Efficacy of available treatments for children and adolescents with behavioral diagnosis as measured by resiliency and CAFAS scores

Laura Wickman
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Abstract
Many treatment options are available to children and adolescents with behavioral disorders who seek services from CMHCs. Little research addresses the efficacy of these services.

This researcher examined data from existing clinical records. ANOVA and MANOVA were calculated to determine effects of treatment setting on change in CAFAS and resiliency scores and to determine if any difference in treatment exists between those clients who improved on resiliency and CAFAS scores and those who didn’t.

Clients receiving services in the office and natural setting showed greater improvement on BRC risk scores than clients receiving only office-based services. Clients who showed improvement on CAFAS scores received significantly less school-based individual therapy. Clients who showed improvement on BRC scores received significantly less office-based individual therapy.

These results suggest that providing mental health services to this population in multiple settings is more effective than office-based treatment only.

Keywords
Health Sciences, Mental Health
EFFICACY OF AVAILABLE TREATMENTS FOR CHILDREN AND ADOLESCENTS WITH A BEHAVIORAL DIAGNOSIS AS MEASURED BY RESILIENCY AND CAFAS SCORES

BY

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BA, Dartmouth College, 2003

THESIS

Submitted to the University of New Hampshire in Partial Fulfillment of the Requirements for the Degree of

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ABSTRACT

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by

Laura Wickman

University of New Hampshire, May, 2008

Many treatment options are available to children and adolescents with behavioral disorders who seek services from CMHCs. Little research addresses the efficacy of these services.

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based individual therapy. Clients who showed improvement on BRC scores received significantly less office-based individual therapy.

These results suggest that providing mental health services to this population in multiple settings is more effective than office-based treatment only.
CHAPTER I

INTRODUCTION AND RATIONALE

In child and adolescent mental health counseling, there are many options for treatment in a variety of settings. Some insurance companies will cover multiple types of treatment, while others only cover a select few. Are all of these treatment types equivalent in effectiveness, or are some more beneficial to certain clients than others? What factors influence which type of treatment will be more beneficial? This thesis will investigate which types of treatments available through a community mental health center produce the greatest improvements in children and adolescents.

Prevalence of Mental Illness

Mental illness has widespread effects on people of all ages in our society. According to statistics published by the National Alliance on Mental Illness (NAMI), 6 percent, or 1 in 17 Americans suffers from serious mental illness. This means that mental illness affects approximately 1 in 5 families in America. Additionally, 4 of the 10 leading causes of disability in the United States and developed countries are mental illnesses. The estimated cost of untreated mental illnesses in the United States is more than 100 billion dollars each year (NAMI, 1996-2007). The development of efficient treatments for these disorders could drastically reduce this figure.

Between 1986 and 1997, the number of youth admitted to mental health services in the United States rose from 702,815 to 1,314,938 (Manderscheid & Henderson, 2002). This was an 87% increase over the eleven year period. After correcting for population
growth, a 69% increase in youth admissions per 100,000 youths occurred from 1986 to 1997. This staggering increase illustrates the need for an effective and efficient system of treatment for children and adolescents with mental health needs.

Among youth admitted to mental health care in the United States, there has been a range of presenting problems. In 1997, 49.7% of youth admitted presented with family problems, and 42.7% of youth had difficulties coping with school. Also among the top presenting problems were depressed or anxious mood, aggression, and social withdrawal (Manderscheid & Henderson, 2002). These youth are presenting with problems in a variety of environments, including home, school, and extracurricular activities.

**Service Trends**

Currently, services provided by community mental health agencies include in-clinic, school-based, home-based, and community-based services. The traditional view of mental health services consisting of a client visiting the mental health center to see a therapist or other provider is gradually being replaced by clinicians working with clients in their natural environments (Weist & Ghuman, 2002). By doing so, the clinician gets a first hand view of the client’s environment and the natural forces promoting or inhibiting positive change. Instead of the clinic-based clinician gathering an extensive history and spending much time exploring family dynamics, the clinician can spend a short time observing the family in the natural environment and will likely develop a much more accurate picture. Similarly, by having direct contact with a child in the school setting, a clinician can more effectively diagnose and address school and peer related issues.

Mental health professionals have also recognized a need for children and adolescents to receive services in their natural setting. A survey of mental health
professionals in Washington state addressed the perceived needs of children who met the researchers' criteria to be classified as severely emotionally disturbed (SED).

Professionals reported what services they believed would benefit these children and adolescents. The most frequently reported needs were outpatient therapy, family support groups, intersystem case management, school-based mental health services, psychological testing, training in independent living skills, intensive in-home therapy, and supervised after-school activities (Trupin, Forsyth-Stephens, & Low, 1991). Interestingly, six of these eight services would not be considered traditional mental health services. If many of the services identified by professionals to be beneficial to a youth's mental health are not part of traditional mental health service delivery systems, the current definition of mental health care and the range of services that are being provided should be examined.

**Assumptions**

It seems reasonable that the most effective treatment will be one in which the service is provided in the same environment where the problem exists. For example, if a child is having difficulty at home with his or her family, the most effective treatment would appear to be home-based therapy. Similarly, if a child is having difficulty coping in the school environment, school-based treatment would likely be most effective.

If a clinician works directly with a client in the setting where the issue exists, many factors should lead to more efficient treatment. Information gathering and analysis of core issues should be more accurate and occur at a faster pace through direct observation than by client description. Also, when a client learns new skills in the environment in which they are going to be used, the client doesn't have to later transfer
these skills to a new environment as with skills learned in clinic based therapy. This should allow for shorter, more effective treatment because there is no risk of the skills learned not transferring to the natural environment.

**Implications**

There are difficulties in comparing nontraditional mental health services to traditional services. One reason is the inherent differences in level of training and education of the clinician. Traditional services are provided almost exclusively by Master’s level licensed or license-eligible clinicians, while nontraditional services are often provided by professionals with a Bachelor’s degree or high school education (J. Golkowski, personal communication, February 19, 2008). Another difficulty is that these services are often provided simultaneously, so it is impossible to determine which service has the greatest impact.

Comparing different services, however, can be of great benefit to child and adolescent mental health programs. If it can be more accurately determined which services will be beneficial to which families, the children and adolescents served can be more efficiently treated. By determining at the onset of treatment which services will be most effective, community agencies can save time and money. Mental health agencies could also allocate resources more effectively by ensuring that the amount of each service that is provided correlates with the effectiveness and need for the service.

Research in this area could also ensure that the appropriate services are available to all who could benefit from them. Since many insurance companies do not currently reimburse community-based services, these services are not available to a large number of people who could potentially benefit from them. If evidence supports these treatments
as more effective for certain populations, we can advocate for the services being supported and reimbursed by a greater number of insurance companies. This would make these services more readily available to those who would most benefit from them.

**Hypotheses**

This study examined services currently available to treat children and adolescents with diagnosed behavioral disorders in a community mental health center. Outcome assessments currently in use (CAFAS and BRC) measured progress made while the client was engaged in different treatment modalities in different settings.

1. The setting in which a mental health service is provided will impact the amount of change observed in BRC scores and CAFAS scores over time.
   a. Services provided in a child or adolescent’s natural environment will lead to a greater improvement on BRC and CAFAS scores than services offered in a clinical office.
   b. Children and adolescents who receive a combination of services in a combination of environments will show the greatest improvement in CAFAS and BRC scores.
   c. Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service hour on CAFAS and BRC scores than children and adolescents who receive services only in the office.
   d. Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service contact on CAFAS
and BRC scores than children and adolescents who receive services only in
the office.

2. The children and adolescents who improve their CAFAS scores over time will have
received a greater number of hours, contacts, and months of services in a natural
setting than those whose scores either remained unchanged or became worse.

3. The children and adolescents who improve their BRC scores over time will have
received a greater number of hours, contacts, and months of services in a natural
setting than those whose scores either remained unchanged or became worse.

**Definition of Terms**

**Behavioral disorder** – Attention Deficit Hyperactivity Disorder, Oppositional Defiant
Disorder, or Disruptive Behavior Disorder NOS as defined in DSM-IV-TR.

**BRC** – Brief Resiliency Checklist. An instrument based in research on resiliency, which
measures risk and protective factors.

**CAFAS** - Child and Adolescent Functional Assessment Scale, an instrument that
measures the amount of dysfunction a client and family is experiencing across
multiple settings.

**CM** – Case Management. This is a service which entails monitoring progress and needs
for service and connecting a client with community resources. This service can
be provided by clinicians with at least an Associate’s Degree.

