THE EFFECT OF CHILD AND TREATMENT FACTORS

ON CHILDREN'S TREATMENT OUTCOMES

by

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ABSTRACT

THE EFFECT OF CHILD AND TREATMENT FACTORS ON CHILDREN'S TREATMENT OUTCOMES

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A number of studies have examined child and treatment factors associated with the outcome of child mental health treatment, but there are still areas which need to be explored. The present study attempted to determine the relative impact of child and treatment characteristics hypothesized to have a significant effect on treatment outcome in children.

Participants were 632 boys and girls between the ages of 5 and 22 who received mental health services from St. Joseph's Children's Treatment Center from March, 2000 to May, 2002. The youths' problem severity and functioning levels were rated by agency workers using the *Ohio Scales-short form*. Stepped multiple regression analyses were performed utilizing the agency's archival database to predict the children's change in problem severity and change in functioning scores from the time of the intake. Child variables included initial diagnosis, initial problem severity, and initial functioning. Treatment variables included type of service, treatment duration, and treatment intensity. Whether the same or different worker rated the child at intake and most recent administration (worker continuity) was also included in the analysis. The modal change in problem severity and functioning was zero, with much variability. Results from

the analyses indicated that the child variables of initial diagnosis, problem severity, and functioning levels contributed the most to the variance in change in problem severity and functioning levels, followed by treatment characteristics of hours of service type, treatment duration, and treatment intensity, and lastly, worker continuity. The model explained 34% of the variability in change in problem severity, with 24% explained by child variables alone, and it explained 29% of the variability in change in functioning, with 24% explained by child variables. The implication of this finding is that a child's initial clinical presentation has a strong impact on the treatment outcome of the child. More research is needed in order to determine factors which significantly mediate therapeutic gains.

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CHAPTER I

INTRODUCTION

Although the prevalence of psychological disorders in youth is not as well documented as for adults, results from epidemiological studies and community surveys estimate that nearly one out of every five children and adolescents residing in the United States has at least one DSM- IV diagnosable mental disorder with some level of functional impairment (Roberts & Attkisson, 1998). Furthermore, according to estimates from epidemiological studies, 5 to 9% of children and adolescents aged 9 to 17 have more debilitating functional deficits, labeled with a "severe emotional disturbance", or SED (Friedman, 1996). With a sizeable number of children afflicted with mental illness, it is crucial to assess factors which may mediate improvement of symptoms.

Treatment outcome studies are vital in light of the current status of our mental health system. With such a large proportion of mental health patients relying on third party payment for mental health services, reimbursers are demanding validation of treatment efficacy (Kutash & Rivera, 1996). More importantly, however, such studies generate a framework for mental health practitioners who have the arduous task of structuring and promoting a successful treatment program. In general, outcome research assists clinicians in their natural desire and ultimate purpose of offering effective mental health services. More specifically, treatment outcome research results provide clinicians with valuable information regarding expectations and predictors of success in therapy and

predictors related to the nature of the child's condition. While the majority of the research has traditionally evaluated adult mental health services, with the growing number of children relying on psychological treatment, there has been a substantial increase in empirical studies specifically addressing the younger population (Kutash & Rivera, 1996). The purpose of the present study is to assess factors related to treatment characteristics and factors related to the child that potentially impact treatment outcome in children.

Treatment Factors

A number of different treatment factors have been examined in the literature on child mental health outcome, including treatment placement, service characteristics, treatment duration, treatment intensity, and treatment compliance.

Treatment Placement

The nature of the placement in which a child receives services is a treatment related component that mediates the outcome of the child. Although treatment placement would seem to be an important predictor of treatment outcome, relatively few studies have examined it, particularly for children (Kutash & Rivera, 1996). Treatment placement can be generally classified into nonresidential and residential services, with the nonresidential services being less restrictive than the residential services.

Nonresidential Services. The category of nonresidential services is further broken down into seven ancillary components: (a) prevention, (b) early identification and intervention, (c) assessment, (d) outpatient treatment, (e) home-based services, (f) day treatment, and (g) family preservation, or emergency services (Kutash & Rivera, 1996). Regarding the nonresidential treatment options, the categories of outpatient treatment,

home-based services, and day treatment, are primarily emphasized in the empirical literature. Outpatient treatment, the least restrictive component along the continuum of care, allows the child to remain in his or her home while simultaneously receiving mental health services (Kutash & Rivera, 1996). Home-based services are multifaceted, utilize the child's home as the context for the intervention, and involve family and community collaboration to achieve the goals of family preservation/ reunification, empowerment, and self-sufficiency (Stroul & Goldman, 1990). An increasingly popular home-based alternative is Multisystemic therapy (MST; Henggeler et al., 1999). Similar to other home-based services, MST is a family-based, multifaceted treatment option that utilizes a team approach in order to reduce various determinants of the primary problems identified by the child, family, and therapist. Day treatment is a more intensive form of non-residential services and is generally characterized by any program that falls in the middle of the system of care, between outpatient and inpatient services (Stroul & Friedman, 1986).

Residential services. Recently, child and adolescent inpatient residential treatment has come under much controversy (Henggeler & et. al., 1999), due to its high level of restrictiveness and high costs (Pfeiffer & Strzelecki, 1990). Day treatment programs offer a less restrictive and less expensive option in comparison to residential services. For example, the cost of day treatment services for children averages out to be about $10,000 to $15,000 per year, or approximately $35 per day (Stroul & Friedman, 1986), whereas RTC's cost, on average, between $100 and $300 a day, and psychiatric hospitalization costs approximately $500 per day (Burns & Friedman, 1990). Across the continuum of care, an estimated $6 billion is expended on youth mental health services

annually (Burns et al., 1999). Because cost is a significant factor in providing mental health services to children, a number of studies compare the effectiveness of a less costly option, such as day treatment, to a more costly option, such as residential treatment. Residential services can be grouped into seven subtypes, with increasing restrictiveness: (a) therapeutic foster care, (b) therapeutic group care, (c) therapeutic camp services, (d) independent living services, (e) RTC's, (f) crisis residential services, and (g) inpatient hospitalization (Stroul & Friedman, 1986). RTC's and inpatient hospitals are the two most commonly used and researched components of the residential services category, with inpatient hospitals being the most restrictive option along the continuum of care (Tuma, 1989).

Traditionally used as a last resort, with inpatient hospitalization the child is removed from his or her home and is cared for by hospital staff (Stroul & Friedman, 1986) who utilize individual, family, and group psychotherapy, pharmacotherapy, and behavior modification (Kutash & Rivera, 1996). Although a formal distinction is made between inpatient psychiatric hospitals and RTC's, the characteristics of these settings are so similar that they are often indistinguishable. RTC's serve as a slightly less restrictive alternative to inpatient hospitalization, providing mental health services to children 24 hours a day. RTC's vary primarily in terms of the range of services offered. For example, if a child has a disorder that warrants a more carefully monitored psychopharmacological regimen, typically the child is placed in the hospital setting versus the RTC because the hospital offers more comprehensive medical services than the RTC (Tuma, 1989).

Determinants of treatment placement. Farmer, Stangl, Burns, Costello, & Angold

(1999) conducted a community based study of the use, persistence, and intensity of

services for children with mental health issues for a one-year duration. Their sample was

comprised of 1,007 youths aged 9, 11, and 13 at baseline, with 51% being male, 93%

white, and 27% below the poverty line in a predominantly rural region of the

southeastern U.S. Baseline interviews with both parents and youth indicated that 20% of

the sample met criteria for a psychiatric diagnosis. During the one-year time frame, just

over 21% of the sample received some type of mental health service, and approximately

70% of the service users reported at least one prior use of services.

Mental health services were most commonly rendered through the educational

sector. Twelve percent of the sample received services within the school system, with the

vast majority (95%) obtaining such services from a school counselor. Approximately 8%

of the sample received services from the specialty mental health sector, typically through

a public mental health facility or a private practice. Specialized services for substance

abuse, in-home services, and partial hospitalization were very infrequent among this

sample. Four percent of the youths received mental health services in the general

medical sector, and for most of them (89%), such services were provided by the family

physician. A mere 1.4% of the children received mental health services from the child

welfare sector, and even fewer (0.7%) received services from the juvenile justice system.

