to a DSM IV TR Diagnoses (American Psychiatric Association, 2000). The DSM IV TR is designed to diagnose on a five Axis assessment protocol. For the purpose of literature review, Axis I and Axis II will be examined as they relate to compliance. An Axis I diagnosis is for the reporting of identified clinical disorders. These disorders are grouped into categories based on similar symptomology or developmental occurrence.

DSM TR IV Axis II diagnoses consist of Personality Disorders and Mental Retardation. Personality Disorders are divided into clusters based on similar traits.

Cluster A consists of the diagnoses of paranoid, schizoid, and schizotypal personality disorders. This grouping is because of a commonality that individuals who meet criteria for these diagnoses appear to an observer to be odd or unusual. Many times they are socially awkward, withdrawn, or seem to have no desire for socialization. Cluster B includes diagnoses of antisocial, borderline, histrionic, and narcissistic personality disorders. These individuals can be emotionally volatile and overly dramatic. Cluster C consists of the diagnoses of avoidant, dependent, and obsessive compulsive personality disorders. These diagnoses have a common thread of being overly fearful or nervous (American Psychiatric Association, 2000).

Lazaratou, Vlassopoulos, and Dellatolas (2000) found high non-compliance rates in clients with a mood disorder or an anxiety disorder. Compliance was problematic for individuals with a depressive disorder.

One study followed compliance of adolescents who were recently discharged from an inpatient hospitalization due to suicidal ideation (Costello, Burns, Angold, & Leaf, 1993). Upon release from inpatient treatment, this group was assessed every three months for compliance over a two year period. They discovered that if individuals also met criteria for Disruptive Behavior Disorder, or had an alcohol or drug problem, they were less likely to comply with psychotherapy. The researchers also found that individuals with a past inpatient stay and met the criteria for an anxiety disorder, were less likely to comply with medication management.

Dietz et al. (2008) examined compliance with depressed preadolescent children. They compared the impact of family therapy on medication compliance and found that clients who were involved in family therapy were more likely to comply with medication

management. Cahill et al. (2003) used the *Beck Depression Inventory* as a pre-assessment and post-assessment for clients with a diagnosis of depression. Clients contracted to attend 12 to 20 counseling sessions. Those that complied with the sessions had a significant decrease in depressive symptoms, as reflected on the pre and post Beck Depression Inventory.

Burns and Spangler (2000) examined the impact of completing homework assignments on the level of depressive symptoms. The researchers found that compliance with assigned homework in therapy resulted in a decrease in depressive symptoms. They attributed the results of their finding to the impact of client motivation. Thus, their perception was that the compliance in this study was more related to an internal quality of the client than what occurred in treatment.

Researchers have investigated treatment compliance for individuals with an anxiety disorder. Issakidis and Andrews (2004) studied a sample of individuals requesting services at an anxiety clinic. They found the largest number of dropouts occurred before treatment began. The researchers found that 30% dropped out prior to treatment compared to 10% dropping out of services after treatment had begun. Rubio and Lopez-Ibor (2007) found that females with an anxiety disorder compared to males were more likely to be non-compliant.

Craske et al. (2009) provided Cognitive Behavioral Therapy, via a computer assisted program, for 261 individuals with a diagnosis of an anxiety disorder. Clients were expected to complete six to eight sessions. If the client completed the first session they were more likely to complete the next seven sessions and more likely to complete homework assignments. March, Spence, and Donovan (2009) conducted a similar study

with children and found that while compliance was better with a traditional face-to-face treatment approach clients that were involved in the computer assisted treatment saw a greater decrease in symptoms. Leahy (2002) analyzed a case study where he concluded that many anxiety disordered individuals viewed worried as a means to ward off “bad events.” Because of this distorted thought process, these individuals were not motivated to complete homework. The case study supported the idea of clients dividing worry into categories of productive and nonproductive worry resulting in improved completion of homework.

Buckner et al. (2009) explored the impact of doing pretreatment interventions for clients with an anxiety disorder. They used two different techniques for pretreatment interventions. One approach led the client through guided imagery of completing all sessions, while the other simply provided details about treatment. The results were not statistically significant between the two approaches, but the authors felt the pretreatment interventions resulted in better compliance than earlier studies had reported.

Compliance with treatment for Obsessive Compulsive Disorder was explored by Ginsburg, Kingery, Drake, and Grados (2008). They looked at psychotherapy alone, pharmacotherapy alone, and a combination of psychotherapy and medication management. Statistical significance was found between severity of symptoms and psychotherapy compliance with an adverse relationship between these variables. Medication compliance was significant with the severity of external manifestations of anxiety such as tics. Simpson, Zuckoff, Page, Franklin, and Foa (2008) explored dropout rates after exposure to ritual prevention techniques. Ritual prevention techniques were created using a cognitive behavioral approach and meshing it with motivational

interviewing. They discovered that an improvement in adherence to treatment occurred when combining these two approaches.

Researchers have investigated treatment compliance as it relates to individuals with schizophrenia and other psychotic disorders. In looking at the diagnosis of schizophrenia, several articles were found that examine the issue of medication compliance. Rummel-Kluge, Schuster, Peters, and Kissling (2008) surveyed psychiatrists who provided combined medication management and psychotherapy for individuals with a diagnosis of schizophrenia. Of their schizophrenia diagnosed clients, 68% were intentionally partially compliant, defined as not taking prescribed medications for at least one day in one month's time.

Baker, Kurtz, and Astur (2006) studied virtual reality as it relates to medication adherence. A control group, recruited from the area where the study was conducted, was compared to a group of individuals with a diagnosis of schizophrenia. Each participant used a computer to maneuver and interact with a virtual apartment that gave cues to perform certain tasks. Participants received both auditory and visual cues to adhere to medication regimen within a 15-minute period. There were significant differences between the two groups' compliance with the medication regimen with the schizophrenia group having more difficulty taking the accurate medication regimen at the required time.

Schimmelmann, Conus, Schacht, McGorry, and Lambert (2006) addressed compliance as it related to adolescents after discharge from their first hospitalization for psychosis. The researchers found that addressing substance abuse issues, the development of a social network if family support was absent, and implementation of strategies to promote social contacts were significant. Lazaratou et al. (2000) found that

clients diagnosed with a psychotic disorder were more likely to not complete treatment in comparison with all other diagnoses.

Fung, Tsang, and Corrigan (2008) studied the impact of psychosocial issues related to the compliance of individuals diagnosed with schizophrenia. The researchers found self-stigma and self-esteem significantly related to compliance. Other studies found clients that had insight into their psychosis were more likely to be compliant (Sanz, Constable, Lopez-Ibor, Kemp, & David, 1998; Schwartz, Cohen, & Grubaugh, 1997).

Research supports the relationship between treatment compliance and individual characteristics. For example, Coodin, Staley, Cortens, Desrochers, and McLandress (2004) explored the factors associated with schizophrenic patients missing appointments. This study found a relationship between missed appointments and the age of the client, with younger clients missing appointments more frequently. The authors speculated that the younger clients might not fully understand the seriousness of the diagnosis and perceive their functioning without medications to be higher. Similarly, Catz (1998) found that treatment compliance increased with the age of the client with schizophrenia and HIV infection. The Catz study also found a relationship between a stronger perceived support system and non-compliance.

In looking at schizophrenia and psychotic disorders, the impact of psychotherapy and compliance were also investigated. Bechdolf, Knost, Pukrop, and Klosterkotter (2005) completed a 24-month follow up on individuals diagnosed with schizophrenia that received a series of cognitive behavioral therapy sessions or a series of psychoeducational sessions. The individuals who had the therapy sessions had 21% fewer hospitalizations over the past two years. A similar study was conducted by Maneesakorn, Robson,

Gournay, and Gray (2007) where individuals diagnosed with schizophrenia received 8 weeks of Adherence Therapy, and a combination of Compliance Therapy and Motivated Interviewing techniques. The results were that the patients who received the Adherence Therapy experienced a greater decrease in psychotic symptoms, an improved attitude about treatment, and better medication compliance.

Researchers have investigated treatment compliance for persons with substance abuse. Wilson, Levin, Donovan, and Nunes (2006) studied the impact of verbal skills on compliance with treatment. Their findings were that greater verbal skills positively impacted clients' compliance. Another study compared criminal thinking to compliance (Best, Day, Campbell, Flynn, & Simpson, 2009). They found that criminal thinking was related to non-compliance. Shearer and Ogan (2002) studied the impact of volunteerism on treatment compliance for substance abuse for incarcerated individuals. Their findings were that compliance to treatment was better when the individuals felt they had volunteered for treatment.

de Wert-van Oene, Burger, Grobbee, and Schrijvers (2007) studied individuals entering substance abuse treatment, looking for common threads related to non-compliance with treatment. Their conclusions were that: men were more likely to not complete treatment, having less than 10 years of education was common with individuals who dropped out of treatment, and greater severity of the drug problem, or having severe medical problems, were common with those that did not complete treatment. Lastly, the presence of behaviors that communicated intent not to complete treatment was common with those who did not complete treatment. Fischer, Neale, Bloor, and Jenkins (2008) found that non-compliance with drug treatment was associated with rising conflicts

occurring during treatment and the client not being aware of rising conflicts or prepared to address them when they did. They believed compliance should increase if preparing clients for conflicts was part of treatment. Fiorentine (2001) investigated the impact of non-compliance on drug treatment outcomes and found that longer treatment improved outcomes.

Substance abuse, case management, and compliance. Noel (2006) studied the impact of case management on adolescent females receiving treatment for substance abuse. The adolescent females with a substance abuse problem were divided into two groups with one group receiving case management and the control group not receiving case management. Case management activity ranged from referral and resource implementation to cognitive behavioral therapy. The study found a significant difference between receiving case management and not receiving case management with individuals receiving case management experiencing lower dropout rates. Clark, Dee, Bale, and Martin (2001) followed pregnant women who were referred for substance abuse treatment. The factor that positively impacted compliance with the treatment was past drug and alcohol treatment by the women or their partners. Morgenstern et al. (2006) recruited women from welfare offices who had a substance abuse problem. Half of the group received intensive case management while the other half received typical care. Findings were that the group that received more intense case management was less likely to drop out of treatment. Kelly, Blacksin, and Mason (2001) looked at characteristics of women who completed substance abuse treatment compared to women who did not complete treatment. Those that completed treatment were more likely to have previous successes in the areas of education, job skills, and employment. They typically had fewer

children and had little involvement with Child Protective Services. Their lives were characterized as having less chaos. In contrast, those women who did not complete treatment had more involvement with Child Protective Services, were more likely to be homeless, were more likely to have a psychiatric diagnosis, and were more likely to be the victim of domestic violence. Graff et al. (2009) found greater compliance with substance abuse treatment for women when the treatment involved an individual approach and older women experienced fewer symptoms associated with substance abuse when (a) they were somewhat satisfied with their marriage, (b) had spouses who were accepting of their diagnosis, (c) had onset of the disorder at a later age, and (d) had fewer children.