**CMHC** – Community mental health center.

**Community based services** – Services provided to a client or family in the state where
he client lives, but not in the home, school, or mental health center.
Contact – An episode of mental health service provided for any length of time in a single day.

Family therapy – Psychotherapy provided to at least one member of the client’s family, with or without the client present, that is for the sole benefit of the client. This service can be provided by a clinician with at least a Master’s Degree.

Home based services – Services provided to a client or family in their own home.

Individual therapy – Psychotherapy provided to a client individually. This service can be provided by a clinician with at least a Master’s Degree.

Measure of improvement – The difference between score at administration 2 and score at administration 1 on total score and subscores of the CAFAS or BRC.

Medicaid – The United States health insurance program for individuals and families with limited resources.

MIMS – Mental Illness Management Services. This is a service provided directly to a client to assist the client with managing symptoms of their mental illness. This service can be provided by clinicians with at least an Associate’s Degree.

Natural setting – An environment where the client would spend time whether or not the client was receiving mental health services, such as school, home, or the community.

Office based services – Services provided to a client or family in the community mental health center.

Psychiatry – Prescription and monitoring of medications by a medical doctor.

School based services – Services provided to a client or family in the client’s school.
Service – An episode of reimbursable time spent with a client or family designed to improve the client’s mental health. Services include individual therapy, family therapy, MIMS, case management, and therapy.

Service hour – One service hour is equal to between 52.5 and 67.5 minutes of time spent with the client or family.

Setting – The location in which a mental health service is provided such as school, home, office, or community.
CHAPTER II

LITERATURE REVIEW

Current trends in mental health care have led to services moving out of the traditional office setting and into the community. Services are being offered in clients' homes, schools, and other natural settings. Services are often provided in multiple settings and are tailored to a client's individual needs. Recent studies have begun to address these new forms of mental health service (Henggeler, Rodick, Borduin, Hanson, Watson, & Urey, 1986; Peters & Sellick, 2006; Weist & Ghuman, 2002), but much more research is needed to support their efficacy. This review will address current research concerning home-based care, multisystemic treatment, and school-based services, and identify areas where more research is needed.

Service Trends

Thanks in part to managed care, the current trend in mental health services is to discover and use empirically supported treatments, often referred to as "best practices." The idea is to find what works most effectively in the shortest amount of time so that clients can be helped as efficiently as possible. According to Melamid (2002), this has led to an increased focus on research about what works best in mental health care and what leads to better outcomes.

Much research has investigated different therapeutic techniques and theoretical backgrounds. Studies referenced by the American Psychological Association (no date) have found that some techniques are more effective than others for certain disorders.
Other studies have found that all theoretical backgrounds are equivalent, and the strength of the therapeutic alliance is the most important factor in determining the efficacy of treatment (Krupnick, Sotsky, Simmens, Moyer, Elkin, Watkins, & Pilkonis, 1996). In the quest to determine best practices, there seems to be conflicting evidence about what is important and what is effective. This suggests that there are a number of factors that impact treatment outcomes. The focus of the present study is to determine if the environment in which a service is provided influences its efficacy.

In 1984, the National Institute of Mental Health launched the Child and Adolescent Service System Program (CASSP). This program was developed in response to findings that many children and adolescents with serious emotional disturbances were not receiving appropriate or adequate treatment. The program helped states to develop community-based systems of mental health care that could offer services that more accurately match the needs of each community (Weist & Ghuman, 2002).

CASSP developed ten guiding principles for communities to focus on when developing their programs. Included in those ten principles is the idea that clients should receive individualized services and be offered a comprehensive array of services. The principles also call for family-centered services which involve the family as collaborators of care. Another principle states that clients should “be served in the least restrictive and most normative clinically appropriate environment” (Weist & Ghuman, 2002, p.3). This reflects the trend toward moving services out of institutions and also supports the movement of services out of the clinical office and into the client’s natural environment. This shift can allow the client to make use of natural supports as well as clinical resources.
Trupin et al. (1991) conducted a survey of professional caregivers of children with severe emotional disturbance that looked at areas where professionals felt there was a need in mental health services for children and adolescents. The caregivers surveyed were caseworkers or staff employed by the Department of Social and Health Services, probation/parole officers, and independent mental health professionals. Two of the top areas of need identified were school-based and home-based. School-based therapy is therapy provided in the school setting. The clinician providing school-based services has greater access to teachers and school administrators, and is able to observe the client interacting naturally in the school environment. Similarly, home-based therapy is therapy provided in the client’s home. The clinician providing home-based services is able to observe the client and his/her family interacting in their natural environment. If professionals have identified these services as an area of need, then they likely have some experience of them being beneficial to clients.

Even with limited research to support home-based services, many states have developed and implemented home-based programs (Lindblad-Goldberg, Dore, & Stern, 1998). These services do not entirely replace office based services, but are one of a wide range of services offered.

**Available Services**

A range of services are available to children and families serviced by a community mental health center. Therapy can be provided to the client individually, or to the entire family. Therapy is traditionally provided in the clinical office, but can also be provided at the child’s school, in the family home, or in the community. Mental Illness Management Services (MIMS) is an individual service provided either in the
child's home or community. MIMS uses a hands-on approach to assist the child with managing the symptoms of mental illness and transferring skills learned into the natural environment. Case management is another service offered to families to assist with coordination of care, communication with other service providers, and connection with resources available in the community.

**Home-based Care as an Alternative to Hospitalization**

In the medical field, some research has been done on home-based treatments. A study of cancer patients (Peters & Sellick, 2006) compared patients receiving home-based care with patients receiving inpatient care on variables such as depression, physical health, quality of life, and feelings of control. In all of these areas, the study found that patients receiving home-based care scored significantly more positively than those receiving inpatient care (Peters & Sellick, 2006).

In mental health services, home-based care has been shown to be preferable to hospitalization in a variety of studies. Receiving services at home can lead to increased satisfaction with services, shorter hospitalizations, and improvements in follow-through with treatment (Frederick, Caldwell, & McGartland Rubio, 2002; Kalucy, Thomas, Lia, Slattery, & Norris, 2004; Marks, 1995).

When faced with an increase in demand for mental health services, an Australian emergency department launched a new home-based program. This program, called Hospital in the Home, was intended to decrease the length of time clients stayed in the hospital. The program was successful in freeing up beds due to the ability of clinicians to do initial assessments before admission, and the ability to discharge clients sooner than if
they were not receiving in-home care. The study also found that consumers of the program and their caregivers were highly satisfied with the program (Kalucy et al., 2004).

Another study of home-based care after psychiatric hospitalization found that providing home-based care increased the odds of follow-through with aftercare by 22% (Frederick et al., 2002). This home-based program did not significantly reduce rates of recidivism, but patients were more willing to participate with aftercare which could sustain improvements in some patients.

The Daily Living Programme (DLP) (Marks, 1995) was developed as an alternative to hospitalization for adults with severe psychopathology. Participants in this study were randomly assigned to treatment conditions, and no significant pretreatment differences were found between the two groups. Participants assigned to the DLP group received mainly home-based services, while controls were admitted to a psychiatric hospital. DLP group participants spent a significantly smaller (decreased by 80%) number of days in the hospital than controls. The program was also found to be more cost effective and produced significant improvements on measures of psychiatric symptoms, daily living skills, and the Global Adjustment Scale. Clients and their families also scored significantly higher on surveys of satisfaction with treatment (Marks, 1995).

This study also included a second phase, where services were discontinued for some of the patients in the DLP group. DLP patients continued to be more satisfied with treatment than patients in other conditions, but the improvements made in the DLP condition gradually diminished. Complications due to staff changes and funding issues may have confounded these results (Marks, 1995).
These studies support the assertion that home-based treatments can be superior to treatment provided in more restrictive settings for people with physical and mental health problems. Home-based treatment can improve satisfaction rates, follow-through, and quality of life. Conclusive studies focusing on efficacy of treatment, however, are rare.

**Behavioral Disorders in Children and Adolescents**

Behavioral disorders are prevalent in children and adolescents in the United States. The National Institute of Mental Health (NIMH, 2008) estimates that between three and five percent of children have attention deficit hyperactivity disorder (ADHD). This translates into approximately two million children in the United States. Studies of oppositional defiant disorder (ODD) have found that between one and six percent of children fit the DSM-IV criteria for ODD (Surgeon General, 1999). This figure changes due to the criteria used and who reports the symptoms. A study of lifetime prevalence found that 10.2% of adults fit the criteria for ODD at some point in their lifetime (Nock, Kazdin, Hiripi, & Kessler, 2007). Of these, 92.4% met DSM-IV criteria for at least one other comorbid disorder.