Nearly 4% obtained help from non-professional or informal sources, namely adult

relatives, friends, unpaid religious clergy, and self-help groups. In general, 66% of

children using services during the year obtained them from only one sector, with more

than half of children only utilizing one sector receiving services from the education sector (Farmer et al., 1999).

While Farmer et al. (1999) utilized a community sample, Lambert, Brannan, Breda, Heflinger, & Bickman (1998) utilized a clinical sample. Their study employed cluster analysis to identify patterns of service usage among a sample of 979 youth receiving mental health services from 1990 – 1995. The sample was comprised of children and adolescents between the ages of 5 and 17. The majority (71%) of the children were white, 16% were African American, and the remaining 13% were comprised of other minority races. Sixty-three percent of the sample was male. The participants were originally participants in the Fort Bragg Evaluation Project. They were Civilian Health and Medical Program for the Uniformed Services (CHAMPUS) recipients residing in the catchment area around Fort Bragg, North Carolina.

Six clusters of care were identified: (a) brief outpatient, (b) extended outpatient, (c) hospital with outpatient, (d) non-residential more-than-outpatient (MTO), (e) extended residential, and (f) atypical heavy service outliers. Forty-six percent of the sample utilized brief outpatient therapy, 26% utilized extended outpatient, 6% utilized hospital with outpatient, 12% utilized non-residential more-than-outpatient, 5% utilized extended residential, and 5% were atypical service use outliers. Brief outpatient participants had fewer sessions, $M = 5.7$, and received fewer services, with the exception of assessment. Extended outpatient participants had more sessions, $M = 21.9$. Hospital with outpatient had hospital as its most restrictive level, as well as some outpatient sessions, $M = 16.3$ and assessments. Non-residential MTO participants had more case management, but less assessment. Extended residential participants were in residential

placements, but also received above average amounts of the remaining services except assessment. Atypical outlier participants were also in residential placements, and received above average amounts of all six types of services. In addition, unlike the youth in the previous five categories, atypical outlier participants had no distinguishable pattern of service use (Lambert et al.,1998).

The authors also looked at correlates of treatment placement. In general, children in more restrictive placements had above average profiles of clinical severity and were generally older. In addition, child functioning and caregiver stress were found to be more significant correlates of treatment placement than child diagnosis or symptom severity. Although counterintuitive, the authors provided no explicit rationale for this finding (Lambert et al., 1998).

An important consideration when determining treatment placement for a child is the child's level of impairment. Mc Dermott, McKelvey, Roberts, & Davis (2002) conducted a study with 603 children, aged 4 to 16, who visited a mental health agency in Australia. The authors sought to determine whether clinicians assigned children with greater needs to a more intensive treatment placement. DSM-IV criteria, the Family Assessment Device General Functioning Scale (FAD-GFS), as well as the Child Behavior Checklist (CBCL), were all used as measures to assess child and family functioning. Based upon an initial consultation, the child was assigned a treatment placement.

Forty-two percent of the children received outpatient services, 21% received inpatient services, 11% received day treatment services, and 22% were seen for a consultation only. Descriptive analyses indicated that girls were more likely to be treated

as inpatients, and boys were more likely to be treated in day treatment or seen only for a consultation. Inpatient and day treatment children were significantly older than those seen on an outpatient basis or for consultation only. An ANOVA indicated significant differences in CBCL scores across the four treatment settings in the total psychopathology score, the internalizing symptoms score, and the externalizing symptoms score. For inpatient and day treatment children, the mean total psychopathology scores were significantly higher than those of children in the outpatient or consultation-only groups. Furthermore, inpatients had significantly higher internalizing scores than the outpatient and consultation-only groups, and internalizing scores of day treatment youth were significantly greater than those in outpatient treatment. This pattern was replicated across settings for the externalizing symptoms as well. In addition, Chi square analysis indicated that children with high scores on the CBCL were more likely to be assigned to the inpatient or day treatment programs than to outpatient treatment. The authors concluded that children with more severe psychopathology and more severe family dysfunction were more likely to receive treatment in the most costly and time-intensive treatment settings. Thus, results provide empirical evidence for the clinical practice of assigning children to treatment settings in accordance with their level of impairment (McDermott et al., 2002).

In summary, research suggests that the majority of children who receive mental health services are in less restrictive placements, with most services being provided in schools. Of the children receiving services from the mental health sector, most obtain professional help on an outpatient basis (Farmer et al., 1999; Lambert et al., 1998)

Mediating factors, such as greater symptom severity and increased family stress and dysfunction, can serve as determinants of treatment placement (McDermott et al., 2002).

<div style="text-align: center;">Services Utilized</div>

Because services overlap considerably across treatment placements, the type of services the child receives is perhaps the more direct mediator of outcome. Among the most commonly received services are individual and group psychotherapy, psychopharmacological interventions, and case management services.

Individual psychotherapy. Meta-analytic psychotherapy outcome reviews (Casey & Berman, 1985; Kazdin, Esvelt-Dawson, French, & Unis, 1990;Weisz, Donenberg, Han, & Weiss, 1987; Weisz & Weiss, 1995) conducted on studies with children and adolescents have found that individual therapy is effective when compared with a no treatment control group. In Casey & Berman's (1985) meta-analysis, which encompassed studies conducted with children aged 12 and younger, published between 1952 and 1983. The mean effect size was .71, suggestive of a moderately significant treatment effect. Weisz et al. (1987) also included studies conducted between 1952 and 1983, but with children between the ages of 4 and 18. The mean effect size obtained was .79, also suggestive of a moderately significant treatment effect. Kazdin et al.'s (1990) meta-analysis, consisting of studies published between 1970 and 1988, focused on children aged 4 to 18. The mean effect size was .88, suggestive of a large treatment effect. Lastly, the Weisz et al. (1995) meta-analysis included studies from 1967 to 1993 with children aged 2 to 18. The mean effect size was .71, indicative of a moderate treatment effect. With a range of .71 to .88, the four meta-analyses indicate consistent

beneficial treatment effects of child and adolescent psychotherapy (Weisz & Jensen, 2001).

Research suggests that there should be a "goodness-of-fit" between the nature of the disorder and the type of therapeutic intervention implemented (Kazdin, 2002). Kazdin (2002) conducted a review of child and adolescent psychotherapy outcome studies from 1990 to2001. Cognitive-behavioral interventions are most consistently empirically validated for the treatment of childhood and adolescent depression (Kazdin, 2002). Behavioral techniques, namely systematic desensitization, modeling, and reinforced practice, have been found to be effective with anxiety disorders and phobias (Kazdin, 2002). For oppositional-defiant disorder (ODD) and conduct disorder (CD), Parent Management Training (Kazdin, 2002) and MST (Kazdin, 2002) yield positive treatment outcome in children.

In summary, meta-analytic reviews (Casey & Berman, 1985; Kazdin et al., 1990; Weisz et al., 1987; Weisz et al., 1995) have yielded a consistent treatment effect for child and adolescent psychotherapy. Depending on the child's disorder, behavior therapy, particularly cognitive-behavior therapy, has consistently been found effective for children and adolescents (Kazdin, 2002).

Group psychotherapy. Psychotherapy can also be provided in a group format. A primary advantage of group therapy is its cost-effectiveness, which makes it a preferred modality in light of the current status of mental healthcare (Lomonaco, Scheidlinger, & Aronson, 2002). Typically, psychotherapy groups are the primary mode of therapy for children and adolescents placed in residential and inpatient settings (Kessler, Janeway, Orlowski, Pietrobono, & Kymissis, 2000).

Kleiger & Helmig (1999) provided guidelines for successful group psychotherapy for children and adolescents. In various cases, they found that successful groups were tailored to the unique developmental level and age of group participants, had leaders with an awareness of staff and patient dynamics outside of group, and had facilitators who were knowledgeable about basic group dynamics. Cognitive-behavioral group treatment is associated with more favorable outcomes in youth, particularly those with depression (Rohde, Clarke, Lewinsohn, Seeley, & Kaufman, 2001; Weersing & Weisz, 2002). Lumpkin, Silverman, Weems, Markam, & Kurtines (2002) replicated this finding with children and adolescents who met DSM-IV criteria for an anxiety disorder.

In summary, group psychotherapy has been shown to be effective for children and adolescents, particularly those receiving mental health services in a residential setting. Developmental appropriateness, group leader characteristics, and therapeutic modality have all been found to be significant correlates of group psychotherapy.