Breda and Heflinger (2004) explored the impact of incentives on compliance with adolescents in substance abuse treatment programs. An adverse statistical relationship was found between negative consequences and compliance and between polysubstance use and compliance. Godley and Passetti (2008) studied the impact of 12-step meetings on adolescents with substance abuse issues. They found that 12-step meetings had a positive impact on compliance when the composition of the attendees included other adolescent members. Other factors that had a positive impact on compliance were attending groups that were friendly toward adolescents and referrals to 12-step meetings that minimized possible negative influences by others that were in attendance. Wong, Hser, and Grella (2002) studied variables associated with compliance with drug treatment with adolescents. The one factor they found significant with compliance was the individual's desire for help.

Dye et al. (2009) explored compliance to the *therapeutic community approach* to substance abuse. Therapeutic communities are residential programs that are primarily managed by peers. These programs may be overseen by technicians with drug and alcohol training to licensed therapists. Their research found a positive correlation between participants' completion of the program and the amount of education of the staff. Da Silva, Cardoso, Chan, Berven, and Thomas (2003) studied client completion of treatment at a therapeutic community using the *Stages of Change Scale*. Significant clusters of subscales were found to have a correlation with compliance. Indifference, active participation-realistic, active participation optimistic and conformity were found to have statistical significance related to compliance. Henskens, Garretsen, Bongers, Dijk, and Sturmans (2008) examined compliance as it related to an outreach treatment program for inner city crack abusers. The program consisted of assertive outreach, an incentive program, and individual therapy. This approach was compared to an existing program that focused primarily on physical health, general living conditions, and psychiatric medications. Crack abusers in the assertive outreach program saw a greater compliance, a decreased need for psychotropic medication, and decreased crack use. Herbeck et al. (2005) looked at compliance issues with clients with a diagnosis of a Substance Abuse Disorder. They found that 40% of these clients had compliance issues. Compliance was more problematic when the psychosocial issues, such as difficulty with housing or economics or involvement in the legal system, were present. Similarly, Tsuang and Ho (2003) studied individuals with both a substance abuse and mental health diagnoses treated at emergency rooms. They found that 60% did not comply with the treatment

recommended and those who did comply they were more likely to seek out mental health treatment rather than substance abuse treatment.

A DSM IV TR (American Psychiatric Association, 2000) diagnosis of Conduct Disorder or Oppositional Defiant Disorder both focus on the presence of inappropriate behavior. Kazdin and Whitley (2003) examined the impact of offering problem solving to the parents of children with antisocial tendencies. No significant difference was found, as it related to compliance between the group that received training in problem solving and the one that did not. Miller, Lynam, and Leukefeld (2003) found that antisocial behavior was associated with noncompliance with treatment. They reported that stability of conduct, which is defined as the number of occurrences of oppositional behaviors in a given time frame, the variety of conduct issues, and the degree of aggression the individual engages in were negatively correlated with compliance.

Researchers have examined treatment compliance for individuals with personality disorders. Gudjonsson and Main (2008) found that individuals with Cluster C personality disorders and found that individuals with avoidant personality disorder and dependent personality disorder were more likely to be non-compliant than persons with obsessive compulsive personality disorders. Black et al. (2009) studied borderline personality disorder as it relates to compliance. They found that the greater the severity of symptoms, the greater the improvement. Crawford et al. (2009) concluded that men, younger clients, and those with a personality disorder were less likely to complete treatment. King (1995) reported a relationship between a diagnosis of a personality disorder and non-compliance in the outpatient setting. Matas, Staley, and Griffin (1992) found that non-compliant clients were more likely to be unmarried, diagnosed with a

personality disorder, and have a substance abuse disorder. Finally, Lingiardi, Filippucci, and Baiocco (2005) found high dropout rates for clients with Cluster A personality disorders (i.e., of paranoid personality disorder, schizoid personality disorder, and schizotypal personality disorder) when the therapist attempted to build a relationship with the client. The authors speculated this occurred because clients were uncomfortable with the therapists' attempts at relationship building.

Compliance Related to an ADHD Diagnosis

Researchers have investigated treatment compliance as it relates to individuals with ADHD. Typically, researchers have grouped ADHD with Oppositional Disorders and Conduct Disorder diagnoses making it difficult to determine how to interpret the results for the ADHD population. Compliance with treatment for individuals with ADHD is often challenging. This is particularly problematic because treatment for ADHD may include multiple treatment modalities, ranging from behavior modification to psychotropic medications.

Medication Compliance. It is reported that compliance adherence ranges from 20% to 70% for stimulant treatment (Stine, 1994). Other studies report a 20% dropout rate in children receiving medication treatment by the fourth month of treatment (Corkum et al., 1999). This number increases with time with a reported dropout rate of 45% in 10 months. Pharmacology treatment of ADHD includes both stimulant and non-stimulant medications. Swanson (2003) explored the issue of non-compliance with stimulant medications. He concluded that one of the major issues related to non-compliance of medications was inadequate supervision. This can result in missed dosages and wrong dosing. He attributes this lack of supervision to reluctance to take the medications, social

attitudes associated with taking medications, worries about the side effects of the medications, and the inconvenience of taking these medications. Svanborg et al. (2009) compared the use of a stimulant with psychoeducation and found that psychoeducation enhanced medication compliance. Non-stimulant treatment has less research to support its use and to document its negative impacts (Daughton, Liu, West, Swanson, Kratochvil, 2010). Gimpel et al. (2005) studied medication compliance with the ADHD diagnosed children and found a relationship between compliance and IQ. This suggests that non-compliance can be related to difficulty in cognitively following medication regimens. Ibrahim (2002) studied compliance rates of children and adolescents receiving medication treatment for ADHD. Statistical significance was found between positive family traits, parental attitudes, and perception of the benefits of medications with compliance. The sample had high compliance rates. He speculated this was because the parents of his sample were highly educated, the sample was from well functioning families and the families felt pressure from the school system to comply with treatment. Dodson (2005) found that for adults, compliance was adversely associated with the number of doses required.

Psychotherapies. Non-compliance is also associated with behavioral interventions with one study showing 51% not completing behavioral interventions (Corkum et al., 1999). In a study conducted by Bennett et al. (1996), parents were assessed for their knowledge of ADHD, counseling feasibility, counseling acceptability, and medication acceptability using a Knowledge and Opinion Scale. Although a positive correlation was found between these three variables, no significant correlation was found between any of these variables and compliance to treatment. In a similar study, parents

with a greater knowledge of ADHD were more likely to enroll their child in the program, though they did not find a correlation between an increased knowledge about ADHD and adherence to treatment (Corkum et al., 1999).

Compliance Related to Family Psychosocial Factors

Researchers have investigated the relationship between treatment compliance and a variety of family psychosocial factors. This section focuses first on family compliance in families with various DSM IV TR diagnoses and then focuses on families with a member with an ADHD diagnosis.

Compliance in Families with a Member with a DSM IV TR Diagnosis

Bosworth, Voils, Potter, and Steffens (2008) examined psychosocial factors associated with medication compliance in older individual with depression. They found compliance was significantly correlated with the level of family support.

Researchers have investigated the relationship between treatment compliance for perpetrators of family violence. Taft and Murphy (2007) report a significant non-compliance for perpetrators of family violence. They speculate this will improve when a working alliance was developed between the therapist and client.

As substance abuse has been found to be associated with anxiety, it warrants research as it relates to family and compliance independently. Connell (2009) studied the impact of treatment of individuals between the ages of 11 and 22 who wanted to quit smoking. Connell found the use of the *Family Check Up* increased compliance of the youth and their family. The Family Check Up is an assessment designed to identify problematic areas and allow the family to apply provided interventions.

Smith (2003) studied the impact of compliance to treatment in families attempting to reunify after the child was removed from the home by the state for neglect or abuse. A robust relationship between compliance to treatment and family reunification was found.

Compliance and Families with a Member with an ADHD Diagnosis

Stine (1994) examined family factors associated with medication non-compliance for children with ADHD. Two constructs identified were psychosocial variables and psychodynamic variables. Both psychosocial variables (e.g., oppositional behaviors of the child) and psychodynamic variables (e.g., family structure, expectations, myths held, and belief systems) were associated with medication compliance and parental passivity.

In another study, a group of parents who remained in a parenting program was compared to those who dropped out. The researchers concluded that the more disruptive the behaviors of the child were, the more likely she or he was to drop out. In addition, families who dropped out of treatment were more likely to not view the parenting techniques being taught as effective (Friars & Mellor, 2007).

One variable that should be considered when addressing compliance is delivery venues. In a study by Carpenter et al. (2004) six families received training, via the internet, using a Parent-Adolescent Conflict Training. Of the six that began the study, four completed the study. Of these four, all but one maintained a pattern of regular log-ins to receive the training. The authors of the study felt that their findings were promising, as they concluded their delivery style promoted compliance to treatment.

A model that addresses parental compliance is the *Chronic Care Model for Child Health* applied to the management of ADHD in children. This model promotes collaboration between families, their community, and the health care provider. The

model is based on six pillars: (a) decision support, which involves accurate and meaningful diagnosis and treatment; (b) delivery system design, which refers to the development of a system to divide responsibilities among professionals; (c) clinical information systems, which addresses the need for families to develop advocacy and disease management support; (d) family and self management support; (e) community resources and policies, which include the developing and implementing of policies that impact the ADHD child; and (f) healthcare organization including such issues as payer sources, styles of delivery of services, and treatment regimens. No research was found to support the effectiveness of this model (Van Cleave & Leslie, 2008).

No research was discovered that explored the impact of family and family members' issues on the ADHD diagnosed child's compliance to treatment. This is a question that would benefit from further exploration.

Conclusion

As can be seen by the literature presented, there is a significant amount of research available concerning treatment compliance. This research has centered on compliance as it relates to the clinician's and the client. It also focuses on the types of treatment specifically medication and talk therapy. Compliance has also been conducted as it relates to specific diagnoses. ADHD and compliance was specifically researched. This literature review also examined psychosocial factors associated with compliance.