These disorders have a significant impact on the lives of the children and adolescents they affect, as well as the people around them. Merrell and Boelter (2001) found that children diagnosed with ADHD were more likely to engage in antisocial behaviors and have social skill deficits. Brehaut, Miller, Raina, and McGrail (2003) found that children with behavioral disorders were also found to have 1.5 times the chance of sustaining physical injuries as children without behavioral disorders. Caregivers of children with behavioral disorders also report high levels of strain (Taylor-Richardson, Heflinger, & Brown, 2006).
Trends in Conceptualizing Behavior Development

Shifts in developmental psychology have led to changes in the conceptualization of behavior. Each system in a child’s life has been shown to influence his/her behavior both directly and indirectly. Thus, behavior is a result of complex interactions between and within multiple systems (Bronfenbrenner, 1979). Since behaviors result from dynamics in multiple environments, it is reasonable to assume that interventions targeted at multiple systems in the child’s life would be more effective than interventions in only one system.

Behavior also develops and occurs in an interpersonal context. The responses of adults and peers in a child’s life influence future behavior. The behavior of the child also influences present and future responses from adults and peers. In their study of the interaction styles of hyperactive children and their mothers versus normal children and their mothers, Cunningham and Barkley (1979) found that there were clear differences in how parents responded to their children. Mothers of hyperactive children were found to be more controlling and intrusive than mothers of normal children. Both the mother and the child in the pair were affected by the behavior of the other.

These conceptualizations of behavior development suggest that treatments that target multiple systems in a child’s life will be most effective. Since a child’s behavior is a result of interactions between the child and these systems, changes in the systems should produce behavior changes in the child.

Multi-systemic Treatment

Multisystemic treatment (MST), developed from Bronfenbrenner’s (1979) theory of behavior development, encompasses multiple dimensions of a child’s life. This type
of treatment involves working with a child’s school, home, community, and any other relevant domains. Some treatment occurs in clinic, but much occurs in nontraditional settings such as in school, home, and at extracurricular activities. By targeting multiple systems in the child’s life which influence behavior, changes in behavior should occur more rapidly. Multisystemic treatment differs from traditional talk therapy in that it is problem-focused and aims to produce changes in systems in the client’s life, not just in the client (Henggeler, Melton, & Smith, 1992).

An early study of MST with juvenile offenders found that it was more effective than the usual services offered to this population (Henggeler, Rodick, Borduin, Hanson, Watson, & Urey, 1986). Participants in this study consisted of families referred for social services by the court system. Measures consisted of multiple self-reports and observations. The observations consisted of audiotapes scored by trained students who were blind to which experimental condition each family was assigned to.

Henggeler et al. (1986) found that MST significantly reduced conduct problems, anxious-withdrawn behaviors, immaturity, and association with delinquent peers. It also led to improvements in the warmth and involvement of interactions between youth and their families. Families receiving the usual treatment and a normal control group did not show these positive changes (Henggeler et al., 1986). Usual treatment was determined by individual need and consisted mainly of individual and family counseling.

The presence of a group of normal control families in addition to the group of families receiving usual treatment added to the strength of this study. This group of normal families provided a control for normal adolescent development. The three groups were found to be similar on all measures of demographic and psychometric variables.
including age, sex, race, socioeconomic status, and intelligence. The two treatment groups also showed no significant differences in number of arrests, seriousness of charges, or average number of hours of service received (Henggeler et al., 1986).

The main limitation of this study was its loss of data. Of 116 families referred, 87 completed treatment. Complete data was only collected from 57 of these 87 families. Data was lost due to timing of the study, youth not living with either parent, reasons beyond the researchers' control, and equipment malfunctions. Another factor to consider is that many families were paid for participation in the study, but not all were. This could potentially confound results by creating unnecessary differences between participants.

A second study using MST with juvenile offenders found it to be similarly effective. When again compared to usual services, youths receiving MST spent fewer weeks incarcerated and their families reported increases in family cohesion and decreases in aggression by the youth (Henggeler et al., 1992).

When compared with individual therapy, a third study found that MST was more effective in preventing rearrest among serious juvenile offenders. Serious juvenile offenders were convicted of crimes such as assault and theft. This study included a four year follow-up of participants and found that a significantly smaller number of those receiving MST were arrested in the four years after treatment ended (Borduin, Mann, Cone, Henggeler, Fucci, Blaske, & Williams, 1995).

Curtis, Ronan, and Borduin (2004) conducted a meta-analysis of MST and found that youths receiving MST were functioning better than 70% of those receiving alternative treatments. Studies included in this meta-analysis examined youths with serious emotional disturbances and antisocial youth. The analysis also concluded that
MST had a greater impact on measures of family relations than on individual adjustment or peer relations (Curtis, Ronan, & Borduin, 2004).

The effectiveness of MST implies that interventions targeting the systems in a child's life are likely to produce the greatest amount of improvement in the child. School-based and home-based services are designed to allow for these systemic interventions. Clinicians providing office-based services may or may not intervene in different systems in the client's life. This illustrates one way in which school and home-based services may be more effective than traditional office-based services.

**School-based Treatment**

According to Nastasi, Moore, and Varjas (2004), multiple sources estimate that between 20% and 50% of school aged children experience symptoms related to a diagnosable mental illness, although many of these children go undiagnosed and untreated. As previously discussed, one of the goals of the CASSP is to fill this gap and provide necessary mental health services to all residents of a community. This shifting in mental health service delivery created a responsibility by mental health agencies to serve those children who previously underutilized services for a variety of reasons. In many cases, this requires serving children where they are guaranteed to be found, in schools.

Comprehensive school-based services have been developed and implemented in many communities during the past twenty years. The relative newness of these services means that although some areas have been addressed, there are many gaps in research on the efficacy of these services. School-based services have been shown to be rated favorably by families and teachers, accessible and utilized by the populations they are intended to benefit, and cost-effective (Nastasi et al., 2004). Studies addressing the
efficacy of these services have found that they often lead to improvements in behavior and academic functioning and reduce the need for restrictive placements (Nastasi et al., 2004; Weist & Ghuman, 2002).

There are many benefits suggested to providing mental health services in schools. One of these is that it is easier to provide more comprehensive assessments because clinicians can readily observe many domains of a child’s functioning. Another benefit is that the mental health system and school system can communicate regularly to ensure collaboration of care. Providing services to children in their natural environment also leads to increased generalizability. If skills are learned in the same environment they are intended to be used, they are more likely to be applied in that environment (Oppenheim & Evert, 2002).

**Criticisms of Community-based Services**

The growth of out of office mental health service delivery has not happened without criticism. Some critics argue that research has not shown large enough benefits of outreach services to support their superiority. They claim that the improvements presented may be due to increased enthusiasm of staff working in a new way. They also argue that these services may be more costly in the long term due to increased rates of staff burnout (Creed, 1995).

In an analysis of home-based assessments, Burns (1995) reported a number of concerns raised by professionals about home-based services. A major concern was about the level of resistance by professionals. Being in the community is less efficient in that it involves more travel time. Telephone calls cannot as easily be made between appointments, and the physical environment is often undesirable. Also, not having the
resources available that would be easily accessible in the office could reduce the effectiveness of services.

Some barriers to outreach services are financially based. Third-party payers are not organized so as to support many of the services necessary for complete community based care. Insurance companies tend to give preference to one on one services and institutionalization (Test & Scott, 1990). Many insurance companies will not reimburse for the types of services that are offered outside the clinical office.

A criticism specific to school-based services is that they are difficult to implement and evaluate because of the complexity of the service itself. Services are often implemented by multiple providers in multiple locations who may or may not communicate effectively (Nastasi et al., 2004). As these programs continue to develop, many of these issues will need to be addressed.

**Child and Adolescent Functional Assessment Scale (CAFAS)**

The *Child and Adolescent Functional Assessment Scale* (CAFAS) is an instrument developed by Kay Hodges (1990) and widely used by mental health agencies. Many states mandate the use of the CAFAS to determine eligibility for services (Bates, 2001). This instrument measures the level of impairment a child or adolescent is experiencing in multiple domains of functioning, such as school, home, and behavior toward others. Research by Hodges, Xue, and Wotring (2004) supports the use of the CAFAS to evaluate outcomes of mental health treatment.