Psychotropic medication. Psychopharmacological medication is another option for children with psychological disorders. Most often, psychotropic drugs are prescribed to supplement the child's therapy regimen, however in the case of children with AD/HD, medication alone is often utilized to regulate symptomatology (Kazdin, 2002).

The efficacy and practical utility of psychopharmacological medication is most consistently empirically validated in the management of symptoms of disruptive behavior disorders (Gadow, 1991). Stimulants such as methylphenidate (Ritalin) are used almost exclusively for the treatment of AD/HD and they are the class of pharmacologic medication for which most empirical evidence exists, in terms of both safety and efficacy (Riddle, Kastelic, & Frosch, 2001). In his review, Barkley (1990) found stimulants to be

effective in decreasing impulsive responding and motor activity, while simultaneously increasing the reaction time and sustained attention of hyperactive children. To date, the most comprehensive study addressing the management of AD/HD is the National Institute of Mental Health (NIMH) Collaborative Multimodal Treatment Study of Children with AD/HD (MTA, 1999). The five-year study assessed the long-term effectiveness of medication versus behavior therapy versus combined treatment, in comparison to routine community care. Medication and combined treatment were superior to behavior therapy alone and to the community care condition in alleviating AD/HD symptoms. Although the medication only condition yielded the most significant effect in targeting AD/HD symptoms, the combined treatment condition was necessary to consistently yield results superior to community care for alleviating non-AD/HD symptoms and improving functional outcomes (MTA Cooperative Group, 1999).

Empirical findings regarding pharmacotherapy and mood disorders in children and adolescents have been less favorable. As of Gadow's (1991) review, none of the placebo-controlled, double-blind empirical studies of tricyclics in depressed children had found medication to be superior to placebo, likewise for the studies conducted on depressed adolescents. However, Gadow (1991) critiques that these studies were comprised of limited sample sizes and possessed other design limitations.

Kearney & Silverman (1998) conducted a comprehensive review of pharmacotherapy for youth with anxiety disorders. In their review, they classified outcome studies based upon three categories: (a) pharmacotherapy only, (b)pharmacotherapy with general, or supportive, psychotherapy, and (c)pharmacotherapy with behavior therapy. The authors determined the efficacy rates for each of the three

categories and found the pharmacotherapy with the behavior component to be the most efficacious (65.3%), the pharmacotherapy only condition second most efficacious (42.8%), and the pharmacotherapy with general therapy to be least efficacious (27.7%). In general, findings from their review indicate that the most successful treatment for children and adolescents with anxiety disorders involve a combination of medication and therapy with a behavioral component. However, when the therapy did not involve a behavioral component, the medication only condition was superior to the pharmacotherapy with psychotherapy condition (Kearney & Silverman, 1998).

Cook, Wagner, March, Biederman, Landau, Wolkow, and Messig (2001) conducted a study that assessed the outcome of long-term sertraline treatment of children and adolescents with Obsessive-Compulsive disorder (OCD). They found that this medication, at a dosage of 50 to 200 mg/day, was effective and well tolerated in youth with OCD. Psychotropic medication is less frequently used with youth manifesting conduct disorders (van de Wiel, Matthys, Cohen-Kettenis, & van England, 2002).

In general, much progress has been made in the field of pediatric psychopharmacology, however, more studies are still needed in order to determine the utility and safety of such interventions. For childhood disorders, particularly AD/HD, the empirical validation of psychotropic medication for disorders in children and adolescents has generally been substantiated. Research suggests that pharmacological intervention with a behavioral therapy component is efficacious in children with anxiety disorders (Kearney & Silverman, 1998). Sertraline has been found to be effective for children with OCD, however its practical utility for children with conduct disorders has been less substantially validated.

Case management services. An integral component of the mental health service system is case management, due to its complex and interactive structure. The primary purpose of case management is the coordination of service provision for children with severe emotional disorders (Burns, Hoagwood, & Mrazek, 1999). There are several different forms of case management, but it is primarily broken down into team and individual approaches. The general functions of a case manager are assessment, service planning, service implementation, service coordination, monitoring and evaluation, and advocacy (Garland, Woodruff, & Buck, 1988). The case manager may also provide clinical services such as counseling and psychotherapy (Kutash & Rivera, 1996).

While the research base is limited, there have been studies that assess the effectiveness of case management for youth with emotional and behavioral disorders. In a 1996 review chapter, Burns noted that only six controlled outcome studies on case management have been conducted. In a study conducted by Paulson, Gratton, Stuntzer-Gibson, & Summers (1995), case management was compared to "usual services", i.e., without case management. At one year follow-up, the children participating in the Partner's Project in Oregon, whose primary component was case management, received more individualized, extensive services with a higher level of service coordination than children in the control group without case management. Moreover, children in the Partner's Project who received case management services, were rated significantly higher on measures of social competence (Paulson et al., 1995).

Recently, a distinction has been made between intensive case management (ICM) and regular case management. In a study conducted by Cauce (1994), comprised of 150 Seattle-area adolescents, 62% of which displayed behavioral problems in the borderline

or clinically significant range, youth received either intensive case management or traditional case management services. The intensive case managers had lower caseloads, more direct contact service hours, a greater availability of funds, more hours of consultation with psychologists, and higher educational requirements. Results from the study indicated that both groups demonstrated substantial improvement in social adjustment and mental health status, but there was no significant difference between the group receiving intensive case management services and those receiving regular case management services (Cauce, 1994). Evans, Dollard, & McNulty (1992), in their study with an ICM program in New York, assessed whether adolescents with substance abuse problems differed from non-substance abusers in their treatment gains. Evans et al. (1992) found no significant difference among the two groups, suggesting that case management services can be as effective with substance-abusing youth as with youth manifesting other psychological disorders only. Evans et al. (1994) conducted a follow-up study which found that ICM clients experienced an 83% decline in inpatient days, in comparison with a 34% decline in non-ICM clients.

In summary, although relatively few studies have been conducted, research suggests that case management is an effective alternative for children and adolescents with psychological disturbances. Burns et al. (1999) assert that studies with this service intervention are difficult to conduct because the availability of such services differs across mental health systems, and case management approaches vary widely. Thus, the authors conclude that consensus on standards for case management models is necessary in order to yield efficient and statistically controlled research (Burns et al., 1999).

Treatment Duration

The length of treatment has also been found to be an important mediator of children's treatment outcomes. In their review of inpatient settings, Blotcky et al. (1984) found that substantial length of stay was a treatment variable related to a better prognosis in the child. For the most part, findings from 32 studies indicated that treatments with more than a one-year duration were associated with better long-term outcomes in children. While there were some inconsistencies in the findings, Pfeiffer & Strzelecki (1990) found that there was generally a moderately strong positive correlation between length of stay (typically one year) and treatment outcomes for children in inpatient settings.

A Canadian study (Ney, Adam, Hanton, & Brindad, 1987), not included in the Pfeiffer & Strzelecki (1990) review examined the effect of a more brief inpatient hospital stay on child outcome. The study included a sample of 112 youth manifesting various psychiatric conditions in an inpatient program that included two weeks of preadmission assessments, five weeks of actual hospitalization, and five weeks of follow-up. Based upon responses on the Patterson-Quay Behavior Problems Checklist, most measures of parental satisfaction, problem severity, and social functioning level indicated significant improvements. While the experimental design lacked a comparison group, the authors purport that a pre-determined, short-term hospitalization is effective because the treatment concentrates staff effort, as well as maximizes family and community involvement (Ney et al., 1987).

Evidence suggests that treatment duration may interact with other factors in predicting outcome. Pelkonen (1990), in a follow-up study conducted on a sample of 58

Finnish adolescent inpatients, found that depending on the degree of psychological disturbance, various patient populations benefited from treatments of varying durations. The study concluded that youth experiencing adjustment issues or manifesting a crisis reaction benefited from short-term treatment, whereas those with neurotic, behavioral, or psychotic disturbances benefited from treatment that lasted longer than three months (Pelkonen, 1990). Gottheil, McLellan, & Druley (1992) replicated a similar finding with an adult, male, veteran, substance-abusing population. Higher functioning patients had better outcomes if their treatment lasted longer than 15 days when compared to those whose treatment was less than 15 days. Similarly, Kachele, Kordy, and Richard (2001), in their study with anorexic inpatient adults, found that treatment duration had a weak effect on outcome and only in interaction with client characteristics of motivation to change, psychological distress level, weight, and diagnosis.