Support was found for the use of talk therapy with significant improvement in behaviors and functioning can be contributed to the child's engagement in talk therapy. Studies have also found strong correlations with family issues, such as level of functioning and parent views about treatment, which were found to impact compliance.

In addition, multiple psychosocial factors have been identified that negatively impact the functioning of the ADHD child. Research addressing compliance identified the dropout rate from treatment to be major, with little explanation available to explain why. One would assume compliance would improve the outcomes of treatment. One question that deserves addressing is how families functioning level impacts compliance. No research was found concerning the family's perception of how they function and its impact on compliance.

Chapter 3

Methodology

This study examined family functioning as it relates to compliance to treatment of families with a child diagnosed with ADHD. The research questions are: (a) Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD? (b) Is there a relationship between family functioning and treatment compliance as perceived by a mental health professional for a family with a child diagnosed with ADHD? The purpose of this chapter is to outline the research methods and procedures used in this study. This chapter will examine the research design, participants, instruments, procedures, and data analysis used.

Participants

Participants consisted of a sample of families who have a child in the home with a diagnosis of ADHD. Families' enrollment in the study made them eligible for a drawing for a \$200 Wal-Mart gift card. Parents from 64 families agreed to participate. One did not complete the FAD and was deleted from the sample. Most were Caucasian ($n = 43$; 68.3%), with 15.8% African American ($n = 10$), 11.1% Hispanic ($n = 7$), and 4.8% participants ($n = 3$) not reporting their ethnicity. The largest family constellation ($n = 24$; 38.1%) were both biological parents in the home. The next largest groups were single parent homes at 30.1% ($n = 19$), families with a step parent ($n = 14$; 22.2%) a non-parental relative as guardian ($n = 3$; 4.8%), and other ($n = 3$; 4.8%).

Approximately one-third of the families had three children in the home ($n = 22$; 34.9%), 27% reported two children in the home ($n = 17$), 15.9% reported four children in

the home ($n = 10$), 9.5% reported seven children in the home ($n=6$), 7.9% reported only one child in the home ($n = 5$), and 4.8% reported five children in the home ($n = 3$). The children ranged in age from 5 to 12 and were enrolled in a public elementary school.

Diagnosed children are involved in the Arkansas Medicaid program or the AR Kids First program, an extension of the Medicaid program. They were involved in an extensive treatment program that included individual, family and group therapy, case management, and medication management interventions. Both clinical staff and a parent/guardian evaluated the family's functioning using the FAD.

The 10 clinical staff that completed the FAD on these families ranged in age from 26 to 50. Seven were Caucasian and three were African American. Half of the staff possessed a bachelor's degree as their highest level of education, and half possessed master's degrees with licensing by the state of Arkansas.

Instrumentation

Demographic Survey. Parents completed a demographic survey that requested the following demographic information: (a) number of children living in the home, (b) age of children in the home, (c) family makeup, which includes if biological or step parents are in the home, and if the child is being raised by a none relative, and (d) race or ethnic background.

Family Assessment Device. The FAD, based on the McMaster Approach to Families Model, is designed to measure family functioning (Miller, Ryan, Keitner, Bishop, & Epstein, 2000; Ryan et al., 2005). The McMaster Approach to Families Model is a systems approach to treatment. The McMaster Model does not claim to look at all

functional components, but sees those dimensions identified by the FAD as important to understanding family operations (Miller et al., 2000; Ryan, et al., 2005).

The FAD is a 60-item inventory that utilizes a 4-point Likert-type scale with two anchoring responses: strongly agree and strongly disagree. The test can be self-administered and is typically completed in 15 minutes. The inventory is composed of a 12-item measure of general functioning and six subscales: (a) affective involvement, (b) affective responsiveness, (c) behavior control, (d) communication, (e) problem solving, and (f) roles (Epstein, Baldwin, & Bishop, 1983; Ryan et al., 2005; Sajatovic & Ramirez, 2003).

Affective involvement. Affective involvement is defined as the amount of attention the family displays in the interests of other family members. This function is characterized into six levels. These are:

Lack of involvement,

Involvement devoid of feelings,

Narcissistic involvement,

Empathic involvement,

Over-involvement, and

Symbiotic involvement.

Empathic involvement is identified as the healthiest of these categories and Symbiotic the most disturbed. Symbiotic involvement is defined where there is such a level of enmeshment that boundaries between family members become blurred (Miller et al., 2000; Ryan et al., 2005). Review of the items identified as measuring this subscale

center around the themes of enmeshment, conditional regard, and self centered behavior (Ryan et al., 2005).

Affective responsiveness. Affective responsiveness is defined as the degree to which family members respond to feelings. Feelings are divided into two categories: welfare emotions, and emergency emotions. Welfare emotions include affection, warmth, tenderness, support, love, consolation, happiness, and joy. Emergency emotions consist of fear, anger, sadness, disappointment, and depression. What is determined as important in this area is the family's response to these emotions. It is pointed out that it is important to evaluate the manner in which these interactions occur and to take into account the cultural impact that is present (Miller et al., 2000; Ryan et al., 2005). Review of the items identified as measuring this subscale center around the themes of safety of expressing emotions and family tenderness (Ryan et al., 2005).

Behavior control. Behavior control is designed to measure the presence of patterns used to control behaviors in three situations, specifically: physically dangerous situations, psychobiological needs, and socialization. Physically dangerous situations run throughout the developmental stages, ranging from children's safety to dealing with aging parents. Psychobiological needs include eating, sleeping, having sex, elimination, and aggression. Socialization needs to include socialization in and outside of the family (Miller et al., 2000; Ryan et al., 2005). FAD items dealing with behavior control center around family rules and consequences associated with emergency situations, toilet habits, anger, and physical aggression (Ryan et al., 2005).

Communication. The communication subscale measures the communication between family members as it occurs within the family. The McMaster Model discusses

communication in terms of instrumental and affective dynamics. Communication is measured along two dimensions. The first considers whether the communication between family members is direct or indirect, while the second considers whether the communication is clear or masked. These variables are seen to fall along a continuum. Direct and indirect determine if the communication occurred directly between the appropriate family members or if it occurred through a third party. The clear versus masked continuum determines if the communication was clear or camouflaged. Since these two continuums are independent, they identify four styles of communication. These styles are direct and clear, direct and camouflaged, indirect and clear, and indirect and camouflaged (Miller et al., 2000; Ryan et al., 2005). Review of the items identified as measuring this subscale center around the themes of direct and indirect communications, and the communication of emotions (Ryan et al., 2005).

Problem solving. Problem solving measures the family's ability to resolve problems and to maintain family functioning. Instrumental and affective types of problem solving are measured. Instrumental problem solving involves problem solving related to managing daily stressors, such as finances and the physical needs of food, clothing, and shelter. Affective problem solving measures problem solving that involves a feeling or an emotional dynamic. Typically, families who have difficulty with instrumental problem solving also have difficulty with affective problem solving (Miller et al., 2000; Ryan et al., 2005). Review of the items identified as measuring this subscale center around the themes of acting on, resolution, and communication of problems (Ryan et al., 2005).

The McMaster Model identifies seven problem solving stages: (a) identifying the problem, (b) communicating with the appropriate person about that problem, (c) developing solutions, (d) deciding on the most appropriate solution, (e) taking action to implement the solution, (f) monitoring, and (g) evaluating (Ryan et al., 2005).

Roles. Roles are defined as behavior patterns that occur to promote family functioning. Five necessary family role functions are identified: (a) provision of resources, (b) nurturing and support, (c) adult sexual gratification, (d) personal development, and (e) family maintenance and management. Provision of resources is associated with the meeting of daily needs such as food, shelter, clothing and money. Provision of resources is typically an instrumental function, but can have a degree of affective functioning. Nurturing and support is an affective role and has to provide, with reassurance, emotional warmth and support. Adult sexual gratification is the satisfaction felt, sexually, by adult family partners. Personal development is both affective and instrumental and centers on such life skills as social development, progressing through school, and excelling in a career. Family maintenance and management are subdivided into five roles: (a) decision making, (b) boundary and membership, (c) behavior control, (d) household financing, and (e) health.

Decision making is typically an adult role and involves leadership, decision making techniques, and final say. Boundary and membership defines how to deal with extended family, friends, and institutions. Behavior control involves patterns for children's discipline and standards for adult behavior. Household financing includes taxes, budgeting, and other financial issues. Health includes caregiver functions, such as making appointments, and logistics associated with maintaining family member's health.

Two dynamics of role function are allocation, signifying who is assigned the task, and accountability, signifying who monitors and enforces the role (Miller et al., 2000; Ryan et al., 2005). Review of the items identified as measuring this subscale center around the themes of family members duties and responsibility, and completion of duties and responsibilities (Ryan et al., 2005).

The FAD was first developed in 1983. It was normed on a sample of 502 with 294 individuals that were members of 112 families. The sample was gathered from families of patients of a psychiatric day hospital, families of patients at an adult psychiatric hospital, families of patients of a stroke rehabilitation unit, and families of students in an advanced psychology course and of students of an introductory psychology course. The sample drawn from the introductory psychology course was the largest consisting of 209 of the 502 individuals (Epstein et al., 1983).

Internal consistency reliability for each of the subscales using chronbach's alpha ranged from .72 to .92. Reliability for each subscale were the following: (a) problem solving .74, (b) communication .75, (c) roles .72, (d) affective responsiveness .83, (e) affective involvement .78, (f) behavior control .72, and (g) general functioning .92 (Epstein et al., 1983). The test - retest reliability using a 2-week interval were .66 - problem solving, .72 - communication, .75 - roles, .76 - affective responsiveness, .67 - affective involvement, .73 - behavior control, and .71 - general functioning (.71) (Miller, Epstein, & Bishop, 1985).

Aarons, McDonald, Connelly, and Newton (2007), in a national study of Caucasian and Hispanic Americans, reported subscale internal consistency reliability ranging from .729 to .868 for Caucasian Americans and .590 to .821 for Hispanic

Americans. Bihun, Wamboldt, Gavin, and Wamboldt (2002) found internal consistency reliability for a sample ranging from .73 to .87 for the subscales, from .70 to .86 for children greater than 12 years of age ranging, and from .48 to .79 for children under the age of 12.