**Resiliency**

Much research on risk and resiliency factors indicates their importance in determining a child’s ability to face obstacles without developing significant disturbances
in mental health (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006; Vance & Sanchez, 1998). Protective factors are those qualities of a person’s life that improve their ability to overcome difficult circumstances. Risk factors are those qualities that correspond to greater difficulty facing obstacles and an increase in risk of developing disturbances in mental health. Risk and protective factors in children and adolescents pertain to multiple areas of life, such as school, family, social life, and developmental history. The Brief Resiliency Checklist (BRC), was developed by Eric Vance, MD measures risk and protective factors to obtain a measure of resiliency in children and adolescents (Vance & Sanchez, 1998).

Alvord and Grados (2005) suggest enhancing resilience in children as a proactive approach to reduce the risk of disturbances in mental health. Greater resilience in children leads to an increased ability to overcome life’s difficulties without developing impairments of functioning. Children with greater resilience are, therefore, less likely to require professional mental health services.

**Future Research**

There are currently few studies assessing the efficacy of outreach services with children and adolescents receiving general mental health services. The majority of studies cited previously assessed either adults or children in the juvenile justice system. A current need is for controlled studies addressing the efficacy of community, home, and school-based services for a variety of child and adolescent mental health issues.

There is also a lack of research addressing the cultural sensitivity of these programs. When serving families in school or in their own homes, cultural sensitivity gains even more importance than in office-based treatment. When services are provided
in a family’s home, the clinician must pay particular attention to ensure that cultural values are not violated. Culturally appropriate evaluation measures also need to be developed (Nastasi et al., 2004). Current statistics suggest that services are grossly underutilized by minority populations (Oppenheim & Evert, 2002).

**Summary**

Behavioral disorders in children and adolescents are prevalent in the United States and have negative effects on the affected child as well as those people who come into contact with the child. Multiple options are available for treatment of these disorders, but little research addresses the efficacy of these available treatments.

Current research supports the provision of services to clients in natural settings and interventions designed to influence multiple systems in a client’s life. Service trends have moved toward the provision of services in the least restrictive environment, and studies of both physical and mental illness have found that home based services are preferred to hospitalization and often provide greater benefits to the client. Multisystemic treatment and school-based treatment have also been supported as effective services.

Financial and practical barriers to providing services in a client’s natural setting exist, but could be reduced if these services gained greater support from mental health professionals, insurance companies, and policy makers. Research indicating the effectiveness of services provided in a client’s natural setting is needed to advocate for the support of these services.
CHAPTER III

METHODOLOGY

Design

This study is an ex post facto design including a within subjects pretest and posttest. Each participant was given a pretest and a posttest of two outcome measures during the normal course of treatment. The measures used were the Child and Adolescent Functional Assessment Scale (CAFAS) and the Brief Resiliency Checklist (BRC). Results from these previously completed outcome assessments were reviewed and analyzed to provide information about the efficacy of the services provided during the treatment period.

Setting

The setting of this study is a community mental health center in southern New Hampshire serving a catchment area with a population of approximately 135,000 people. Data was collected in February 2008 from records of child and adolescent clients actively receiving treatment from June 2006 through February 2008. Parents or legal guardians signed a release upon requesting services that allows information in their child’s record to be used for research purposes.

Hypotheses

1. The setting in which a mental health service is provided will impact the amount of change observed in BRC scores and CAFAS scores over time.
a. Services provided in a child or adolescent’s natural environment will lead to a greater improvement on BRC and CAFAS scores than services offered in a clinical office.

b. Children and adolescents who receive a combination of services in a combination of environments will show the greatest improvement in CAFAS and BRC scores.

c. Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service hour on CAFAS and BRC scores than children and adolescents who receive services only in the office.

d. Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service contact on CAFAS and BRC scores than children and adolescents who receive services only in the office.

2. The children and adolescents who improve their CAFAS scores over time will have received a greater number of hours, contacts, and months of services in a natural setting than those whose scores either remained unchanged or became worse.

3. The children and adolescents who improve their BRC scores over time will have received a greater number of hours, contacts, and months of services in a natural setting than those whose scores either remained unchanged or became worse.

**Sampling**

The population in question in this study is the group of clients served by the Child, Adolescent, and Family Services Department of a community mental health center
in southern New Hampshire who are diagnosed with a behavioral disorder using DSM-IV-TR criteria. Behavioral disorders were chosen because children with these diagnoses generally have impairments in multiple domains of functioning and receive a wide range of mental health services. Clients range in age from three to seventeen years old. This population represents the greatly disordered end of the spectrum of children and families who request mental health services. Families seeking help from a community mental health center may not be able to effectively utilize services as well as families who choose to seek services from a clinician in private practice.

All participants were diagnosed with either Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), or Disruptive Behavior Disorder, NOS, and received services through the Child, Adolescent, and Family Services Department between June 2006 and February 2008. This time period was chosen because the BRC was not administered to clients before June 2006. All participants were rated using the CAFAS and the BRC each at two separate times, approximately one year apart.

**Instrumentation**

Scores from two instruments were used in this study. Both instruments were currently in use at the mental health center at the time of data collection. All raters had previous experience using these instruments in this setting and were trained in the use of these assessments. The majority of raters were Master’s level clinicians in the fields of social work, counseling, and marriage and family therapy. All raters had obtained at least an Associate’s Degree in a related field.
The CAFAS includes items that assess the functioning of a client across multiple life domains. Raters choose which statement(s) best describe a client from a list of statements representative of mild, moderate, or severe impairment. Domains of the individual CAFAS score include moods and emotions, behavior toward others, school, home, community, substance use, thinking, and self-harm. Two domains are used to rate the primary caregiver: material needs, and family and social support. A client can score 0, 10, 20, or 30, representing no impairment, mild impairment, moderate impairment, or severe impairment in each domain. Scores in each of the eight individual domains are totaled to create an individual score. Scores in the two primary caregiver domains are totaled to create a family score. The individual score and family score are totaled to create a total score. The CAFAS is a published instrument which requires a fee for use, so it is not included as an appendix.

When hired, company policy at this community mental health center is that clinicians receive training to use the CAFAS. Vignettes are reviewed and rated by new clinicians, then scores are compared with how the vignette was intended to be scored. The purpose of this exercise is to improve inter-rater reliability. Measures of reliability and validity have been reported to be acceptable for this scale, ranging from moderate to high depending on the methods used (Hodges, 1990; Bates, Furlong, & Greif Green, 2006).

The Brief Resiliency Checklist (BRC, Appendix A) is an instrument developed by Eric Vance, M.D. Items on this checklist are based in research conducted on factors leading to resilience in children and adolescents (Vance & Sanchez, 1998). The checklist consists of 32 risk factors and 35 protective factors. The number of risk factors is
subtracted from the number of protective factors to give each client a total resilience score. A series of questions accompanies the checklist, which clarifies each item and how clients should be questioned, in order to improve inter-rater reliability. The BRC is an instrument that was not formally used until 2006 so its psychometric properties have not yet been evaluated.

**Procedures**

First, permission was obtained from the Executive Director of the community mental health center (CMHC) to gather data from clinical records. Second, a structured interview was conducted with the director of the Child, Adolescent, and Family Department of the CMHC to determine the level of training provided for the use of each assessment instrument addressed in this study. Lastly, the researcher collected data from existing clinical records, using a data collection sheet developed by the researcher (Appendix B). This data includes demographics, treatment type, location, and duration, diagnosis, and outcome scores measured by the BRC and CAFAS.

**Analyses**

Data was coded and entered into SPSS for analysis. Differences were calculated between pretest and posttest individual, family, and total scores on the CAFAS and risk and resiliency subscales and total score on the BRC for each client. This analysis obtained measures of each client's improvement during treatment. Improvement scores were divided by the total number of hours of treatment to determine improvement per service hour. Improvement scores were also divided by the total number of treatment contacts to obtain measures of improvement per treatment contact.
Hypotheses 1a, 1b, 1c, and 1d

Data was grouped according to the location where treatment was provided during the period of time between administrations of the CAFAS and BRC. Treatment location groups were either office based services only, a combination of office based services with at least one natural setting (school, community, or home), or natural setting only. A client was considered to have received a service in a specific setting if at least three contacts of the service were provided in that setting. An ANOVA was calculated using treatment location as the independent variable. Dependent variables were all measures of improvement, improvement per service hour, and improvement per contact using the CAFAS and BRC.