Another study (Caton, Mayers, & Gralnick, 1986) found the effects of treatment duration to be mediated by treatment placement in young-adult psychiatric patients. In their study, they compared the outcome of patients receiving outpatient therapy and patients receiving inpatient hospitalization. They found an overall trend advocating briefer hospital stays. However, they concluded that for young-adults receiving outpatient therapy, more sessions over a longer time duration was associated with better outcomes with the young-adult population (Caton, Mayers, & Gralnick, 1986).

While most studies have examined adults, the literature generally suggests that the effect of treatment duration depends on the severity of diagnosis as well as treatment placement. Moreover, a child with a more severe, chronic condition will benefit from long-term therapy. However, children receiving inpatient service seem to fare better if

the treatment is time limited, and children receiving outpatient services benefit more if they receive them longer. Treatment duration appears to be mediated both by the severity of the diagnosis and the treatment placement of the child, two of the primary variables originally in question for this study.

<div align="center">Treatment Intensity</div>

A few studies have examined the impact of treatment intensity, or the amount of treatment provided within a given time frame, on treatment outcome. Leichtman et al. (2001) found that higher intensity, shorter duration residential treatment was more effective than short duration inpatient hospitalization and longer duration outpatient treatment, for adolescents with more severe psychiatric problems, namely personality disorders, disruptive behavior disorders, and psychotic disorders.

Researchers have also examined the impact of more intensive case management services. In a study conducted by Cauce (1994), comprised of 150 Seattle-area adolescents, 62% of which displayed behavioral problems in the borderline or clinically significant range, youth received either intensive case management (ICM) or traditional case management services. The intensive case managers had lower caseloads, more direct contact service hours, a greater availability of funds, more hours of consultation with psychologists, and higher educational requirements. Results from the study indicated that both groups demonstrated substantial improvement in social adjustment and mental health status, but there was no significant difference between the group receiving intensive case management services and those receiving regular case management services (Cauce, 1994). Evans, Dollard, & McNulty (1992), in their study with an ICM program in New York, assessed whether adolescents with substance abuse

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In summary, of the few studies that addressed treatment intensity, most indicate that more intensive services are more effective, although other factors, such as treatment duration, placement, and diagnosis can interact with intensity to predict outcome. More studies are needed to formally address the role of treatment intensity on children's outcomes.

<div align="center">Treatment Compliance</div>

Treatment compliance has been examined relatively extensively as a potential factor in treatment outcome. Treatment compliance may be defined in terms of the number of sessions attended (Pfeiffer & Strzelecki, 1990), follow-through with treatment recommendations (Pelkonen & et al, 2001), participation in treatment sessions (Leone et al., 1986), or achievement of treatment goals (Kazdin & Wassell, 1998). Although it has been defined in numerous ways, the outcome research exploring treatment compliance suggests a consistently positive association with treatment outcome.

Several researchers have examined the relationship between completion of the treatment program and outcome. In their review article, Pfeiffer & Strzelecki (1990) found program completion to be associated with favorable post-discharge adjustment. In addition, Kazdin & Wassell (1998) addressed the relationship of treatment completion

and therapeutic change among 304 children aged 3 to 13 years referred for aggressive and antisocial behavior. Results indicated that treatment completion was found to be strongly related to therapeutic change. However, 34% of those who dropped out of treatment improved, and their improvement was predicted by other variables, such as parent involvement, regardless of treatment completion (Kazdin & Wassell, 1998).

Leone, Fitzmartin, Stetson, & Foster (1986), in their restrospective follow-up study of 120 behaviorally disordered adolescents, examined the role of treatment attendance. They found treatment attendance to be significantly related to treatment outcomes. In both the day and residential treatment programs, higher rates of absenteeism were associated with worse outcomes in the adolescents. Those attending more sessions typically fared better, based on interview responses of school/community adjustment, employment/school status, and probation status (Leone et al., 1986).

In addition to measuring mere participation, other researchers have examined actual compliance to treatment recommendations. For example, Pelkonen et al. (2001) found that if a child or parent is more compliant with the treatment regimen, particularly with regard to medication, the child will have a better prognosis.

In summary, while no universally accepted definition of treatment compliance exists, research is generally suggestive of a significant positive relationship between compliance and treatment outcome. Treatment completion (Pfeiffer & Strzelecki, 1990; Kazdin & Wassell, 1998), program attendance, and adherence to treatment recommendations (Pelkonen et al., 2001) have all been found to be significant predictors of prognostic outcome.

Summary of Treatment Characteristics

In summary, the treatment characteristics of service type, treatment duration, treatment intensity, and treatment compliance have been found to be significantly related to outcome. Treatment duration and intensity have been found to interact with other variables, including child characteristics such as diagnosis.

Child Characteristics

In addition to treatment characteristics, a number of child characteristics have been studied in relation to their impact on children's treatment outcomes, including sex, age, intelligence, diagnosis, problem severity, and functioning level. Of the studies reviewed that addressed sex as a potential indicator of outcome (Blotcky et al., 1984; Gabel & Shindledecker, 1990; Pelkonen et al., 2000; Pfeiffer & Strzelecki, 1990; Phillips et al., 2000), none found the sex of the child to significantly affect treatment outcome. Age of admission has also not been found to be a reliable predictor of outcome (Blotcky et al., 1984; Blanz & Schmidt, 2000; Pfeiffer & Strzelecki, 1990; Phillip et al., 2000). Findings regarding the role of intelligence have been mixed. Primarily due to discrepant measures of intelligence across studies, some reviews have found a significant relationship between favorable prognosis and intelligence (Blotcky et al., 1984; Pfeiffer & Strzelecki, 1990), whereas others have not replicated this finding (Blanz & Schmidt, 2000; Phillips et al., 2000).

Diagnosis

Perhaps the most extensively evaluated child characteristic related to treatment outcome has been the child's diagnosis. Several studies have examined specific diagnoses as prognostic indicators related to children's treatment outcome. Reviews

assessing children with psychotic disorders (Blotcky et al., 1984; Pfeiffer & Strzelecki, 1990) and those with aggressive conduct disorders found that such children responded less favorably to inpatient treatment (Pfeiffer & Strzelecki, 1990).

Phillips & et al (2000), in addition to Blotcky et al. (1984) and Pfeiffer & Strzelecki (1990), conducted a review of 34 studies. Forty-six percent of the studies had samples with a mean age of 12 to 18 years, with the gender distribution across studies being approximately equal. White subjects comprised the majority in 75% of the studies. The categories of diagnosis included were: (a)Major Depressive disorder, (b) Conduct disorder, (c) Oppositional Defiant disorder, (d) attention deficit disorders (ADD and AD/HD), and (e) substance use disorders. In their review, 42% of the studies evaluated outpatient, 35% evaluated inpatient, 13% evaluated residential, and 7% evaluated day treatment placements (Phillips et al., 2000).

Phillips et al.'s (2000) review found diagnosis to be a significant predictor of child treatment outcome. Treatment success was negatively impacted by the presence of psychosis, conduct disorder, or substance abuse. The findings regarding comorbidity were mixed, depending on the diagnoses included. The authors concluded that in studies where there was a comorbid diagnosis of depression with either substance abuse, CD, or ODD, treatment for the primary diagnosis of depression was less successful, otherwise comorbidity was not found to have a significant effect. The authors noted that the presence of both an internalizing disorder and externalizing disorder may indicate a poorer prognosis (Phillips et al., 2000).

Several additional studies have also been conducted which are not reflected in these reviews. Grizenko et al. (1994) conducted a study to predict outcome in a

multimodal day treatment program for children with severe behavior problems. A multimodal day treatment program encompasses all domains of a child's functioning, addressing academic, behavioral, and interpersonal problems (Grizenko et al., 1994). The sample was comprised of 63 children between the ages of 5 and 13, with an average age of 9. Fifty-two of the participants were boys, and 11 were girls. At intake, 92% of the participants lived at home. Fifty-one percent were from a low SES background, 30% were from a mid-SES background, and 19% were from a high SES. Thirty-four percent of the children came from a single parent home. The majority of the participants had a primary diagnosis of ODD (65%), with the remainder having AD/HD (24%), Adjustment Disorder with Conduct Disturbance (5%), and Conduct Disorder (5%). It is important to note that the children were classified based solely upon their primary diagnosis, rather than including any comorbid diagnoses (Grizenko et al., 1994).