In the current study, the internal consistency reliability, when the parent completed the inventory, was calculated using Statistical Package for the Social Sciences 19 [SPSS] (International Business Machines, 2010): .83 - problem solving, .80- communication, .80 - roles, .49 - affective responsiveness, .74 - affective involvement, .59 - behavior control, and .90 - general functioning. In the current study the internal consistency reliability, when the mental health professionals completed the inventory, was calculated using SPSS (International Business Machines, 2010): .89 - problem solving, .86 – communication, .91 - roles, .82 - affective responsiveness, .84 - affective involvement, .91 - behavior control, and .94 - general functioning. The subscale for parents completing the FAD ranged from .49 to .90, while the mental health professionals ranged from .82 to .94.

Tamplin and Goodyer (2001) research found comparative FAD scores. Means, as a result of parent scoring, are problem solving = 2.11, communication = 2.13, roles = 2.60, affective responsiveness = 2.28, affective involvement = 2.11, behavior control = 1.79, and general functioning = 2.05. These scores are compared to scores provided by the mental health provider: problem solving = 2.72, communication = 2.79, roles = 2.60, affective responsiveness = 2.46, affective involvement = 2.26, behavior control = 2.23, and general functioning = 2.63. These are compared to scores provided by parents with an adolescent with a depressive disorder: problem solving = 1.96, communication = 2.06,

roles = 2.30, affective responsiveness = 2.04, affective involvement = 2.04, behavior control = 1.74, and general functioning = 1.86. This study also required the adolescent to complete the FAD: problem solving = 2.24, communication = 2.37, roles = 2.33, affective responsiveness = 2.29, affective involvement = 2.27, behavior control = 2.03, and general functioning = 2.11.

Miller et al. (1985) also gathered data to support descriptive data, which involved having 36 individuals assessed by a family therapist. This data was compared this to the FAD. Statistical significance was found on all scales except, behavior control. Validity was explored by dividing the norming sample into those that came from a clinical source or a nonclinical source. The hypothesis was that the clinical sample source would consist of lower functioning families than the nonclinical sample. The hypothesis was supported ($p = .001$), with all nonclinical cases measuring more functional on the FAD (Miller et al., 1985).

Evidence for concurrent validity is provided in a study of 178 elderly couples who completed the FAD, the Philadelphia Geriatric Morale Scale, and the Locke Wallace Marital Satisfaction Scale. The FAD predicted 28% of the variance on the Locke Wallace and 22% of variance with the Morale Scale. The authors concluded that the tests were measuring related constructs. Also, this testing was used to support predictive validity, as it had a stronger correlation with the results of the Morale Scale than did the Locke Wallace (Epstein et al., 1983). The FAD has also been compared to the McMaster Clinical Rating Scale, with a significant correlation between these instruments (Miller et al., 2000; Ryan et al., 2005).

The FAD has been used in a variety of clinical, non-clinical, and medical studies. Non-clinical cases have involved its use to validate family therapy programs (Lannigan, Shorts, & Slattery, 2004; Slattery, Smith, Krapf, Buchenauer, & Bean, 2001). Clinical cases have addressed such mental health issues as families dealing with anorexia nervosa, ADHD, anxiety, obsessive compulsive disorder, and depression (Derisley, Libby, Clark, & Reynolds, 2005; Gowers, 1999; Harris et al., 2006; Kaplan, Crawford, Fisher, & Dewey, 1998; Lange et al., 2005; Tamplin & Goodyer, 2001). Similarly, families have been assessed using the FAD with family members with medical issues, such as cerebral palsy, epilepsy, headaches, abdominal pain, stroke, cancer, and pregnancy (Barney, 2005; Clark, Rubenach, & Winsor, 2003; Corcoran, 2001; Krawetz, et al., 2001; Liakopoulou-Karris et al., 2002; Magill-Evans, Darrah, Pain, Adkins, & Kratochvil, 2001; Streisand, Kazak, & Tercyak, 2003).

Treatment Compliance Inventory. Compliance is defined as parental compliance to the recommended interventions in three areas: medical, clinical, and technical compliance. Medical compliance measures compliance related to the keeping of medication related appointments and following treatment recommendations of the treating physician. Clinical compliance measures compliance related to the keeping of non-medical clinical appointments. These appointments include individual, family, and group therapy, case management, and day treatment appointments. Technical compliance measures compliance related to maintaining services with the agency. These technical areas include primary care physician referrals, yearly evaluations with the psychiatrist, and maintenance of a third party payment status. Since a review of the extent literature indicated that a suitable compliance inventory had not been developed, a measure of

compliance was developed for this study using *Scale Development: Theory and Application* as a guide (DeVellis, 2003). Items were developed using the “Arkansas Medicaid Provider Manual” (May 5 2009). Section II outlines services being provided under the program, Rehabilitative Services for Persons with Mental Illness [RSPMI]. The children involved in this study received services under this program. After the initial development of the survey items, a group of eight mental health professionals, familiar with the RSPMI program, reviewed the survey and recommended revisions to the survey. The mental health staff had a working knowledge of the treatment received by the child and the family and of the Medicaid requirements for the RSPMI program. Changes were made to the items based on recommendations by the mental health reviewers. Feedback from the mental health staff indicated that the items were clear and understandable. Internal consistency of the treatment compliance inventory was determined by coefficient alpha. Alpha was determined using the SPSS (International Business Machines, 2010) and controlling for data provided by, or about, the parent and child, as the mental health professional was the only group completing the treatment compliance inventory. The alpha coefficient was calculated as .83.

The treatment compliance inventory consisted of 12 items scored on a Lickert-type scale that ranges from 7, “Always”, to 1, “Rarely.” Zero could be chosen to signify an item that was not applicable to this individual’s treatment. Twelve items were developed: (a) Item 1 was “Getting PCP.” RSPMI requires a referral by the client’s primary care physician prior to starting treatment and referral every six months during treatment. This may require that the client be seen by the primary care physician before receiving this referral. This item queried whether the parent followed through with

recommended primary care physician appointments; (b) Item 2 was a “45-day MD appointment.” RSPMI (Arkansas Medicaid Providers Manual, May 5, 2009). It requires that the client see the agency’s psychiatrist within 45 days of beginning treatment. This would require the client and a parent/guardian to participate in, typically, a 45-minute evaluation by the psychiatrist conducted at the agency’s office. One of the purposes of this appointment is to determine if the client meets the criteria to be identified as having a “Serious Emotional Disorder” [SED] or a “Serious Mental Illness” [SMI], as outlined by RSPMI (Arkansas Medicaid Providers Manual, May 5, 2009). This item queried whether the parent followed through with recommended psychiatrist appointments; (c) Item 3 was “Yearly SED/SMI.” An annual evaluation is required by RSPMI standards to determine continued need and level of treatment. This item queried whether the parent followed through with recommended annual evaluation; (d) Item 4 was “Maintaining Medicaid.” Arkansas Medicaid recipients are required to provide occasional documentation to verify their continued eligibility. If the required forms were not completed in a timely manner, Medicaid benefits are discontinued until the appropriate paper work is submitted. This item queried whether the parent followed through with completing the required Medicaid paperwork in a timely manner; and (e) Items 5 through 8 were “Individual Therapy,” “Family Therapy,” “Group Therapy,” and “Case Management.” These interventions were determined by the development of a treatment plan in which the client and a parent/guardian were involved. Treatment plans included goals and objectives that were tied to these interventions. The treatment plan also included the frequency at which these interventions should occur. Treatment plans were updated when there were significant changes in treatment, or every 90 days. These interventions can occur in multiple

settings, but typically occur at the agency's office, school, or home, if appropriate. This item queried whether the parent followed through with recommended interventions in the areas of individual therapy, family therapy, group therapy, and case management; (f) Item 9 was "Med Appointment." If, during the course of treatment, the client was prescribed medication, follow-up appointments were scheduled with the psychiatrist to monitor medication effectiveness and side effects. This item queried whether the parent followed through with the recommended medication related appointments with the psychiatrist; (g) Item 10, "Taking Meds," is an assessment of whether the client is complying with taking medications. Medication compliance was monitored by staff to determine if the client is taking the medication as prescribed. This item queried whether the client was compliant with taking their medications as prescribed. Medication compliance was monitored by both the psychiatrist and the mental health professional; (h) Item 11 is "Day Treatment." Day treatment programs provided were extended treatment during breaks from school; thus, the client spent a significant portion of the day in a treatment program. This item queried whether the client followed through with the recommended day treatment programs; and (i) Item 12 was "General Compliance." This item queried whether the parent exhibited overall compliance to treatment.

The goal of this study was to examine the relationships between compliance and family functioning as perceived by a parent/guardian and a mental health worker of families with a child diagnosed with ADHD. The study utilized a non-experimental approach with descriptive and correlational research design. In addition, a non-probability convenience sample was used.

Procedures

Sixty-four families were identified with a child in the family with a diagnosis of ADHD. The initial diagnosis was completed by a licensed master level counselor or by a licensed master level social worker. A psychiatrist confirms the initial diagnosis within the first 45 days of treatment by a face to face evaluation. Families with children enrolled in an elementary school setting (kindergarten through sixth grade) and a diagnosis of ADHD were chosen for the study. All children and families participated in interventions that included (a) evaluation and administration of medication, (b) mental health counseling by a master's level licensed mental health therapist, and (c) in some cases, case management by a bachelor's level case manager. Mental health professionals for this study were defined as individuals with a bachelor's degree that worked with the family in the role of a case manager, or individuals with at least a master's degree and licensed as a counselor (Licensed Associate Counselor, Licensed Professional Counselor) or as a social worker (Licensed Masters Level Social Worker) that worked with the family in the role of a mental health therapist.

The mental health professional completed the FAD and the treatment compliance inventory on a family for whom they were providing case management services. Verbal directions were given concerning the treatment compliance inventory prior to completion. Items on the treatment compliance inventory were routine items that were tracked weekly by the mental health professional. The parent also completed the FAD. Justification for the FAD being completed by both a parent and mental health professional is that family members may view items in an assessment differently than a researcher or a professional (Ransom, Fisher, Phillips, Kokes, & Weiss, 1990). Participants were informed that their

participation was voluntary, that all the data collected would be confidential, and that they were free to withdraw at any time without penalty. One family did not complete the assessment, resulting in a sample of 63 families.

Research Questions

1. Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD?

2. Is there a relationship between family functioning and treatment compliance as perceived by a mental health professional for a family with a child diagnosed with ADHD?