Hypotheses 2 and 3

A variable (improvement on CAFAS) was created to separate those clients who improved their total CAFAS scores over the specified time period from those clients who either stayed the same or received worse scores. This was also calculated for the total BRC score (improvement on BRC). A MANOVA was calculated with each of these categories as the independent variables. MANOVA was used in place of separate ANOVAs to reduce the chance of type I errors due to compounding error rates. Dependent variables were total number of treatment hours, total number of treatment contacts, and the number of hours, contacts, and months of each type of treatment (MIMS at home, MIMS in the community, school-based individual therapy, school-based family therapy, home-base individual therapy, home-based family therapy, office-based individual therapy, and office-based family therapy). Improvement scores became independent variables in this analysis in order to compare those participants who
improved with those who did not improve, in order to determine if the two groups
differed on the types of services received.

A correlation matrix using Spearman correlations was also calculated among all
variables to determine if there were any unexpected correlations.
CHAPTER IV

RESULTS

Sample

The sample consisted of 26 participants with a mean age of 9.8 years (SD = 3.2, range = 3-15 years). Of the 26 participants, 23 reported their ethnicity as white, two reported Hispanic, and one reported African-American. Nineteen participants were male and seven were female. Twenty-one participants received Medicaid and five did not receive Medicaid. In order to qualify as having received a service, at least three contacts of the service must have been provided. One data set was discarded due to the client only receiving service at two contacts.

Correlations

The number of hours, contacts, and months of each type of service were consistently highly correlated (r’s >.90, p <.001). A participant who received a greater number of hours of a service also received a greater number of contacts and months of the same service. Since these variables are highly inter-correlated, only the number of hours of each service is reported in Table 1.

Age correlated with many of the variables considered (see Table 1). Age was negatively correlated with MIMS provided in the community when measured in hours (r = -.536, p < .01), contacts (r = -.507, p < .01), or months (r = -.439, p < .05). Age was positively correlated with individual therapy provided in the school when measured in hours (r = .472, p < .05), contacts (r = .472, p < .05), or months (r = .491, p < .05). Age
was also negatively correlated with family therapy provided in the office when measured in hours ($r = -.633, p < .001$) or number of contacts ($r = -.623, p < .001$). Age negatively correlated with both total number of treatment hours ($r = -.476, p < .05$) and total number of treatment contacts ($r = -.396, p < .05$).

The number of hours, contacts, and months of MIMS received in the community negatively correlated with change in number of BRC risk factors, change in risk factors per service hour, and change in risk factors per contact in all possible combinations. Correlation coefficients ranged from -0.499 to -0.596 ($p < .01$).

The number of hours of individual therapy provided in the school as well as the number of hours of family therapy provided at school correlated with each other ($r = .519, p < .01$) and were both positively correlated with the amount of change on individual CAFAS scores ($r = .390, p < .05$), ($r = .393, p < .05$).

The number of hours and contacts of family therapy provided in the office correlated strongly with each other ($r = .996, p < .001$) and both negatively correlated with change seen on total CAFAS score (individual and family) ($r = -.433, p < .05$) ($r = -.433, p < .05$). Number of contacts of family therapy in the office was also negatively correlated with change on BRC risk score ($r = -.393, p < .05$).
Table 1

Selected Spearman Correlations between Age, Treatment Provided, and Change in BRC and CAFAS Scores

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Hours service</th>
<th>Contacts service</th>
<th>MIMS comm.</th>
<th>Ind tx school</th>
<th>Fam tx school</th>
<th>Fam tx office</th>
<th>Ind CAFAS change</th>
<th>Ind+fam CAFAS change</th>
<th>BRC risk change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of service</td>
<td>r -0.476*</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>p 0.014</td>
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<tr>
<td>Contacts of service</td>
<td>r -0.396*</td>
<td>0.960**</td>
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<tr>
<td></td>
<td>p 0.045</td>
<td>0.000</td>
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<tr>
<td>MIMS in comm. (hrs)</td>
<td>r -0.536**</td>
<td>0.838**</td>
<td>0.739**</td>
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<tr>
<td></td>
<td>p 0.005</td>
<td>0.000</td>
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<tr>
<td>Ind. tx at school (hrs)</td>
<td>r 0.472*</td>
<td>0.081</td>
<td>0.033</td>
<td>-0.395*</td>
<td></td>
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<tr>
<td></td>
<td>p 0.015</td>
<td>0.683</td>
<td>0.874</td>
<td>0.046</td>
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<tr>
<td>Family tx at school (hrs)</td>
<td>r 0.249</td>
<td>0.073</td>
<td>0.137</td>
<td>-0.204</td>
<td>0.519**</td>
<td></td>
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<tr>
<td></td>
<td>p 0.220</td>
<td>0.722</td>
<td>0.503</td>
<td>0.318</td>
<td>0.007</td>
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<tr>
<td>Family tx in office (hrs)</td>
<td>r -0.633**</td>
<td>0.328</td>
<td>0.288</td>
<td>0.499**</td>
<td>-0.509**</td>
<td>-0.378</td>
<td></td>
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<tr>
<td></td>
<td>p 0.001</td>
<td>0.120</td>
<td>0.154</td>
<td>0.009</td>
<td>0.008</td>
<td>0.057</td>
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<tr>
<td>CAFAS</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ind. score change</td>
<td>r 0.343</td>
<td>-0.160</td>
<td>-0.109</td>
<td>-0.277</td>
<td>0.390*</td>
<td>0.393*</td>
<td>-0.311</td>
<td></td>
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<tr>
<td></td>
<td>p 0.087</td>
<td>0.434</td>
<td>0.595</td>
<td>0.170</td>
<td>0.049</td>
<td>0.047</td>
<td>0.122</td>
<td></td>
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<td></td>
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<tr>
<td>Ind+fam score change</td>
<td>r 0.277</td>
<td>-0.105</td>
<td>-0.083</td>
<td>-0.237</td>
<td>0.380</td>
<td>0.310</td>
<td>-0.433*</td>
<td>0.918**</td>
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</tr>
<tr>
<td></td>
<td>p 0.170</td>
<td>0.610</td>
<td>0.686</td>
<td>0.245</td>
<td>0.056</td>
<td>0.123</td>
<td>0.027</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRC</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Risk score change</td>
<td>r 0.258</td>
<td>-0.583**</td>
<td>-0.583**</td>
<td>-0.521**</td>
<td>0.081</td>
<td>0.010</td>
<td>-0.351</td>
<td>0.256</td>
<td>0.391*</td>
<td></td>
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<tr>
<td></td>
<td>p 0.203</td>
<td>0.002</td>
<td>0.002</td>
<td>0.006</td>
<td>0.693</td>
<td>0.959</td>
<td>0.079</td>
<td>0.207</td>
<td>0.048</td>
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<tr>
<td>Total score change</td>
<td>r 0.066</td>
<td>0.291</td>
<td>0.274</td>
<td>0.246</td>
<td>-0.105</td>
<td>0.251</td>
<td>-0.052</td>
<td>0.304</td>
<td>0.353</td>
<td>-0.168</td>
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<tr>
<td></td>
<td>p 0.748</td>
<td>0.150</td>
<td>0.175</td>
<td>0.225</td>
<td>0.611</td>
<td>0.216</td>
<td>0.800</td>
<td>0.132</td>
<td>0.077</td>
<td>0.411</td>
</tr>
</tbody>
</table>

*p<.05

**p<.01
All three CAFAS scores at time 1 (individual, family, and individual + family) significantly positively correlated with BRC risk \((r = .435, p < .05)(r = .519, p < .01)(r = .522, p < .01)\) and negatively correlated with BRC net scores at time 1 \((r = -.399, p < .05)(r = -.438, p < .05)(r = -.527, p < .01)\), but did not significantly correlate with BRC protective factor scores.

Individual CAFAS scores at time 2 negatively correlated with both BRC protective factor scores \((r = -.550, p < .004)\) and net scores at time 2 \((r = -.628, p < .001)\), but did not significantly correlate with BRC risk scores at time 2. CAFAS total scores (individual + family) at time 2 positively correlated with BRC risk scores at time 2 \((r = .418, p < .04)\) and negatively correlated with BRC protective factor scores \((r = -.464, p < .02)\) and BRC net scores at time 2 \((r = -.587, p < .002)\). CAFAS family scores at time 2 did not significantly correlate with any BRC scores at time 2.

_Hypothesis 1a – Services provided in a child or adolescent’s natural environment will lead to a greater improvement on BRC and CAFAS scores than services offered in a clinical office._

Due to small sample size, only one participant received services only in natural settings. Thus, the independent variable in the ANOVA to test hypothesis 1 consisted of only two groups (office based treatment only, office based combined with treatment in the natural setting). Due to this limitation, hypothesis 1a could not be meaningfully studied.