The Reynold's Child Behavior Profile (RCBP) was administered at intake and prior to the children's reintegration into community schools, which, on average, was a 5.5-month period. The change score on the RCBP was the outcome measure. Two separate stepwise discriminant functional analyses were conducted in order to determine which factors best predicted the child's level of behavior change. The first analysis was conducted to predict children who made either a substantial or minimal behavior change as measured by the RCBP. The second analysis was conducted to discriminate children reintegrated into a regular classroom from those reintegrated into a special class or school. In terms of diagnosis, findings showed that children who did not have AD/HD were more likely to be reintegrated into regular classes, but no significant difference was noted as measured by the RCBP (Grizenko et al., 1994).

Sourander, Helenius, & Piha (1996) conducted a study to assess the short-term outcome of child psychiatric inpatients using the Children's Global Assessment Scale (CGAS) as a follow-up measure. The sample was comprised of 47 children admitted for inpatient psychiatric treatment in Turku, Finland. The age range was 3.5 years to 15 years, with the mean age being 10 years. The sample was predominantly male, with 41 boys and 9 girls. The DSM III-R was used to categorize the subjects into one of three groups: (a) "antisocial group" ($N = 10$), meeting the criteria for Conduct Disorder; (b) "mixed behavior disorder group" ($N = 24$), fulfilling criteria for either AD/HD or ODD; and (c) "pure emotional disorder group" ($N = 13$), meeting criteria for an affective or anxiety disorder.

Repeated measures analyses of variance were used to assess the various diagnostic groups' differences in changes in CGAS scores over time. Additionally, a logistic regression analysis was conducted in order to assess the predictors of normal functioning at the 5-month follow-up. Included in the regression analysis were: child's sex, age, family structure, Rutter's Teacher's Questionnaire total scores or neurotic subscores, Rutter's Parent's Questionnaire neurotic subscores, change in CGAS scores between admission and discharge, and the outcome variable, which was the CGAS score at discharge. Results from their analyses indicated that type of diagnosis had a significant effect on the child's functioning level at follow-up. Those with an emotional disorder or disruptive behavior problems without antisocial symptoms continued to show improvement, while those with antisocial problems exhibited a decline in their functioning level immediately following discharge (Sourander, Helenius, & Piha, 1996).

King, Hovey, Brand, and Ghaziuddin (1997) conducted a study that sought to predict positive outcomes for adolescent psychiatric inpatients. The subjects were 89 adolescents (37 males, 52 females) with a mean age of 15 years, who were hospitalized on a general adolescent psychiatric ward. The sample was primarily white (89%), with 8% African-American, and 3% of a mixed racial background. Diagnoses, based on the DSM-III-R were as follows: Major Depressive disorder (64%), Bipolar disorder (6%), Dysthymia (20%), Alcohol Use disorder (19%), other substance use disorder (16%), Conduct disorder (26%), AD/HD (17%), ODD (17%), social phobia (15%), GAD (12%), any eating disorder (11%), Separation Anxiety disorder (7%), and PTSD (8%). Comorbid diagnoses were very common, thus the percentages sum to be greater than 100. For example, 29% of the subjects had a comorbid affective and behavioral or substance use disorder (King et al., 1997). Hierarchical multiple regression analyses were run on the data. The presence of conduct disorder was significantly associated with poorer social functioning. Furthermore, the results indicated that children with a comorbid condition in addition to a conduct order had the worst outcomes (King et al., 1997).

In summary, a child's diagnosis significantly mediates the clinical outcome that the child can be expected to achieve. Research suggests that children manifesting psychosis or conduct disorder have worse treatment outcomes. In general, the prognosis for a child with anxiety or depression is generally more favorable. Results from studies addressing comorbidity are mixed. Some studies have found that two or more co-existing disorders were linked with worse treatment outcomes in children, whereas other studies found comorbidity did not significantly impact whether or not a child improved

clinically. There is also evidence that suggests a comorbid depression diagnosis is less favorable.

Problem severity

In addition to diagnosis, the child's symptom severity has also been found to be significantly related to treatment outcome. The major categories of symptom patterns that have been addressed in the literature are antisocial, psychotic, and depressive symptoms. Sourander, Helenius, & Piha (1996) concluded that the absence of severe antisocial symptoms, regardless of the nature of the disorder (emotional or disruptive) was associated with behavioral improvement, whereas children with severe antisocial symptomatology showed a decline in functioning after termination of treatment. Pfeiffer & Strzelecki's (1990) review concluded that the absence of more primitive, antisocial, and odd symptoms is indicative of more positive treatment outcomes. More specifically, low energy level, as well as the presence of isolation, psychotic features, psychosexual problems, and externalizing behaviors were all found to be associated with less favorable outcomes (Pfeiffer & Strzelecki, 1990). Likewise, the presence of psychotic symptoms in adolescents with mixed disorders (internalizing and externalizing), as well as in depressive disorders predicted poorer outcomes in Phillips et al.'s (2000) review. Blanz & Schmidt found similar findings regarding psychotic symptoms in their 2000 review, largely because their review contained some of the same studies as Blotcky et al.'s (1984) and Pfeiffer & Strzelecki's (1990) reviews. Similarly, in Grizenko et al.'s (1994) study, less severe behavior problems were significantly predictive of more behavioral improvements within the sample. Furthermore, in Gabel & Shindledecker's (1991) study of adolescent psychiatric inpatients, the only one of the four preadmission variables

found to be predictive of poor treatment outcome was the presence of severe aggressive/destructive behavior. In Dierker, Nargiso, Wiseman, & Hoff's (2001) study evaluating predictive factors of attrition within a continuum of care, depressed/isolated symptomatology emerged as one of the strongest predictors of attrition amongst youth receiving mental health services.

In addition to examining the severity of specific symptoms, other researchers have measured the relationship between initial severity of symptoms on a continuum and amount of progress in treatment. King et al. (1997) found baseline depression severity to be a significant predictor of depression severity at discharge. Initial problem severity and baseline functioning have consistently been found to be significantly related to treatment outcomes in children, often emerging as the strongest predictors of outcome, sometimes even over the child's diagnosis (Blotcky et al., 1984; Grizenko et al., 1994; Pfeiffer & Strzelecki, 1990; Phillips et al., 2000; King et al., 1997; Sourander et al., 1996).

In contrast to the general finding that greater initial problem severity is associated with worse outcomes, in both Gabel & Shindledecker's (1990, 1991) studies, the preadmission variable of suicidal ideation, threats, and/or behavior was not found to predict poor outcome within adolescent psychiatric inpatients. While the findings regarding suicidal ideation/attempt go against the authors' original hypotheses, the authors note that comparisons among studies regarding the suicide variable are complicated due to discrepancies in study samples as well as definitions of suicidal behavior (Gabel & Shindledecker, 1991).

In summary, with the exception of one study (Green et al., 2001), research has found that more severely debilitating presenting symptoms, regardless of diagnosis, as

well as those rated as more severe on a continuum, are negatively associated with treatment progress in children and adolescents.

<div align="center">Premorbid Functioning</div>

Premorbid functioning has also been assessed with regard to its impact on a child's treatment outcome. While symptom severity reflects the degree to which the child is experiencing various symptoms, functioning level reflects the child's ability to carry out developmentally appropriate behaviors, such as earning good grades in school, making friends, and participating in activities. It is possible for a child to be experiencing significant distress, but to still be able to carry out activities of daily living adequately.

Grizenko, Sayegh, and Papineau (1994) found that based upon the CGAS, at intake 38% of the youth in their sample had a major impairment in functioning, while 62% had a moderate impairment in functioning. The first regression analysis was conducted to predict children, based upon the RCBP, who made either a substantial or minimal behavior change. Results indicated that the children with better initial functioning displayed the most behavioral improvements (Grizenko et al., 1994). Sourander, Helenius, & Piha, (1996), in their study with fifty youth inpatients, found inpatient treatment to have significant immediate effects on children's global functioning level, as measured by the CGAS. However, the strongest predictor of the child's functioning at follow-up was his or her level of global functioning at admission. Likewise, King et al. (1997) utilized hierarchical multiple regression analyses, and results from the analyses indicated that baseline indices of adolescent functioning were the strongest predictors of treatment outcome. Baseline social adaptive functioning was also a significant predictor of social adaptive functioning at discharge (King et al., 1997).