Data Analysis

This study elicited data on the relationship between family functioning and treatment compliance. Two multivariate tests were computed. Research question 1: Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD, was analyzed using a multivariate test to examine the relationship between the subscales of the FAD and the treatment compliance inventory. For research question 1, a parent completed the FAD, and the mental health professional completed the treatment compliance inventory. The mean scores of the subscales of the FAD were used as predictor variables. The mean score on the treatment compliance inventory was used as the criterion variable. Research question 2 was analyzed using a multivariate test to examine the relationship between the subscales of the FAD and the treatment compliance inventory. For research question 2; the mental health professional completed the FAD, and the mental health professional completed the treatment compliance inventory. The mean scores of the subscales of the

FAD were used as predictor variables. The mean score of the treatment compliance inventory was used as the criterion variable. In addition, correlations between the measure of treatment compliance and the subscales of the measure of family functioning were calculated. An alpha level of .05 was used for hypothesis testing.

CHAPTER 4

Results

This study explored the relationship between family functioning and compliance to mental health treatment for families with a child diagnosed with ADHD. The following hypotheses were tested:

Hypothesis 1: There will be no relationship between family functioning, as measured by the Family Assessment Device, and treatment compliance, as measured by a researcher generated scale, as rated by parents with children diagnosed with Attention Deficit Hyperactivity Disorder.

Hypothesis 2: There will be no relationship between family functioning, as measured by the Family Assessment Device, and treatment compliance, as measured by a researcher generated scale, as rated by mental health professionals concerning families with children diagnosed with Attention Deficit Hyperactivity Disorder.

This chapter presents the results of the analyses in terms of the correlation among major variables, information on means and standard deviations for the major variables, and the statistical analysis results on each of the research hypotheses.

Research Design

A multivariate regression model was used to test for significance between each of the subscales of the FAD as the independent variables and the score on the treatment compliance inventory as the dependent variable. The treatment compliance inventory consists of eleven aspects of treatment and a general compliance item.

Analysis of Hypothesis 1.

In this section the results associated with hypothesis one will be presented. These results will include examination of correlations between variables, presentation of normative means and standard deviations, presentation of the present study's means and standard deviations, present study's regression results, and present study's power and effect size.

Correlation of Variables. Pearson correlations coefficients of variables, as provided by the parent, are presented in Table 1. The magnitude of the correlations ranged from an absolute value of .06 to .84. All relationships between the treatment compliance inventory and the FAD subscales were a negative relationship, with none being significant at $p < .01$. Significant correlations were found between all the subscales of the FAD ($p < .01$).

Table 1

Pearson Correlation Coefficients of Variables as Provided by the Parent (N = 63)

<i>Variable</i>	<i>CI</i>	<i>PS</i>	<i>COM</i>	<i>ROLES</i>	<i>ARESP</i>	<i>AINV</i>	<i>BCONT</i>	<i>GF</i>
TCI		-.17	-.04	-.76	-.11	-.06	-.06	-.08
PS			.75*	.58*	.68*	.43*	.54*	.84*
COM				.51*	.60*	.53*	.51*	.83*
ROLES					.39*	.56*	.59*	.64*
ARESP						.40*	.63*	.72*
AINV							.46*	.65*
BCONT								.60*

Note. TCI = Treatment Compliance Inventory; PS = FAD Subscale Problem Solving;

COM = FAD Subscale Communication; ROLES = FAD Subscale Roles; ARESP = FAD

Subscale Affective Responsiveness; AINV = FAD Subscale Affective Involvement;

BCONT = Behavior Control; GF = FAD Subscale General Functioning. * $p < .01$

Means and Standard Deviations. As related to hypothesis 1, the following are the results as they correspond to the means and standard deviations of the FAD for both the normative sample and the current research sample.

The FAD was normed on a sample of 502. The means and standard deviations calculated for this initial sample for the subscales of the FAD were problem solving ($M = 2.3, SD = .47$), communication ($M = 2.3, SD = .51$), roles ($M = 2.4, SD = .43$),

Affective Responsiveness ($M = 2.4, SD = .61$), affective involvement ($M = 2.2, SD = .50$), behavior control ($M = 2.0, SD = .41$), and general functioning ($M = 2.2, SD = .58$) (Epstein et al., 1983).

The current study resulted in means and standard deviations calculated for the subscales of the FAD. Means and standard deviations, as provided by the parents, are problem solving ($M = 2.11, SD = .45$), communication ($M = 2.13, SD = .46$), roles ($M = 2.60, SD = .45$), affective responsiveness ($M = 2.28, SD = .44$), affective involvement ($M = 2.26, SD = .51$), behavior control ($M = 1.79, SD = .35$), and general functioning ($M = 2.05, SD = .50$). Mean and standard deviation were calculated for the dependent variable of compliance ($M = 5.92, SD = .89$).

Parents rated their family as more functional than the normative sample on the subscales of problem solving, communication, affective responsiveness, and behavior control. Table 2 consists of the means and standard deviations for the normative sample and the present study when the FAD was completed by a parent.

Table 2

Means and Standard Deviations of the Subscales for the FAD as Provided by the Parent, and Means and Standard Deviations for the FAD Normative Sample

<i>Variable</i>	<i>Parent</i>		<i>Normative Sample</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Problem Solving	2.11	.45	2.3	.47
Communication	2.13	.46	2.3	.51
Roles	2.60	.45	2.4	.43
Affective Responsiveness	2.28	.44	2.4	.61
Affective Involvement	2.26	.51	2.2	.50
Behavior Control	1.79	.35	2.0	.41
General Functioning	2.05	.50	2.2	.58

Assumptions. Using SPSS (International Business Machines, 2010), multiple regression analysis was used to determine if family functioning, as assessed by a parent, would predict compliance to mental health treatment for families with a child with a diagnosis of ADHD. Before interpreting the results of the regression analyses, the following steps were taken to examine the data for outliers, and assumptions associated with multiple regression analysis.

First, the sample was inspected for outliers. At the univariate level, z-scores were calculated and considered against the threshold of an absolute value less than 4, as recommended by Cohen, Cohen, West, and Aiken (2003). All outliers were less than the

recommended threshold. Cook's Distance and Leverage Value were evaluated for the presence of multivariate outliers. It was determined that no subject was a multivariate outlier.

Second, the assumptions of normality, linearity, homoscedasticity, and multicollinearity associated with multiple regressions were examined. Skewness and kurtosis values were also calculated and inspected. Scores on family functioning, provided by the parent, appeared to be distributed normally.

The assumption of linearity assumes that the relationship between the independent variables and the dependent variables is a straight line. To investigate the assumption of linearity, all bivariate relationships were examined using scatterplots. Scatterplots appeared to be linear.

The assumption of homoscedasticity assumes that error variances are the same at each data point, across all levels of the independent variable and that residuals are approximately equal for all predicted scores of the dependent variable. Scatterplots were created to look at the spread of the treatment compliance inventory over the subscales of the FAD. The data appeared acceptable for the analysis, in terms of this assumption.

The assumption of multicollinearity assumes that the relationship between the set of independent variables is not highly correlated. Multicollinearity was investigated by examining bivariate and multivariate collinearity. Multivariate multicollinearity was examined by inspecting the Tolerance and Variance Inflation Factor scores [VIF] and condition indices for each set of independent variables. The FAD scores, as provided by the parent, resulted in no two scores being over 5, with general functioning being 7.521.

Also, all Tolerance values were greater than .10, and VIF values were less than 10 with this being an acceptable VIF score (Belsley, Kuh, & Welch, 1980).

Multiple Regression. Multiple regression was used to determine whether the level of family functioning in families with a child with a diagnosis of ADHD would predict patterns of non-compliance. The independent variable of family functioning was measured by the completion of the FAD, producing seven subscales of functioning. The FAD was completed by a parent for each family. A dependent variable was developed by the completion of a treatment compliance inventory, developed specifically for this study and completed by the mental health professionals.

This hypothesis was not statistically supported. The FAD subscales were regressed on the treatment compliance inventory scores. The overall model was not found to be significant, $R^2 = .093$, $F(6, 56) = .956$, $p < .463$. Regarding the effect size, only 9% of the variability in compliance was explained by the set of FAD subscales. See Table 3 for results of the regression analysis.

Table 3

Results of Regression of FAD Subscales When Completed by a Parent

<i>Variable</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>T</i>
Constant	5.80	.88		
Problem Solving	-.14	.09	-.41	-1.60
Communication	.04	.05	.16	.69
Roles	.05	.04	.28	1.44
Affective Response.	.02	.07	.04	.21
Affective Involvement	.01	.05	.06	.30
Behavior Control	-.03	.05	-.11	-.58
General Functioning	-.06	.05	-.04	-.12

Note. $R^2 = .09$

Observed Power and Effect Size. Observed power and effect size were calculated for each FAD subscale when completed by a parent. Power ranged from .054 to .455 (problem solving = .455, communication = .110, roles = .297, affective responsiveness = .054, affective involvement = .059, behavior control = .088). All effect sizes, for the parent scores, were considered small (problem solving = .059, communication = .009, roles = .036, affective responsiveness = .001, affective involvement = .001, behavior control = .006).

Analysis of Hypothesis 2

In this section the results associated with hypothesis 2 will be presented. These results will include examination of correlations between variables, presentation of normative means and standard deviations, presentation of the present study's means and standard deviations, present study's regression results, and present study's power and effect size.

Correlation of Variables. Pearson correlations coefficients of variables, as provided by the mental health professional, are presented in Table 4. The magnitude of the correlations ranged from an absolute value of .10 to .85. All relationships between the treatment compliance inventory and the FAD subscales were negative, with behavior control being the only significant relationship ($p < .001$). Significant correlations were found between all subscales of the FAD ($p < .01$).

Table 4

*Pearson Correlation Coefficients of Variables as Provided by Mental Health**Professional (N = 63)*

<i>Variable</i>	<i>CI</i>	<i>PS</i>	<i>COM</i>	<i>ROLES</i>	<i>ARESP</i>	<i>AINV</i>	<i>BCONT</i>	<i>GF</i>
TCI		-.10	-.11	-.18	-.11	-.20	-.40*	-.10
PS			.69*	.87*	.80*	.79*	.82*	.91
COM				.77*	.61*	.68*	.67*	.69*
ROLES					.70*	.78*	.85*	.84*
ARESP						.70*	.71*	.75*
AINV							.80*	.85*
BCONT								.75*

Note. TCI = Treatment Compliance Inventory; PS = FAD Subscale Problem Solving; COM = FAD Subscale Communication; ROLES = FAD Subscale Roles; ARESP = FAD Subscale Affective Responsiveness; AINV = FAD Subscale Affective Involvement; BCONT = Behavior Control; GF = FAD Subscale General Functioning. * $p < .01$.