_Hypothesis 1b – Children and adolescents who receive a combination of services in a combination of environments will show the greatest improvement in CAFAS and BRC scores._

ANOVA with setting used as an independent variable (office only vs. office combined with natural setting) found a significant difference between the two groups on
change in BRC risk score (F=9.63, df=1, p<.005). Changes in CAFAS individual, family, and total scores as well as BRC protective and total scores yielded non-significant differences (see Table 2).

Hypothesis 1c – Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service hour on CAFAS and BRC scores than children and adolescents who receive services only in the office.

ANOVA with setting used as an independent variable (office only vs. office combined with natural setting) found a significant difference between the two groups on change in BRC risk score per hour of treatment (F = 14.28, df = 1, p < .001). No significant difference was found between the two groups on change in BRC protective factor score or total score per service hour, or on change in CAFAS individual, family, or total score per service hour (see Table 2).

Hypothesis 1d – Children and adolescents who receive services in their natural environment will show a greater amount of improvement per service contact on CAFAS and BRC scores than children and adolescents who receive services only in the office.

ANOVA with setting used as an independent variable (office only vs. office combined with natural setting) found a significant difference between the two groups on change in BRC risk score per contact of treatment (F=13.45, df=1, p<.001). No significant difference was found between the two groups on change in BRC protective factor score or total score per service contact, or on change in CAFAS individual, family, or total score per service contact (see Table 2).
Table 2

ANOVA with Setting (office vs. office + natural environment) as the Independent Variable

<table>
<thead>
<tr>
<th></th>
<th>Office-based only</th>
<th>Office+natural setting</th>
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<tbody>
<tr>
<td></td>
<td>mean</td>
<td>SD</td>
</tr>
<tr>
<td><strong>CAFAS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td>-11.250</td>
<td>22.952</td>
</tr>
<tr>
<td>Change per hour</td>
<td>-1.708</td>
<td>3.551</td>
</tr>
<tr>
<td>Change per contact</td>
<td>-1.631</td>
<td>3.424</td>
</tr>
<tr>
<td>Family score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td>3.750</td>
<td>9.161</td>
</tr>
<tr>
<td>Change per hour</td>
<td>0.557</td>
<td>1.264</td>
</tr>
<tr>
<td>Change per contact</td>
<td>0.547</td>
<td>1.167</td>
</tr>
<tr>
<td>Individual and Family Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td>-7.500</td>
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<td>0.529</td>
</tr>
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<td>Change per contact</td>
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</table>

**p < .01

Hypothesis 2 – The children and adolescents who improved their CAFAS scores over time will have received a greater number of hours, contacts, and months of services in a natural setting than those whose scores either remained unchanged or became worse.

MANOVA with improvement (improved vs. not improved) on total CAFAS scores (individual plus family scores) as one independent variable found a significant difference between the two groups on number of hours of individual therapy at school
(F = 4.626, df = 1, p < .05), number of contacts of individual therapy at school (F =
5.260, df = 1, p < .05), and number of months of individual therapy at school (F = 6.076,
df = 1, p < .05). Mean number of hours, contacts, and months of individual therapy at
school was consistently higher for the group that did not improve than for the group that
did improve (see Table 3). MANOVA also found significant differences on hours and
contacts of home-based family therapy, but these results were due to interaction effects
between the two independent variables (improvement on CAFAS and improvement on
BRC; hours: F = 7.197, df = 1, p < .05; contacts: F = 7.450, df = 1, p < .05).

Hypothesis 3 – The children and adolescents who improved their BRC scores over time
will have received a greater number of hours, contacts, and months of services in a
natural setting than those whose scores either remained unchanged or became worse.

MANOVA with improvement on BRC total score as an independent variable
(improved vs. not improved) found significant differences between the two groups on
measures of the number of hours of individual therapy provided in the office (F=6.269,
df = 1, p < .05), number of contacts of individual therapy provided in the office
(F = 6.241, df = 1, p < .05), and the number of months of individual therapy provided in
the office (F = 5.209, df = 1, p < .05) (see Table 4). Again, MANOVA found significant
differences between the groups on hours and contacts of family therapy provided in the
home, but this was due to interaction effects between the two independent variables
(hours: F = 7.197, df = 1, p < .05; contacts: F = 7.450, df = 1, p < .05).
Table 3
MANOVA with Improvements on CAFAS Total Score (Improved vs. No Improvement) as Independent Variable

<table>
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<tr>
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<th>Improved Group</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
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<td></td>
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<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>MIMS at home</td>
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<td></td>
</tr>
<tr>
<td>hours</td>
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*p < .05
Table 4
MANOVA with Improvement on BRC Total Score (Improved vs. No Improvement) as the Independent Variable

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<th>p</th>
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</thead>
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<td></td>
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<td>Mean</td>
<td>SD</td>
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*p < .05
CHAPTER V

DISCUSSION

Limitations

An obvious limitation of this study is the small sample size (N=26). Due to the small sample, the setting variable was collapsed to form two groups: office based treatment only and office based treatment plus treatment in the natural setting.

A second limitation is the differences in training and theoretical perspectives of the clinicians providing treatment. MIMS and case management services are provided by clinicians with less formal training than those who provide therapy. Therapists also differ in their program of study and preferred theoretical perspective which creates limitations in comparing services provided by different clinicians. Some clinicians may be systemically oriented and provide interventions that affect multiple systems of the client’s life while providing treatment in the office. Other clinicians may be less systemically focused and may intervene only on an individual level while providing services in the home, school, or community.

A third limitation of this study is due to the outcomes measures used. The BRC in particular is a relatively new instrument and the psychometric properties of this instrument have not yet been evaluated.

The inability to randomly assign participants to treatment groups provides a further limitation for this study. Children and adolescents who are experiencing severe disturbance in multiple domains of functioning may not be able to effectively utilize
services. These clients may receive intensive services that would be very effective for a less impaired client, but continue to show little improvement. For example, the ineffectiveness of school-based services in this study may reflect the level of impairment of the group of clients receiving school-based services more than the ineffectiveness of school-based services.

**Setting**

The first finding of this study is that those clients receiving services in the office plus at least one natural setting were significantly more likely to have a reduction in the number of risk factors measured by the BRC than those clients receiving services in the office alone. When corrections were made for differences in the number of hours or the number of contacts of service each client received, these significant effects persisted. Thus, with this population, providing mental health services in a client's natural setting as well as in the office is more effective at reducing risk factors than providing services in the office alone.

This is consistent with previous research which also supports the provision of services in a client's natural environment. A clinician in the office may not get an accurate picture of the full problem. Also, clients may have difficulty transferring the skills they learn in the office into the natural environment without the support of services in the natural environment.

Services provided in the natural environment are often provided by the clinicians with the least amount of formal training. If provision of these services in conjunction with office based services leads to a greater amount of improvement in the client, then more attention should be paid to training the clinicians providing these services.
Many insurance companies will not reimburse for services such as MIMS, which are provided in the client's natural setting. The findings of this study indicate that clients receiving these services show greater improvement in resiliency over those clients receiving services only in the office. More importantly for insurance providers, those clients receiving services in their natural environment showed a greater amount of improvement per service hour, indicating that a combination of services is a more effective use of resources for children and adolescents with behavioral disorders.

**Improvement on CAFAS Scores and School Based Therapy**

A second finding is that those clients whose total CAFAS scores either rose or stayed the same received a significantly larger number of hours of individual therapy in the school setting than those clients whose CAFAS scores lowered during this time period. Since the CAFAS measures levels of dysfunction, this means that those clients whose scores indicate a lack of progress or decline in functioning were those who received the greatest amount of individual therapy in the school setting. This suggests that individual therapy in the school setting may not be effective at improving total CAFAS scores.

Similarly, a correlation was found between change in individual CAFAS scores and both the number of hours of individual therapy provided at school and the number of hours of family therapy provided at school. This positive correlation indicates that those clients who received more therapy at school had greater increases in CAFAS scores. Since CAFAS scores measure dysfunction, those clients who received the greatest amount of therapy in school were less likely to have improved as measured by the CAFAS.
Previous research has indicated that school-based services have been well-received by schools and families, and have led to improved academic functioning and a reduction in need for restrictive placements (Nastasi et al., 2004; Weist & Ghuman, 2002). The results of this study suggest that school-based therapy may not be effective.

This finding is complicated by the tendency of clinicians to see clients with chaotic home lives in the school. Those clients who regularly miss appointments in the office are often referred for school-based services as a remedy for inconsistent attendance. The same factors that contribute to missed appointments and chaotic home lives may create greater difficulty producing positive change in the client as measured by the CAFAS.