Summary of Child Characteristics

In summary, research has consistently indicated that diagnosis, initial problem severity, and initial functioning impact treatment outcome. The child's initial psychological status fairly consistently emerges as the most significant predictor of functioning after treatment termination. There is some inconsistency in the literature on the effect of comorbid diagnoses. Mixed findings could potentially be due to a number of factors, such as the type of diagnoses included in the study, if the comorbid diagnoses involve the presence of both internalizing and externalizing disorders, whether or not psychoses were included, if only comorbid primary diagnoses were included, and lastly, if specific diagnoses were addressed versus categories of diagnoses. Findings regarding sex, age, and intelligence have not indicated a consistent significant relationship, however, these will not be included in the present study.

Relative Impact of Treatment and Child Characteristics

Some studies have examined children's treatment outcome based upon the relative impact of both treatment and child variables. Gabel and Shindledecker (1992) found that the presence of aggressive or destructive behavior predicted poor outcome over the child's treatment placement. Kazdin and Wassell (1998) found initial child functioning and problem severity were more predictive of treatment outcome than treatment compliance. Kachele, Kordy, and Richard (2001), in their study with anorexic inpatient adults, found that client characteristics of motivation to change psychological distress level, weight, and diagnosis interacted with treatment duration to predict outcome; however, treatment intensity was not found to be significantly related to outcome. Leichtman et al. (2001) found that higher intensity, shorter duration residential

treatment was more effective than short duration inpatient hospitalization and longer duration outpatient treatment only for adolescents with more severe psychiatric problems, namely personality disorders, disruptive behavior disorders, and psychotic disorders.

Leone, Fitzmartin, Stetson, and Foster's (1986) study contrasted with previously cited results indicating greater predictive power with child factors. Their results indicated that compliance, as measured by absenteeism, and day program placement accounted for more than 50% of the variance in treatment outcome, but child factors such as IQ and delinquent status were nonsignificant. However, the authors contested that day program status is confounded by other child factors not assessed in the study, namely the nature and severity of thechild's disordered behavior.

In summary, while some studies have found an interaction between child and treatment characteristics to be predictive of treatment outcome in children, most studies have found child characteristics, particularly initial problem severity and functioning levels, to be more significantly related to treatment outcome than treatment variables.

<u>The Present Study</u>

While studies have examined a wide range of factors in isolation and in various combinations, few studies have set out to examine the relative impact of child and treatment factors which may influence the outcome of child mental health treatment. For all parties involved in the treatment process, the answer to this question is invaluable. It is important for both parents and clinicians to have realistic expectations from the outset of services about how much treatment can accomplish. Does treatment make a significant contribution to outcome, regardless of the child's initial characteristics? If a child presents with certain qualities, how much of a difference will treatment make? The

present study examined the relative impact of child factors, including diagnosis, initial

functioning, and initial problem severity, and treatment, including treatment placement,

the types of services provided, duration, and intensity of services on children's treatment

outcome.

The following hypotheses were examined:

1. Child variables of initial functioning, problem severity, and diagnosis will

contribute more to the change in problem severity and change in functioning than

the treatment variables of treatment placement, types of services, treatment

duration, intensity.

2. In addition, several hypotheses were generated with regard to the

relationships between predictor and outcome variables.

> a. Initial functioning will be negatively correlated with both
>
> change in functioning and change in problem severity, meaning
>
> that if the child is functioning better initially, there will be less change in
>
> both the functioning and problem severity over the course of treatment.
>
> b. Initial problem severity will be positively correlated with both
>
> change in problem severity and change in functioning, meaning
>
> that if the child has a greater problem severity initially, there
>
> will be more change in problem severity and functioning over the course
>
> of treatment.
>
> c. Children with less debilitating diagnoses, such as anxiety,
>
> depression, or AD/HD will have a greater change in both problem
>
> severity and functioning than those with more debilitating

diagnoses, such as thought disorders, conduct disorder/antisocial behavior, and ODD.

d. Treatment placements will be related to change in both problem severity and functioning.

e. Some types of services will have stronger associations with amount of change in problem severity and functioning than other types of services. Based upon the literature concerning the relative success of medication therapy and the treatment of AD/HD, it is hypothesized that medication will have stronger associations than individual or group therapy.

f. Treatment duration will be positively associated with both change in problem severity and change in functioning.

g. Treatment intensity will be positively associated with both change in problem severity and change in functioning.

h. In the regression sample, 62% of the children had a different worker fill out their form from the time of intake and most recent administration worker continuity). Because of the lack of interrater reliability studies for the measure, a hypothesis was generated regarding worker continuity. If the same worker filled out the form, it would be hypothesized that the child would make significantly less change in both problem severity and functioning. If a different worker filled out the form, it would be hypothesized that the child would make significantly more change in both problem severity and functioning.

CHAPTER II

METHOD

The Agency

St. Joseph's Children's Treatment Center, a non-profit mental health agency located in Dayton, Ohio provides seven options for mental health services for youth from Montgomery County and surrounding counties. The services provided are: residential services, intensive treatment unit (ITU), early childhood intervention program, partial hospitalization, intensive outpatient program, therapeutic and traditional foster care, therapeutic adoption services, family preservation, group homes, outpatient services, and Dayton public schools program. Due to the absence of program codes in the database for two of the aforementioned placements (family preservation and Dayton public schools program), five placements were included in the present study: (a) outpatient (outpatient services and intensive outpatient program), (b) partial hospitalization (early childhood intervention program and partial hospitalization), (c) residential (residential services and intensive treatment unit), (d) foster care (therapeutic and traditional foster care), and (e) group home. A variety of services were offered in each of the five treatment placements. Each child could receive any combination of the following categories of services: (a) diagnostic assessment, (b) medication-somatic services, (c) group counseling, (d) individual counseling, (e) community support primary, and (f) partial hospitalization. There was considerable overlap in these services provided among each of the placements.

<u>Participants</u>

Children who received psychological services from St. Joseph's Children's
Treatment Center from March, 2000 to May, 2002 were included in the present study.
Although 632 children received services in that time span, data were missing for several
of the variables

As can be seen in Table 1, the percentage of missing data ranged from near 0%
for demographic variables to 64% for treatment placement. One of the analyses
conducted in the present study was a stepped multiple regression analysis which included
only cases with no missing data. However, for some preliminary analyses, all available
data were utilized in order to improve the power of the analysis. Therefore, the data for
the present section will be provided both for the total sample, which includes all 632
cases, as well as for the regression sample, which includes 149 cases for which all data
were present.

Table 2 presents the demographic and descriptive variables in the total and
regression samples. There were some general trends noted in both the total and
regression samples. Most of the participants were boys in both samples, with a full range
of ages from preschool to late adolescence in both samples. Furthermore, both samples
were comparable in terms of race, with an approximately equal split of African-
Americans and Caucasians, with few other minority groups represented.