Means and Standard Deviations. The means and standard deviations calculated for the initial FAD normative sample for the subscales were problem solving ($M = 2.3$, $SD = .47$), communication ($M = 2.3$, $SD = .51$), roles ($M = 2.4$, $SD = .43$), affective responsiveness ($M = 2.4$, $SD = .61$), affective involvement ($M = 2.2$, $SD = .50$), behavior control ($M = 2.0$, $SD = .41$), and general functioning ($M = 2.2$, $SD = .58$) (Epstein et al., 1983).

The means and standard deviations calculated for the subscales of the FAD, as provided by the mental health professional, were problem solving ($M = 2.72, SD = .69$), communication ($M = 2.49, SD = .55$), roles ($M = 2.85, SD = .64$), affective responsiveness ($M = 2.46, SD = .57$), affective involvement ($M = 2.56, SD = .63$), behavior control ($M = 2.23, SD = .72$), and general functioning ($M = 2.63, SD = .63$). Mean and standard deviation were calculated for the dependent variable of compliance ($M = 5.92, SD = .89$).

In comparing the present study when the FAD is completed by a mental health professional to the normative sample, all subscales were found to be less functional for the current study. These differences in means range from a difference of .45 to .12. See table 5.

Table 5

Means and Standard Deviations of the Subscales of the FAD as Provided by the Mental Health Professional, and Means and Standard Deviations for FAD Normative Sample

<i>Variable</i>	<i>Mental Health Professional</i>		<i>Normative Sample</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Problem Solving	2.72	.69	2.3	.47
Communication	2.49	.55	2.3	.51
Roles	2.85	.64	2.4	.43
Affective Responsive.	2.46	.57	2.4	.61
Affective Involvement	2.56	.63	2.2	.50
Behavior Control	2.23	.72	2.0	.41
General Functioning	2.63	.63	2.2	.58

Assumptions. Using SPSS (International Business Machines, 2010), multiple regression analysis was used to determine if family functioning, as assessed by a mental health professional, would predict compliance to mental health treatment for families with a child with a diagnosis of ADHD. Before interpreting the results of the regression analyses, the following steps were taken to examine the data for outliers and assumptions associated with multiple regression analysis. First, the sample was inspected for outliers. At the univariate level, z-scores were calculated and considered against the threshold of an absolute value less than 4, as recommended by Cohen et al. (2003). All outliers were less than the recommended threshold. Cook's Distance and Leverage Value were

evaluated for the presence of multivariate outliers. It was determined that no subject was a multivariate outlier.

Second, the assumptions of normality, linearity, homoscedasticity, and multicollinearity associated with multiple regressions, were examined. The assumption of linearity assumes that the relationship between the subscales of the FAD and the treatment compliance inventory is a straight line. To investigate the assumption of linearity, all bivariate relationships were examined using scatterplots. Significance was also correlated between the treatment compliance inventory and the subscales of the FAD. Pearson correlation coefficients, for a two-tailed test, resulted in significance of the subscale, behavior control, as answered by the mental health professional.

The assumption of homoscedasticity assumes that error variances are the same at each data point, across all levels of the subscales of the FAD and that residuals are approximately equal for all predicted scores of the treatment compliance inventory. Scatterplots were created to look at the spread of the treatment compliance inventory over the subscales of the FAD. The data appeared acceptable for the analysis, in terms of this assumption.

The assumption of multicollinearity assumes that the relationship between the set of independent variables is not highly correlated. Multicollinearity was investigated by examining bivariate and multivariate collinearity. Multivariate multicollinearity was examined by inspecting the Tolerance and VIF, and condition indices for each set of independent variables. The FAD scores, as provided by the mental health professional, resulted in a VIF greater than 5 for five of the seven independent variables (problem solving = 10.041; roles = 7.037; affective involvement = 5.088; behavior control = 5.114;

general functioning = 9.389). All Tolerance values were greater than .10. All VIF values were less than 10 for all independent variables, except for problem solving (tolerance = .10, VIF = 10.041).

Because of concerns of multicollinearity, subscales of the FAD were examined to identify potential correlations that might occur between subscales, and it was decided to exclude general functioning from the regression, as it was the only variable of a global nature and not a factor variable. This resulted in no VIF values greater than 10 for mental health professional responses which is acceptable (Belsley et al., 1980). Tolerance responses ranged from .148 to .381. VIF calculations ranged from 2.623 to 6.754.

Skewness and kurtosis values were also calculated and inspected. Family functioning scores, provided by the mental health professional, were within the range of acceptable skewness and kurtosis, with the exception of problem solving, roles, and affective responsiveness: problem solving (skewness = .595, kurtosis = -.905) and roles (skewness = .132, kurtosis = -.900). Both of these variables fall in a range between -1.0 and +1.0, which allows the assumption of normality (Huck, 2008). However, affective responsiveness (skewness = -.061, kurtosis = -1.110) has a kurtosis beyond this range. No action was taken to address kurtosis as it is considered to be robust and would have little impact on the data. This is especially true in the absence of outliers (Kim & White, 2004).

Multiple Regression. Multiple regressions were used to determine whether the level of family functioning in families with a child with a diagnosis of ADHD would predict patterns of non-compliance. The independent variable of family functioning was measured by the completion of the FAD, producing seven subscales of functioning. The

FAD was completed by a mental health professional for each family. A dependent variable was developed by the completion of a treatment compliance inventory, developed specifically for this study and completed by the mental health professionals.

This hypothesis was statistically supported. FAD subscales were regressed on the treatment compliance inventory scores. The overall model was found to be significant, $R^2 = .323$, $F(6, 56) = 4.45$, $p < .01$. Regarding effect size, 32.3% of the variability in treatment compliance was explained by the set of independent variables. Of the independent variables, behavior control was significant ($p < .001$). In order of importance, they were behavior control ($\beta = -1.08$), problem solving ($\beta = .48$), roles ($\beta = .17$), communication ($\beta = .09$), and affective responsiveness ($\beta = .06$), affective involvement ($\beta = .05$). See Table 6 for results of regression analysis.

Table 6

Results of Regression of FAD Subscales When Completed by a Mental Health Professional with the Exclusion of General Functioning

<i>Variable</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>T</i>
Constant	5.74	.55		
Problem Solving	.11	.06	.49	1.75
Communication	.02	.03	.09	.48
Roles	.02	.04	.17	.60
Affective Response	.02	.05	.06	.30
Affective Involvement	.01	.04	.05	.24
Behavior Control	-.15	.03	-1.08	-4.57*

Note. $R^2 = .323$ * $p < .001$

Observed Power and Effect Size. Observed power for the mental health professional scores ranged from .056 to .994 (problem solving = .405, communication = .076, roles = .090, affective responsiveness = .060, affective involvement = .056, behavior control = .994). All effect sizes for the mental health professional scores were considered small for all variables: (problem solving = .052, communication = .004, roles = .006, affective responsiveness = .002, affective involvement = .001, behavior control = .272).

Summary of Multiple Regression Analyses

Of the two regression analyses calculated, behavior control for when the mental health professionals completed the FAD was significant. Of the subscales, behavior

control was found significant at $p < .001$ for the variables completed by the mental health professionals. Of the other subscales calculated from the mental health responses problem solving was the only non-significant subscale with a t-statistic over one (1.75). Other non-significant subscales t-statistics ranged from .24 to .60. Behavior control is the only subscale with a negative relationship with treatment compliance. In the model completed by the mental health professional, 32.3% of variance is explained by the subscales of the FAD, excluding general functioning.

Parents' responses to the FAD resulted in only 9% of variance being explained by the subscales of the FAD. No subscales were found to be significant. Only problem solving (-1.88) and roles (1.45) had a t-statistic above one. Other t-statistics absolute values ranged from .19 to .72. Only problem solving and behavior control resulted in a negative t-statistic.

There was also some difference between the rankings of the two regressions. The mental health professionals' ranking of FAD subscales were behavior control ($\beta = -1.08$), problem solving ($\beta = .48$), roles ($\beta = .17$), communication ($\beta = .09$), affective responsiveness ($\beta = .06$), and affective involvement ($\beta = .05$). This compares to the ranking of the parent completion of the FAD: problem solving ($\beta = -.43$), roles ($\beta = .27$), communication ($\beta = .15$), behavior control ($\beta = -.11$), affective involvement ($\beta = .05$), and affective responsiveness ($\beta = .04$).

CHAPTER 5

Discussion

The purpose of this study was to investigate the relationship between family functioning and compliance to treatment. This study examined the relationship between dimensions of family functioning and the level of compliance to treatment for families with a child with a diagnosis of ADHD.

Family functioning was measured by the FAD (Ryan et al., 2005), and was completed by a parent or guardian of each family, and by a mental health professional that provided mental health services to the child with an ADHD diagnosis. The results of the FAD scores were then compared to the results of a treatment compliance inventory. The treatment compliance inventory was designed specifically for this study and was completed by the mental health professionals. The purpose of this chapter is to explore each hypothesis as it relates to the results, discuss the limitations of the study, consider the results vis-a-vis, consider its implications to clinical settings, and consider future research needs.

Discussion of Results

The following research questions were examined:

1. Is there a relationship between family functioning and treatment compliance as perceived by a parent for a family with a child diagnosed with ADHD?
2. Is there a relationship between family functioning and treatment compliance as perceived by a mental health professional for a family with a child diagnosed with ADHD?

Each question was examined using regression analyses. Regression analysis for question one resulted in no significance being found between the subscales of the FAD and the treatment compliance inventory when the FAD was completed by a parent. Regression analysis for question 2 resulted in significance between the subscale of behavior control and the treatment compliance inventory when the FAD was completed by a mental health professional. Behavior control was found significant at $p < .001$.

As significance was found for behavior control when the mental health professional completed the FAD but not when a parent completed the FAD, one might speculate why this occurred. Ferrell, in an unpublished manuscript (2009), compared the FAD results for the general functioning subscale of a mental health professional and a parent with a child diagnosed with ADHD. This study found that the parents significantly rated the family as more functional than did the mental health professional ($p < .001$).

Perception of Functioning. Since the behavior control subscale of the FAD was found significant when the mental health professional completed the FAD and was not significant when the parent completed the FAD two questions are raised: 1) Are the responses to the FAD biased when completed by the parent? 2) Are the responses to the FAD biased when completed by the mental health professional?