When clients are seen in the school environment, clinicians also have the least amount of contact with the client's family. With services in other settings, either the clinician arrives at the family home, or the caregiver transports the client to the appointment. This reduction in the involvement of the family may lead to difficulty creating lasting change in the client.

The instruments used in this study also may not be sensitive to changes produced by school-based interventions. Impairment in school is addressed on only one of the eight domains of the CAFAS. Outcomes of school-based services may be more appropriately measured by changes in attendance, grades, or number of disciplinary interventions.

Providing mental health services in the school environment may not be as effective as providing services in another natural environment. Therapy provided at school is generally provided in an office at school so it may be more closely related to
office based therapy than to other services provided in the client’s natural environment. Services provided in the classroom may have a greater impact than therapy in an office at school.

**Improvement on BRC Total Score**

A third finding of this study is that those clients who showed improvement in their BRC total score received a significantly smaller number of hours and contacts of individual therapy in the office. This indicates that individual therapy in the office is not very effective at improving BRC net scores.

Often those clients receiving a greater amount of individual therapy in the office are receiving a lesser amount of other services such as family therapy or community based services. These clients may also be the ones who are not receiving case management services which often have the goal of improving BRC scores.

**Age**

Age of the client correlated with measures of the amount of different services provided. Older clients received fewer hours and contacts of service than younger clients did. Older clients received a greater amount of individual therapy at school, while younger clients received a greater amount of both MIMS in the community and family therapy in the office. This raises an alternative consideration regarding the above findings. It is possible that the differences in the effectiveness of different services may reflect differences in the developmental level of clients receiving each service rather than differences in the effectiveness of the service.
MIMS and Risk Factors

The number of hours of MIMS provided correlated with a reduction in the number of risk factors measured by the BRC. When correcting for number of service hours and contacts, these correlations remained significant. Those clients who received a greater amount of MIMS experienced a greater reduction in risk factors and a greater reduction in risk factors per service hour and contact.

This finding is complicated because those clients who receive MIMS services generally also receive case management. Case management often has the specific goal of decreasing risk factors and increasing protective factors. Case managers also provide systemic interventions in multiple systems in the client’s life. The reduction in the number of risk factors may be due more to the effects of case management services than the MIMS provided.

Family Therapy and CAFAS and Risk Scores

Family therapy provided in the office negatively correlated with change on both total CAFAS scores and the number of risk factors on the BRC. This means that clients who received more family therapy experienced a greater reduction in CAFAS and risk scores. Since higher scores on each of these measures indicate a negative outcome, clients who received more family therapy in the office were more likely to improve on these measures.

This supports research that indicates that the inclusion of services involving the client’s family or other systems in the client’s life may lead to greater improvement. Involving the family in treatment can help develop natural supports for the client to
transfer the skills learned into the home environment. Family therapy also focuses on the family system, so changes in the family system create positive change in the client.

**CAFAS and BRC Scores**

CAFAS and BRC scores significantly correlated at both times that each was rated. Clients who were rated as having more severe impairment on the CAFAS were also rated as having lower levels of resiliency. Although these instruments do not measure the same construct, this indicates that there is some similarity in the constructs that they do measure. This finding supports the validity of the BRC as an assessment tool.

**Recommendations for Future Research**

Future studies should be conducted with a larger sample so that the findings have more power. Since the BRC is a relatively new instrument, future studies could investigate the psychometric properties of this instrument. Studies using other instruments that have been demonstrated to have adequate reliability and validity may also be beneficial.

This study compared clients receiving just office based services with those receiving office based services and services in their natural environment. Future studies should include a sample of clients receiving services only in their natural environment. With a larger sample size, the different natural settings could also be compared with each other. For instance, services provided at home could be compared with services provided in the community.

Future studies should also look at the different types of services provided to clients by clinicians with different levels of formal training. Due to the small sample size, all services provided in a client's natural setting were grouped together in this study.
Some clients received MIMS from a clinician with an Associate's degree while others received school based therapy from a Master's level clinician. With a larger sample size, these groups could be separated out and compared to determine if the setting is indeed the important factor, or if the type of service is actually more important.

Future studies with a larger sample should also separate severely impaired clients from less impaired clients to determine whether level of impairment affects which services are more effective. Clients with higher levels of impairment may show the greatest improvement from one type of service or setting, while clients with less impairment may benefit more from a different service or setting.

**Summary**

Many of the major findings of this study support the researcher's hypotheses about the benefits of providing services in a client's natural setting. The first supportive finding is that a combination of services provided in the office and in the natural setting led to greater improvements in BRC risk scores than provision of treatment in the office alone. A second supportive finding is that the amount of MIMS provided to a client in the community correlated with a reduction in risk score on the BRC. A third supportive finding is that clients who improved on their BRC total score received less individual therapy in the office than those who did not improve on BRC scores.

Other results conflict with the researcher's hypotheses. Those clients who did not improve on CAFAS scores received a larger amount of individual therapy in the school, suggesting that school-based therapy was not effective at creating change in CAFAS scores in this group. Family therapy in the office negatively correlated with change on
total CAFAS scores and BRC risk scores, suggesting that providing family therapy in the office is related to positive treatment outcomes.

Together, these findings suggest that with this population, a combination of services leads to the greatest positive change. Results also suggest that it may not be the setting in which a treatment is provided that leads to better treatment outcomes, but some other factor related to the different types of available treatments. One possible factor is the extent to which the clinician intervenes in multiple systems in the client’s life. The greatest improvements in treatment appear to be in the groups of participants who received interventions in multiple systems. Another possible explanation is that a certain type of treatment, or specific combination of treatment types may be the most effective with this population. Due to limitations, this study could not compare specific treatment types or combinations of treatment types. This study has, however, begun to look at what is effective at producing positive outcomes with this difficult population. The more we learn about what factors contribute to positive change, the more effectively and efficiently we can serve this population and improve the chances that children and adolescents with behavioral disorders will grow into healthy adults who contribute positively to society.
LIST OF REFERENCES


Weist, M. D. & Ghuman, H. S., (2002). Principles behind the proactive delivery of mental health services to youth where they are. In H. S. Ghuman, M. D. Weist, & R. M. Sarles, (Eds.), *Providing mental health services to youth where they are* (pp. 1-14). New York: Brunner-Routledge.
APPENDICES
APPENDIX A

Brief Resiliency Checklist (BRC)

Prompting Questionnaire for Resiliency Assessment
(J. Eric Vance, MD.)

Introduction:
In order to plan for the needs of your child, we need to review some past history of his/her early life and family history, as well as ask about recent functioning, strengths, and positive factors for your child and the family.

Early developmental risks and strengths: These first questions go back to the early part of his/her childhood. (The following questions are for the parents or other relatives and observers who knew about the early childhood of the youth, and the early history of the family.)

- First, was he/she the first-born child [ ]?
- Was there any extreme hardship or stress on the mother during the pregnancy [ ], serious substance abuse during the pregnancy [ ], or medical complications of the pregnancy or delivery [ ]?
- What sort of temperament or personality did he/she have as a baby: difficult, fussy and irritable [ ], easy, happy and cheerful [ ], or somewhat in between [ ]?
- Any problems with being shy, clingy, or overly fearful as a young child [ ]?
- Would you say that the mother-to-infant relationship was mostly positive, warm, and easy [ ], mostly frustrating and negative [ ], or somewhat in between [ ]?
- Were there any long absences of the mother from the baby in the first two years of life [ ]?
- Were there any major delays in his/her development, such as walking, talking, or relating to others [ ]?

Childhood problems: These next questions concern any major problems that the child has had while growing up. (These are also questions best asked of parents or close relatives, though some questions may be in the records.)

- Did he/she ever have legal charges at 12 years old or younger [ ]?
- Did he/she have frequent problems with aggression or fighting with others before the age of 7 years old [ ]?
- Did he/she ever have diagnosed neurological problems, a serious head injury, or concussion [ ]?
- Has he/she had serious medical problems needing long hospitalizations or frequent medical care [ ]?
- Has he/she ever been diagnosed or treated for a psychiatric, behavioral or emotional disorder [ ]?
- Has he/she been tested as having very low IQ or mental retardation [ ]?
- Has he/she had serious problems with school, such as failing grades, severe learning or speech problems, or major behavioral problems [ ]?
• Have you been concerned that he/she spends time with mostly negative peers or friends with problems [ ]?
• Have you ever been concerned about his/her drug or alcohol use [ ]?
• Has he/she run away from court-ordered placements [ ]?

**Family Strengths and Stresses:** These next questions are about the family history of the youth, including questions about the strengths of the family, the stresses the family has been through, and any serious traumas in the history of the youth. (These should be asked of the parents and confirmed or also asked of the youth.)