Table 1

Missing Values and Percentages of Demographic and Descriptive
Variables

Variable	Missing	Percentage
Gender	0	0%
Race	0	0%
Socioeconomic Status	0	0%
County of Residence	0	0%
Age	7	1%
Education Level	8	1%
Worker ID	17	3%
Diagnosis	19	3%
Initial Problem severity	40	6%
Change in problem severity	60	10%
Initial Functioning	87	14%
Change in functioning	116	18%
ROLES Score	282	45%
Hours of Service Type	320	51%
Total Hours of Service	320	51%
Intensity of Services	320	51%
Initial Placement	406	64%

Table 2

Demographic and Descriptive Variables in the Total and Regression Samples

Variable		Total Sample	Regression Sample
		N=632	N=149
Gender			
	Boy	419 (68%)	98 (66%)
	Girl	213 (32%)	51 (34%)
Age			
	Mean	10.66	9.68
	SD	3.27	3.07
Education Level			
	Mean	5.11	4.56
	SD	3.18	2.76
Race			
	Black	307 (49%)	76 (51%)
	White	302 (48%)	65 (44%)
	Biracial	12 (2%)	4 (2.5%)
	Other	11 (1%)	4 (2.5%)
Socioeconomic Status			
	Medicaid	632 (100%)	149 (100%)
	Self-pay	0	0
County of Residence			
	Montgomery	441 (70%)	145 (97%)
	Hamilton	122 (19%)	0
	Butler	11 (2%)	0
	Greene	10 (2%)	2 (1%)
	Franklin	10 (2%)	0
	Miami	6 (2%)	1 (1%)
	Preble	6 (2%)	0
	Warren	2 (1%)	1 (1%)
Roles Score			
	Mean	3.52	3.17
	SD	1.61	1.43
Initial Placement			
	Outpatient	108	16
	Foster Care	56	6
	Residential	30	0
	Partial Hosp	28	4
	Group Home	4	0

All of the participants in both samples were Medicaid recipients, indicating lower socioeconomic status (SES). Whereas 19% of the total sample were residents of Hamilton county, none of the participants from the regression sample were Hamilton county residents. This was a rather unexpected finding, although the Director of Quality Improvement at St. Joseph's stated that Hamilton county residents have a different payer and are not as conscientious with their records. A Restrictiveness of Living Environment Scale (ROLES) score, which provides an indication of the restrictiveness of the child's placement over the past 90 days, was obtained at intake for 358 (55%) participants in the total sample and, 48 (32%) in the regression sample. The ROLES score ranges from 0 to 10, with a higher score being indicative of a more restrictive setting. The average ROLES scores for both the total and regression samples indicated that most came from a less restrictive environment prior to their admission to the facility. Regarding current placement, most received outpatient services, although with such a large portion of missing data, it is difficult to determine whether this reflects the placement of the entire sample. It is likely that outpatient placement had more stringent paperwork follow-through. Unlike the total sample, no child in the regression sample was placed in a residential or group home placement.

<div align="center">Measures</div>

The Ohio Youth Problem severity and Functioning Level Scales – Short Form (Ogles, B., 2000) was used to assess treatment outcome in children aged 5 to 18. The questionnaire is the result of the Ohio Mental Health Consumer Outcomes Initiative, whose purpose is to develop a comprehensive measure of the effectiveness of children's mental health services. All state-funded mental health agencies serving children are

required to utilize the Ohio Scales. There are three forms for the scales, one completed by youths aged   12 to 18 (Y), one by the parent (P), and one by the agency worker (W). Four domains are measured, including Problem severity, Functioning, Hopefulness, and Satisfaction. The Problem severity Scale and Functioning Scale of the agency worker (W) version of the Ohio Scales were utilized in the present study in order to assess treatment progress within the child (see Appendix A).

The Problem severity Scale consists of 20 items. A high score on the Problem severity Scale is associated with greater levels of problematic behavior (e.g., lying, arguing, skipping school, hurting oneself). The following instructions are provided on the Problem severity Scale Form (W): "Please rate the degree to which the child has experienced the following problems in the past 30 days." Items are presented in a 6-point Likert scale format, ranging from 0 to 5, where 0 = "Not at All", 1 = "Once or Twice", 2 = "Several Times", 3 = "Often", 4 = "Most of the Time", and 5 = "All of the Time". Total scores can range from 0 to 100, but currently there is no clearly defined cutoff for a range of clinical significance.

The Functioning Scale also consists of 20 items. A high score on the on the Functioning Scale is indicative of better functioning in everyday life (e.g., getting along with others, motivation, concentration, accepting responsibility). For the Functioning Scale, the instructions read: "Please mark the number corresponding to the child's current level of functioning in each area." Items are presented in a 5-point Likert scale format, ranging from 0 to 4, where 0 = "Extreme Troubles", 1 = "Quite a Few", 2 = "Some Trouble", 3 = "OK", and 4 = "Doing Very Well". Total scores can range from 0 to 80, with no clearly defined cutoff for a range of clinical significance.

Although more information is available for the original Ohio Scales, limited psychometric information is available on the Short Form. All available psychometric information is obtained from the technical manual (Ogles et al., 2001). Of the studies conducted, many have involved a limited sample size, and most of the analyses were conducted on the youth (Y) and parent (P) forms, rather than the agency worker (W) forms. Since the Short Form of the Ohio Scales is in a similar format to the original scales and many of the items are identical, a comprehensive evaluation of the interrater reliabilities and sensitivity to change was not conducted (Ogles et al., 2001).

Ogles, Melendez, Davis, & Lunnen (2001) conducted a psychometric assessment of the original and short versions of the Ohio Scales based upon seven samples of data. Four samples of data were collected to assess the psychometric properties of the Short Form. Of the four samples, two pertained specifically to the Agency Worker (W) form. The first sample was comprised of 35 case manager ratings of 27 boys and 8 girls receiving mental health services at a community mental health center in southeastern Ohio, using both the original Ohio Scales agency worker form and the Short Form. The average age of the sample was 12.60 years old, *SD = 3.76*. For the Problem severity scale, with a range of 0 to 100, the mean score was 19.48, with a standard deviation of 18.06. For the Functioning scale, with a range of 0 to 80, the mean score was 63.38, with a standard deviation of 14.63. Another sample was comprised of 27 case managers from a Cleveland agency, each of whom rated five youth using the short form of the Ohio Scales. In this sample, five ratings for each of the 27 case managers yielded a total sample of 135. For the Problem severity scale, with a range of 0 to100, the mean score was 41.04, with a standard deviation of 14.40. For the Functioning Scale, with a range of

0 to 80, the mean score was 33.94, with a standard deviation of 12.91 (Ogles et al., 2000). Although the two agency worker samples yielded very different mean scores, the technical manual provided no explicit rationale for this difference. Furthermore, because no normative data have been obtained on a community sample, no information is provided on a suggested cutoff score for a clinical range. As a result, it is difficult to interpret the meaning of the scores. The user's manual does however provide general guidelines for the interpretation of scores (Ogles, et al., 2000).

Although internal consistency was not measured for the Short Form of the Ohio Scales, the Agency Worker form ($N = 124$), of the original Problem severity Scale displays a Cronbach's alpha of .86, and the Functioning Scale displays a Cronbach's alpha of .91, demonstrating sufficient internal consistency (Ogles et al., 2000). The original adult scales have also been found to have adequate test-retest reliability, $r = .50$, and display divergent validity with the Beck Depression Inventory and all but two of the MMPI-2 scales (Ogles, Melendez, Davis, & Lunnen, 2000). The Short Form of the Agency Worker form demonstrate a high correlation with the original Problem severity Scale, $r = .80$, and the original Functioning Scale, $r = .91$ (Ogles et al., 2000). However, it is important to note that the authors utilized only an adult sample to derive validity information.

Procedure

Both demographic information and information related to the factors of the study were obtained from a combined database provided by an agency worker and ADAMHS Board employee, independently of this research project. Since archival data were used, subjects incurred no risk, and thus informed consent was not obtained. However, the

Director of Quality Improvement at St Joseph's reviewed a description of the study and provided informed consent (see Appendix B). To ensure participants' confidentiality, case file numbers were used instead of names, in accordance with the Health Information Portability and Accountability Act. In addition, all records were kept at the facility.

Clinicians completed the Problem severity and Functioning Scales of the Ohio Scales at intake, three months into treatment, six months into treatment, one year into treatment, and annually thereafter until termination. For the purposes of this study, only the scores from the scales obtained at intake and most recent administration were utilized.

After the database was compiled, adaptations were made to the data set. First, several of the variables were recoded in order to be conducive to the purposes of the study, and outliers were also eliminated. Second, two variables were eliminated, treatment placement and compliance. For the variable of treatment placement, there were portions of missing data for 64% of the participants. Although the variable of treatment compliance was originally to be included in the analysis, no measure of compliance was contained in the database. There was no means to determine the percentage of sessions attended because there was no information in the database that indicated whether the client was a "no show". Third, two additional variables were added, services utilized and worker continuity. Services utilized was added to provide an index of services received as a substitute for the variable of treatment placement. Worker continuity was added because the worker who filled out the information changed from time one to time two in 92 (62%) of the 149 cases in the regression sample.