There is research that supports the idea that individuals sometimes over-estimate their abilities on self-assessment protocols. Langendyk (2006) assessed medical students on the accuracy of their self assessment concerning their abilities. The result was that the less competent medical students were more likely to over assess their abilities. Detrick and Chibnall (2008) looked at inflation of self assessment that occurred with police

officers with certain personality traits. Police with inflated self-assessments were more likely to exhibit perfectionism and a tendency to deny shortcomings. Self-report overestimates were problematic in these studies. With respect to the current study, parents rated their family functioning higher on four of the seven subscales. Specifically, parents rated their family as more functional on the problem solving, communication, affective responsiveness, and behavior subscales than the normative sample. This provides support for the hypothesis that parents in the current study estimated their family functioning as more positive than one would expect from an objective observer.

Cultural perspectives can also influence self - assessments on the FAD.

Socioeconomic status was controlled by using a sample where individuals were selected that received Medicaid which is an income based program. This resulted in a sample of lower income families with limited resources and exposure to a variety of stressors. For example, while parents in this sample typically did not have automobiles that worked well and often did not live in towns with public transportation, many responded “strongly disagree” when answering the FAD item, “We don’t have reasonable transport.” It is hypothesized that these families used other poor families as a frame of reference and concluded that they did have adequate transportation when objectively one would assess their transportation as inadequate. Culturally that might be an appropriate response as the people with whom they interact daily and that live in their neighborhood have the same lack of availability to transportation. Monden (2010) found that parent’s level of education and father’s occupation impacted whether a health survey was biased. It may be that the more positive FAD scores than the norm group were a function of the family’s education and level of poverty.

The second question focuses on whether the mental health professionals were biased with respect to their perceptions of the family. Ostroff (1993), in a review of research related to bias, found that the raters' perceptions of the individual being rated significantly impacted the rating and could cause a bias in responses. While it is possible that the mental health professionals were inaccurate in their ratings of the families' functioning it should be noted that they provided services to these families for at least six months. These services were offered on a daily basis for a number of hours per week. Importantly, many of the services were offered in the family's homes providing the mental health professional an opportunity to observe the family in their home environment. The frequency, intensity and home specific nature of the interventions suggests that the mental health professionals had adequate information about the family to make an accurate assessment of their functioning. Finally, there is limited research to support the proposition that professionals assessing the mental health status of clients are consistent across professional specialties such as nurses, psychiatrists, occupational therapists, and social workers (Gale, Woodward, Hawley, Sivakumara, & Hansen, 2002).

Behavior Control. The FAD subscale for behavior control was found statistically significant when the FAD was completed by a mental health professional. The FAD items dealing with behavior control center around family rules and consequences associated with emergency situations, toilet habits, anger, and physical aggression (Ryan et al., 2005). Research supports a relationship between the level of ADHD impairment and the family environment. Two specific areas of family functioning were examined by the research: family conflict and family cohesion. These areas are thought to be associated with the level of impairment of the ADHD child.

While family conflict was been found to negatively impact the level of ADHD symptoms, family cohesion typically has a positive impact (Biederman et al., 1995; Kendall et al, 2005; Pressman et al., 2006). One can conclude that having a family member with ADHD is a family stressor.

The FAD items in the behavior control subscale are related to rules and consequences. Examples of behavior control items are: FAD item 55 states: “There are rules about dangerous situations.” FAD item 47 states: “If the rules are broken, we don’t know what to expect.” FAD item 44 states: “We don’t hold to any rules or standards (Ryan et al., 2005).” It is hypothesized that the relationship between low levels of behavior control and treatment compliance operates in two ways.

First, families with low levels of behavior control exhibit more problematic and shifting family rules and inconsistent consequences associated with emergency situations, toilet habits, anger, and physical aggression. The result of these inconsistencies with respect to family rules is that the family is more chaotic and experiences a more frequent and intense family stressors. These family stressors reduce the ability of the family to handle outside responsibilities such as following a treatment plan. The family’s ability to handle outside stressors is lower because they have to spend more time dealing with intra-family problems and consequently have less time to handle external responsibilities. In addition, the emotional toll of a more chaotic family environment means they will have lower levels of psychological resources to handle family stressors emanating from outside the family. For example, a family may establish a family rule that their daughter must study math for 45 minutes per night. If the family has difficulty enforcing this rule on a consistent basis and argues with their daughter about the rule, then this is likely to

increase the level of family stressors and decrease the amount of time needed to follow other family requirements such as following a treatment plan. Similarly, a family whose mother is unable to maintain part-time employment because both parents are needed to implement family rules may have less financial and transportation resources necessary for following through with the requirements of the treatment plan. Research supports the negative impact of both intra-family and extra-family stressors on the family's ability to handle external responsibilities such as following a treatment plan (Lavee, McCubbin, & Olson, 1987; McCubbin, Thompson, & McCubbin, 1996).

The second way that lower levels of behavior control negatively impacts treatment compliance is related to the relationship between the family's ability to follow rules within the family and the family's ability to follow rules emanating from outside of the family. If one understands family rule-making and implementation as a learned skill set then the family's inability to make and enforce rules within the family would have a negative impact on the family's ability to follow rules imposed by external sources such as a mental health professional's treatment requirements. While it may be that a family that has learned how to establish consistent methods for intra-family behavior control may not be able to generalize those skills to external requirements, it is reasonable to assume that a family that does not have the skill set for handling intra-family problems would also have difficulty with the necessary skills for handling problems externally driven. Finally, a family that has difficulty following through with appointments to the child's physician necessary for maintaining medication compliance is likely to have increased behavioral problems with the child with ADHD. These increased behavioral

problems would also have the effect of increasing family stressors and this reducing treatment compliance in other areas.

Limitations

The FAD was completed by one parent in each family, resulting in only one opinion of the functioning of the family being obtained. Family perceptions are expected to be different among family members (Copeland & White, 1991). Only one parent was asked to complete the FAD due to logistical barriers of obtaining a second completed FAD. The sample lacked diversity, especially in the area of socioeconomic status. All participants were Medicaid recipients. Typically, eligibility for Medicaid is based on income.

In this study, verifying colinearity, when all seven subscales were used, VIF scores were found to be beyond what was acceptable. Inflated colinearity suggests possible relationships between independent variables. Significant overlap between variables can result in erratic changes in results with only small changes to the model (Belsley et al., 1980). The regression analysis was recalculated without the general functioning subscales. General functioning was the only subscale not behavior specific which resulted in concerns that what it was measuring might overlap with the other subscales. Colinearity did not seem to be a problem with the regression when the general functioning subscale was excluded.

There were limitations associated with the instruments used in the study. Researchers have questioned whether the FAD measures what the instrument developers state it measures (Ridenour, Daley, & Reich, 1999). Miller et al. (2000) defended their rational-theoretical approach to item development as opposed to using a statistical model.

A clinical model was used to define a normal family (Ryan et al., 2005). The authors of the FAD also concede that it is normed primarily on Caucasian middle class families.

The measure of compliance was developed specifically for this study. It would have been preferable to have used a larger sample for norming. In addition the instrument may have limited utility because it used language specific to the program in this study.

Another limitation centers on the educational level of the mental health professional. As noted earlier half of the mental health professionals possessed Bachelor's degrees and half possessed Master's degrees. It would have been preferable to statistically control for the education level of the mental health professionals. Due to the small number of mental health professionals this was not feasible.

Finally, it is possible that the child with ADHD may also have been diagnosed with another DSM IV TR axis one disorder. It is possible that a co-morbid disorder may have affected the results. This variable was not controlled for due to the small sample size.

Implications for Practitioners

In examining possible implications this study might have for practitioners, there was an exploration of the implications related to significance found for the FAD subscale of behavior control and treatment compliance when the mental health professional completed the FAD. FAD items dealing with behavior control center around family rules and consequences associated with emergency situations, toilet habits, anger, and physical aggression (Ryan et al., 2005). One would then expect treatment compliance to increase as the family addresses issues with the development and implementation of rules and consequences in the family. Since decreased treatment compliance will impede any

progress a client diagnosed with ADHD might make, it seems logical that assessing for behavior control and addressing behavior control, as presented by the FAD, would need to be an element of psychotherapy for this sample.

Many times treatment may begin with the assumptions concerning what skill sets the client and his/her family already have. If the family does not have the skills to implement rules and consequences, the introduction of more rules will further exacerbate the current problems. The presenting problem may be poor school performance so the therapist assists the family in what seems to them to be a logical way to address this issue. Every day the client is to come home and spend 45 minutes doing school work. The first day goes pretty well with only minimal problems. The second day there is more complaining and less homework completed. The third day the tantrums start and the parent negotiates the time from 45 minutes to 30 minutes. Because of the increased chaos and emotional energy being spent, the parent stops the study sessions altogether.

Knowing that behavior control is correlated with treatment compliance, and that treatment is likely to be ineffective if the client doesn't come, the therapist may want to take the first four sessions to address rule development and implementation, and consequence development and implementation. As this is learned, developed, and implemented over the first four sessions, the family has established a skill set, and reduced stress in the family. By reducing stress, the family has more psychological resources and more time to follow the treatment regimen. Behavior control has become a more functional area for this family, and the family is more treatment compliant.

It has been speculated that there is a minimizing of family functioning by the parent. If families minimize their family functioning deficits, then it is important that the

counselor develop a therapeutic alliance with family members in order to address the importance of the family accurately assessing their functioning. In order for the family to consider addressing the need to improve behavioral control rules, it would be important for the family to view the mental health professional as someone who has a shared commitment to the goals and tasks of counseling (Bordin, 1979). As indicated by the results of the current study, improving behavioral control may also improve treatment compliance.

Families that are unconsciously minimizing the family's functioning have implications as well. These implications are directly influenced by the question: "Why is this occurring?" Understanding the reason why would importantly drive the treatment process and would guide the direction of therapy. A faulty view of what is a functional family may be as simple as an educational component being added to treatment. More complex issues might need the involvement of individualized mental health treatment to deal with family members' past traumas, or undiagnosed axis I diagnoses, or personality disorders.

In summary, the family functional level for families with a child with a diagnosis of ADHD needs to be considered during the treatment planning process to avoid potential compliance issues. This study provides support for this assertion as it relates to behavior control. A systems approach seems to be a logical method for dealing with family functioning. Families may need to be assessed beyond family self report to determine their level of functioning so that accurate treatment planning can occur.

Recommendations for Future Research

The current study suggests areas for further research. Since this was the first study looking at the relationship between compliance and family functioning for families with a child with ADHD, additional studies are warranted. If additional studies support the current study's results, then practitioners may consider utilizing the results in clinical settings.