- In the home, have there been pretty consistent rules, routines, curfew times, and expected chores [ ], or has it been more loose and unstructured [ ]?
- When the child has been in trouble, has there usually been fair discipline, with discussion [ ] or mostly yelling and harsh punishment, or physical abuse [ ]?
- Has the child had a mostly warm and positive relationship with either parent [ ]?
- Does one or the other parent usually monitor the child’s activities and friends or peer relationships [ ]?
- Have there been adults, friends or relatives outside the family to help the parents when they need it on occasion [ ]?
- Has the family maintained contact or consistent involvement with a church religious organization [ ]?
- Has one or the other parent maintained steady employment for most of the child’s life [ ]?
- Have either or both parents completed their high school education [ ]?
- Has the family struggled with low income, poverty, needing public assistance, or public housing [ ]?
- Have there been long periods of single parenting, divorce, or separation [ ]?
- Is it a big family, with five or more children in the family [ ]?
- Does the youth have brothers or sisters born less than two years apart from him/her [ ]?
- Have there been many moves of the family during the youth’s childhood [ ]?
- Has either parent had struggles with drugs or alcohol [ ]?
- Has either parent been treated for emotional or mental problems [ ]?
- Does either parent have a history of incarceration or conviction of crimes [ ]?
- Has the child had a mostly negative or conflicted relationship with either [ ]?
- Was the youth exposed to frequent arguing, fighting, or violence in the home, while growing up [ ]?
- Was he/she ever physically abused or seriously hurt by a family member [ ]?
- Was there ever a report to the state for child neglect against the family [ ]?
- Has the youth ever been sexually abused or molested, in or outside the family [ ]?
- Has the youth ever been removed from the home by the state [ ]?
Youth Protective Factors: Next are some questions about the youth’s community involvement, social support network, perceptions, and outlooks. (These should be asked directly of the youth, but parents can confirm.)

- What is your best skill or talent, one activity that you are good at? 
- Are you involved in any structured weekly activities, like sports teams, clubs, recreation center, or other regular hobbies, (taught or monitored by adults)? 
- Do you have a job, or do any regular volunteer work? 
- Are you definitely planning to finish high school and go on to college? 
- Do you have some ideas, plans, or hopes for your future? 
- Do you usually feel that you have control over what will happen in your life, or do you think it’s mostly out of your hands, a matter of good or bad luck? 
- Do you think the problems you’ve been through in the past, and recently, are going to affect your life in the long run? 
- Do you live in a neighborhood where some of the adults monitor and look out for the children in the neighborhood? 
- Do you usually have the feeling that your parents truly care about you? 
- Do you spent much time with good friends that support and care about you? 
- Is there any adult outside your immediate family that you see as a friend or support for you? 
- Are you involved with any religious youth group? 
- Do you ever pray, or turn to God in hard times?

School Skills and Supports: Next are some questions related to school functioning, which should be answered by the person who knows the youth best at school.

- Has the youth shown the ability to function as a capable student; completed assignments, behaving in the classroom, etc.? 
- Does he/she read at or above his/her grade level? 
- Does he/she seem to be a good problem solver, either academically or socially? 
- Has he/she had IQ testing scored > 100? 
- Is there any adult at school that the youth feels connected to, or supported by? 

Social Skills: Next are some questions about the youth’s personality and social skills. (These should be answered by school personnel, parents, or other adults who know him/her well in social situations.)

- Does he/she have a good ability to get along with other children? 
- Does he/she get along with most adults outside the family? 
- Do most people seem to like him/her? 
- Do most people think he/she has a good sense of humor? 
- Has he/she shown the ability to care about others, take care of others, shown empathy? 
- Is he/she able to make apologies when he/she makes mistakes or hurts others?
Seacoast Mental Health Center
Brief Resiliency Checklist

Client Name: ____________________________
Client #: ____________________________ Gender: ____________________________
DOB: ____________________________ Date: ____________________________

**RISK FACTORS**

- Early Developmental risks
  - High stress pregnancy
  - Substance abuse in pregnancy
  - Complications of pregnancy/birth
  - “Difficult”/irritable infant temperament
  - Extreme shyness or clingy temperament
  - Poor/negative attachment with mother
  - Long absences of mother
  - Delays in developmental milestones

- Childhood problems
  - First legal charges 12 years old or younger
  - Aggressive behavior 6 years old or younger
  - Neurological disorder/serious head injury
  - Serious medical problems
  - Diagnosed psychiatric disorder
  - Mental retardation
  - Serious school behavior/educational problems
  - Mostly negative friends/peers
  - Drug or alcohol abuse
  - Runaways from mandated placements

- Family stresses
  - Poverty/public assistance
  - Single parent/divorce/separation
  - Five or more children in the home
  - Siblings born within 2 years
  - Frequent family moves
  - Parental substance abuse
  - Parental emotional or mental disorder
  - Parental criminal background

**PROTECTIVE FACTORS**

- Early developmental strengths
  - First born child
  - “Easy”/happy infant temperament
  - Warm/secure attachment to mother

- Family strengths
  - Consistent employment of parent
  - High school educated parent
  - Parental monitoring of youth’s activities/peers
  - Rules, routines, curfews, chores in the home
  - Fair discipline with discussion
  - Mostly warm/positive relationship with a parent
  - Adult supports/friends for parent
  - Family church/faith involvement

- Educational strengths
  - Ability to function as a good student
  - Reading abilities at or above grade level
  - Good problem-solving and reasoning skills
  - IQ tested above 100
  - Relationship with supportive adult at school
  - Youth commitment to finish HS or college

**APPENDIX A (continued)**

<table>
<thead>
<tr>
<th>Traumatic experiences</th>
<th></th>
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<tbody>
<tr>
<td>Highly conflicted parent/child relationship</td>
<td></td>
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<tr>
<td>Exposure to violence/high conflict in the home</td>
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</tr>
<tr>
<td>Child neglect referral</td>
<td></td>
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<tr>
<td>Physical abuse/harsh punishment in the home</td>
<td></td>
</tr>
<tr>
<td>Sexual abuse or molestation</td>
<td></td>
</tr>
<tr>
<td>Removal from home</td>
<td></td>
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</tbody>
</table>

**Total Risk Score**

- ___


d + 56
### Involvement and supports
- Neighborhood monitors and supports youth
- Structured activity/organized hobby weekly
- Regular work at a job or volunteering
- Adult mentor/friend outside family
- Support from positive peers
- Faith-based youth group involvement

### Social skills
- Gets along with other children
- Gets along with adults outside the family
- Is likeable to most people
- Good sense of humor
- Shows empathy/caring to others
- Able to apologize/make amends

### Positive perceptions and outlooks
- At least some perceived competency
- Perception that parents care
- Belief in self-control over life/destiny
- Realistic hopes and plans for the future
- Use of inner faith or prayer
- Acceptance of past and present problems

### Total Protective Factors

### Net Risk Score (risk – protective)
APPENDIX B

Data Collection Sheet

Case #:

Age at first CAFAS evaluation:

Gender: Male Female

Ethnicity: Caucasian African-American Hispanic Asian Native American Other

Diagnosis:

Prescribed medication: yes no

Receives case management: yes no

Has Medicaid: yes no

Treatment(s): Total hours of service provided: Duration of tx (months):

  o MIMS at home
  o MIMS in community
  o School-based ind. therapy
  o School-based fam. therapy
  o Home-based ind. therapy
  o Home-based fam. therapy
  o Office-based ind. therapy
  o Office-based fam. therapy

CAFAS:
Date Individual score Family score Individual + family score

BRC:
Date Risk score Protective factors Net Score
APPENDIX C

IRB Approval Letter

University of New Hampshire
Research Conduct and Compliance Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

11-Dec-2007

Wickman, Laura
Education, Morrill Hall
85 Belknap Street, Apt. 2
Dover, NH 03820

IRB #: 4130
Study: Efficacy of Available Treatments for Children and Adolescents with a Behavioral Diagnosis as Measured by Resiliency and CAFAS Scores

Approval Date: 07-Dec-2007

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Expedited as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 110.

Approval is granted to conduct your study as described in your protocol for one year from the approval date above. At the end of the approval period, you will be asked to submit a report with regard to the involvement of human subjects in this study. If your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, Responsibilities of Directors of Research Studies Involving Human Subjects. (This document is also available at http://www.unh.edu/osr/compliance/irb.html.) Please read this document carefully before commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

Julie F. Simpson
Manager

cc: File
Falvey, Janet