It would be beneficial to replicate this study with a different population sample, as this study focused on a specific population enrolled in a specific program. Replication could provide support for this study if similar results are found.

A larger study is needed examining the specific elements of compliance. This type of study could examine specific factors associated with family functioning and its impact on compliance in the areas of medical treatment, behavioral treatment, and technical requirements of treatment.

It would also be beneficial for additional reliability and validity studies using the current study's measure of compliance. If additional studies provide support for the reliability and validity of the current measure of compliance then one would have more confidence in studies using this measure. Development of the treatment compliance inventory piece of the study could also support the potential generalization of the findings of this study.

Lastly, more research is needed in the area of perceptions of family functioning. An important question to consider is whether it is typically true that a mental health

professional is more accurate than a family member in assessing family functioning. If true, one implication is to consider methods to improve the family's assessment of their functioning.

Conclusions

The purpose of this study was to investigate the relationship between family functioning of families with a child with an ADHD diagnosis and compliance to treatment. Family functioning was assessed by both a parent and a mental health professional providing services in terms of individual, family, and group therapy; case management; and collateral services. Literature review resulted in not finding any other research where family functioning was associated with compliance for families with an ADHD diagnosed child.

The current study indicated no relationship between compliance and family functioning when a parent assessed functioning. A significant relationship was found for the subscale of behavior control when family functioning was assessed by the mental health professional. It is interesting that only when the mental health professional completed the family functioning inventory was behavior control found statistically significant. Speculation of the reason for this has been addressed in this chapter and further research is needed to determine the reason for this occurrence.

The study supports the need for consideration of family functioning in treatment planning for ADHD diagnosed children. Early intervention to address issues related to family functioning would be beneficial as it relates to treatment compliance.

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APPENDIX A

Family Assessment Device

Version 3

Instructions: This assessment contains a number of statements about families. Read each statement carefully, and decide how well it describes your own family. You should answer according to how you see your family.

For each statement there are four (4) possible responses:

Strongly Agree (SA) Check SA if you feel that the statement describes your family very accurately.

Agree (A) Check A if you feel that the statement describes your family for the most part.

Disagree (D) Check D if you feel that the statement does not describe your family for the most part.

Strongly Disagree (SD) Check SD if you feel that the statement does not describe your family at all.

These four responses will appear below each statement like this:

41. We are not satisfied with anything short of perfection.

___SA ___A ___D ___SD

The answer spaces for statement 41 would look like this. For each statement, there is an answer space below. Do not pay attention to the blanks at the far right-hand side of each space. They are for office use only.

Try not to spend too much time thinking about each statement, but respond as quickly and as honestly as you can. If you have difficulty, answer with your first reaction. Please be sure to answer *every* statement and mark all your answers in the space provided *below* each statement.

1. Planning family activities is difficult because we misunderstand each other.

___SA ___A ___D ___SD _____

2. We resolve most everyday problems around the house.

___SA ___A ___D ___SD _____

3. When someone is upset the others know why.

___SA ___A ___D ___SD _____

4. When you ask someone to do something, you have to check that they did it.

___SA ___A ___D ___SD _____

5. If someone is in trouble, the others become too involved.

___SA ___A ___D ___SD _____

6. In times of crisis we can turn to each other for support.

___SA ___A ___D ___SD _____

7. We don't know what to do when an emergency comes up.

___SA ___A ___D ___SD _____

8. We sometimes run out of things we need.

___SA ___A ___D ___SD _____

9. We are reluctant to show our affection for each other.

___SA ___A ___D ___SD _____

10. We make sure members meet their family responsibilities.

___SA ___A ___D ___SD _____

11. We cannot talk to each other about the sadness we feel.

___SA ___A ___D ___SD _____

12. We usually act on our decisions regarding problems.

___SA ___A ___D ___SD _____

13. You only get the interest of others when something is important to them.

___SA ___A ___D ___SD _____

14. You can't tell how a person is feeling from what they are saying.

___SA ___A ___D ___SD _____

15. Family tasks don't get spread around enough.

___SA ___A ___D ___SD _____

16. Individuals are accepted for what they are.

___SA ___A ___D ___SD _____

17. You can easily get away with breaking the rules.

___SA ___A ___D ___SD _____

18. People come right out and say things instead of hinting at them.

___SA ___A ___D ___SD _____

19. Some of us just don't respond emotionally.

___SA ___A ___D ___SD _____

20. We know what to do in an emergency.

___SA ___A ___D ___SD _____

21. We avoid discussing our fears and concerns.

___SA ___A ___D ___SD _____

22. It is difficult to talk to each other about tender feelings.

___SA ___A ___D ___SD _____

23. We have trouble meeting our bills.

___SA ___A ___D ___SD _____

24. After our family tries to solve a problem, we usually discuss whether it

worked or not.

___SA ___A ___D ___SD _____

25. We are too self-centered.

___SA ___A ___D ___SD _____

26. We can express feelings to each other.

___SA ___A ___D ___SD _____

27. We have no clear expectations about toilet habits.

___SA ___A ___D ___SD _____

28. We do not show our love for each other.

___SA ___A ___D ___SD _____

29. We talk to people directly rather than through go-betweens.

___SA ___A ___D ___SD _____

30. Each of us has particular duties and responsibilities.

___SA ___A ___D ___SD _____

31. There are lots of bad feelings in the family.

___SA ___A ___D ___SD _____

32. We have rules about hitting people.

___SA ___A ___D ___SD _____

33. We get involved with each other only when something interests us.

___SA ___A ___D ___SD _____

34. There's little time to explore personal interests.

___SA ___A ___D ___SD _____

35. We often don't say what we mean.

___SA ___A ___D ___SD _____

36. We feel accepted for what we are.

___SA ___A ___D ___SD _____

37. We show interest in each other when we can get something out of it personally.

___SA ___A ___D ___SD _____

38. We resolve most emotional upsets that come up.

___SA ___A ___D ___SD _____

39. Tenderness takes second place to other things in our family.

___SA ___A ___D ___SD _____

40. We discuss who is to do household jobs.

___SA ___A ___D ___SD _____

41. Making decisions is a problem for our family.

___SA ___A ___D ___SD _____

42. Our family shows interest in each other only when they can get something out of it.

___SA ___A ___D ___SD _____

43. We are frank with each other.

___SA ___A ___D ___SD _____

44. We don't hold to any rules or standards.

___SA ___A ___D ___SD _____

45. If people are asked to do something, they need reminding.

___SA ___A ___D ___SD _____

46. We are able to make decisions about how to solve a problem.

___SA ___A ___D ___SD _____

47. If the rules are broken, we don't know what to expect.

___SA ___A ___D ___SD _____

48. Anything goes in our family.

___SA ___A ___D ___SD _____

49. We express our tenderness.

___SA ___A ___D ___SD _____

50. We confront problems involving feelings.

___SA ___A ___D ___SD _____

51. We don't get along well together.

___SA ___A ___D ___SD _____

52. We don't talk to each other when we are angry.

___SA ___A ___D ___SD _____

53. We are generally dissatisfied with the family duties assigned to us.

___SA ___A ___D ___SD _____

54. Even though we mean well, we intrude too much into each others lives.

___SA ___A ___D ___SD _____

55. There are rules about dangerous situations.

___SA ___A ___D ___SD _____

56. We confide in each other.

___SA ___A ___D ___SD _____

57. We cry openly.

___SA ___A ___D ___SD _____

58. We don't have reasonable transport.

___SA ___A ___D ___SD _____

59. When we don't like what someone has done, we tell them.

___SA ___A ___D ___SD _____

60. We try to think of different ways to solve problems.

___SA ___A ___D ___SD _____

APPENDIX B

Treatment Compliance Inventory

Client Name: _____

Mental Health Professional: _____

Please circle appropriate rating.

7=Always, 6=Almost Always, 5=Most of the Time, 4=Half of the Time,

3=Almost Half of the Time, 2=Sometimes, 1=Rarely, 0=n/a

	Always	Almost Always	Most of the Time	Half of the Time	Almost Half of the Time	Sometimes	Rarely	n/a
1. PCP Referral	7	6	5	4	3	2	1	0
2. 45 day MD Appoint.	7	6	5	4	3	2	1	0
3. Yearly SED/SMI	7	6	5	4	3	2	1	0
4. Maintaining Medicaid	7	6	5	4	3	2	1	0
5. Individual Therapy	7	6	5	4	3	2	1	0
6. Family Therapy	7	6	5	4	3	2	1	0

7. Group Therapy

7 6 5 4 3 2 1 0

8. Case Management

7 6 5 4 3 2 1 0

9. Med appointments

7 6 5 4 3 2 1 0

10. Taking meds

7 6 5 4 3 2 1 0

11. Day Treatment

7 6 5 4 3 2 1 0

12. General Compliant

7 6 5 4 3 2 1 0

APPENDIX C

Letter of Consent

Dear Parent,

A research study to compare family functioning is being conducted in your area that might benefit the participants by identifying family strength.

Participation will involve meeting with a professional who will administer a family inventory. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your name will not be used.

Individuals who are chosen and complete the inventory will be placed in a drawing for a \$200 Wal-Mart gift card.

If you have any questions please contact Jackie Ferrell at (870) 483-7039. Any issues and concerns related to the study can be addressed by contacting Compliance Coordinator, Research Support Services, Administration 315, The University of Memphis, Memphis, TN 38152, (901) 678-5071. This study has no affiliation with the Dayspring Behavioral Health and they hold no liability associated with this study.

Sincerely,

Jackie Ferrell, MRC, LPC

* * * * *

I give my consent to participate in the above study. I understand that by returning this form I am granting the interviewer the right to contact me by phone to verify information and schedule a time to complete the questionnaire.

(Print Parent/Guardian Name)

(Parent/Guardian Signature)

(Date)

To be considered for this study please answer all questions found on the back:

1. Number of Children in the home. _____
2. List ages of children _____, _____, _____, _____, _____, _____, _____, _____
3. Family Makeup:
 - Both bio-parents in the home Step parent in the home
 - Relative with custody Single parent
 - Non Relative with custody other _____
4. My child is or has received mental health treatment. yes no
5. My child receives Medicaid or school lunch program. yes no
6. Race or Ethnic Background:
 - African American/Black American Indian Asian
 - Mexican American (Hispanic Origin) White
 - Other Hispanic _____
 - Other _____
7. Address _____

8. Phone #s _____

9. It is okay to leave a message if I am not at home. yes no