CHAPTER III

RESULTS

Description of the Analyses

Descriptive analyses

Descriptive analyses were run on each of the variables in order to determine the

characteristics of the sample and to delineate appropriate categories for the diagnostic

variables. The outcome variables were Change in problem severity and Change in

functioning at intake and most recent administration. The six predictor variables were:

(a) initial diagnosis, (b) initial problem severity, (c) initial functioning, (d) treatment

duration, (e) type of services received, and (f) worker continuity.

Preliminary analyses

Preliminary analyses were then conducted to examine the nature of the

relationship between predictor and outcome variables. Simple correlations were

calculated for continuous variables and t-tests and one-way analyses of variance

(ANOVA) for discrete variables. Because of the potential for Type II error with a large

sample size, an r value of .30 or higher was used to indicate practical significance for all

simple correlations, rather than p levels. Predictor variables were then included in the

two stepped multiple regression analyses with change in problem severity and change in

functioning as outcome variables. The regression analyses included only those

participants for whom all data were present, leaving a Change in problem severity sample

of 149 and a Change in functioning sample of 141. Because of a large portion of missing

data, descriptive information was calculated for both the total sample N = 632, and the

Change in problem severity regression sample N = 149. The eight values missing

between the children in the Change in functioning and Change in problem severity

sample came from the outcome variable. The Change in problem severity sample was

selected for comparison because it had a larger sample size than the Change in

functioning sample.

To determine if the total sample could be used for the preliminary analyses,

Fisher's Z-test of significance was utilized to examine whether the differences between

the total sample and the Problem severity regression sample means were significant for

each continuous variable. Continuous variables included all predictor variables with the

exception of diagnosis and worker continuity. A Bonferroni correction was not

implemented in order to maintain a more conservative level in determining whether the

total sample could be used. At an alpha level of .05, a Z-score of 1.96 or greater was

significant. Table 3 provides the means and standard deviations for continuous variables

in both the total sample and regression sample. Based upon results of the Z-test, the

variables pertaining to the hours of service type (Hours Med/Somatic, Hours Individual

Counseling, Hours Group Counseling, Hours of Partial Hospitalization, Hours of CSP,

and Total Hours of Services), with the exception of Hours Diagnostic Assessment, were

significant.

Table 3

Means and Standard Deviations of Variables of Interest

Variable	Total Sample		Regression Sample	
	Mean	SD	Mean	SD
Initial Problem severity	25.71	13.12	26.27	11.50
Initial Functioning	42.68	12.94	42.07	11.90
Hours Diagnostic Assessment	1.00	1.15	.82	1.19
Hours Med/Somatic	2.78	6.93	5.21	9.79*
Hours Individual Counseling	24.24	23.57	32.90	26.56*
Hours Group Counseling	13.73	48.32	23.99	69.77*
Hours CSP	11.95	21.00	19.37	25.79*
Hours Partial Hospitalization	117.53	258.87	186.49	318.17*
Total Hours of Services	347.75	240.86	467.63	227.66*
Intensity of Services	.02	.02	.02	.02
Change in problem severity	3.05	12.07	2.56	13.82
Change in functioning	1.60	11.19	2.19	13.51

*Z values > 1.96

A Chi-square goodness of fit test was used to determine if the frequencies in the Problem severity regression analysis for the discrete variables of primary diagnosis and worker continuity were significantly different from those expected, based upon the total sample frequencies. Table 4 indicates the frequencies and percentages for each group for the two categorical variables, primary diagnosis and worker continuity, in both the total and regression samples. For the category of , the Chi-square test indicated a non-significant difference between the frequencies in the total and regression samples, X^2 (5) = 10.11, $p < .10$. However, for the category of worker continuity, the Chi-square test indicated a significant difference between the total and regression samples, X^2 (1) = 32.54, $p < .005$, with greater preponderance of worker being different in the regression sample.

Thus, based upon results of the Fisher Z and Chi-square tests, the total sample was used for preliminary analyses for the variables of initial problem severity, initial functioning, initial diagnosis, and treatment intensity. The regression sample was used for preliminary analyses of the variables of hours of service type, treatment duration, and worker continuity.

<div align="center">Outcome Variables</div>

Change in problem severity was the first of two outcome variables. Since change in problem severity was expected to decrease from intake to termination, change in problem severity was calculated by subtracting the final from the initial problem severity score. Therefore, positive change scores indicate decreased problem severity over the course of treatment. Out of a range of -100 to 100 points,

Table 4

Frequency and Percentage of Children in each Category of Primary diagnosis and
Worker Continuity

	Total Sample		Regression Sample	
Primary Diagnosis	Frequency	Percentage	Frequency	Percentage
Depressive	119	18.8%	26	17.4%
Anxiety	51	8.1%	12	8.1%
AD/HD	187	29.6%	59	39.6%
ODD	111	17.6%	25	16.8%
CD/Antisocial	81	12.8%	21	14.1%
Other	64	10.1%	6	4.1%
Worker continuity				
Worker Same	372	58.9%	57	38.3%*
Worker Different	243	38.4%	92	61.7%*

* $p < .005$; Indicates significant difference between obtained frequency of regression
sample and that expected based on the total sample

the mean change in problem severity score was 3.10, *SD* = 12.07, for the total sample, *N* = 572. Figure 1 presents a histogram of the change in problem severity for the total sample. Although the modal change in problem severity was zero, the histogram reveals that an almost equal number of children displayed positive and negative change over the course of treatment.

Change in functioning was the second of the two outcome variables. Since it was expected that functioning would increase from intake to termination, the change in functioning score was calculated by subtracting the initial from the final functioning score. Therefore, positive change scores indicated improved functioning. Out of a range of -80 to 80 points, the mean of the change in functioning score was 1.60, *SD* = 11.19, for the total sample. Figure 2 presents a histogram of the change in functioning and indicates that the modal change in functioning was zero, with scores varying widely across the distribution.

<u>Predictor Variables</u>

Initial Diagnosis

Diagnoses were broken down into six categories based on the presence of the disorders in the primary diagnosis: (a) depressive disorders, (b) anxiety disorders, (c) attention-deficit/hyperactivity disorder (AD/HD), (d)oppositional defiant disorder (ODD), (e) conduct/antisocial disorders, and (f)other disorders. Depressive disorders included major depressive disorder, dysthymia, bipolar disorder, and adjustment disorder with depressed mood. Anxiety disorders primarily included post-traumatic stress disorder (PTSD), generalized anxiety disorder (GAD), and social phobia.
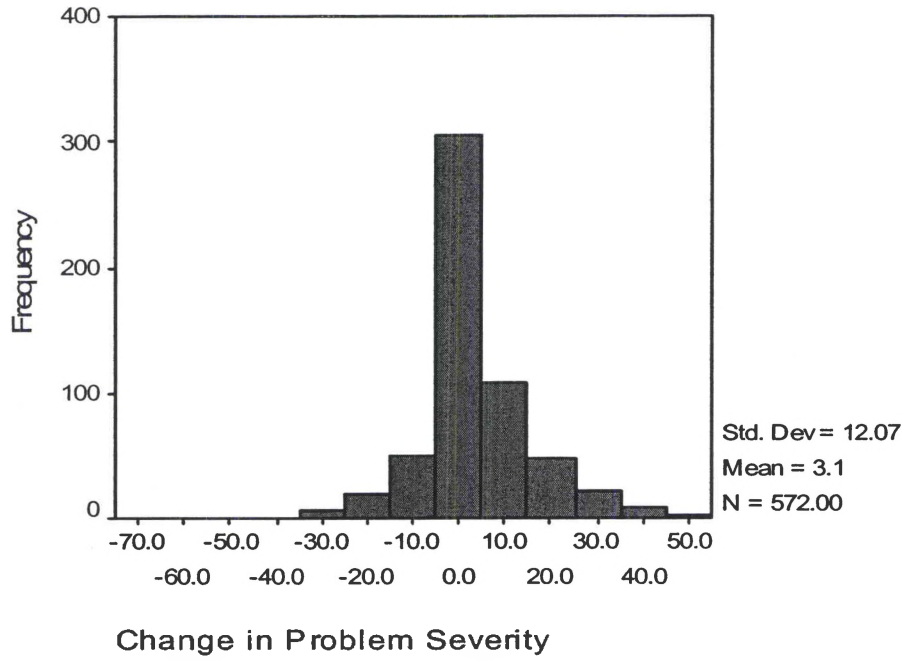
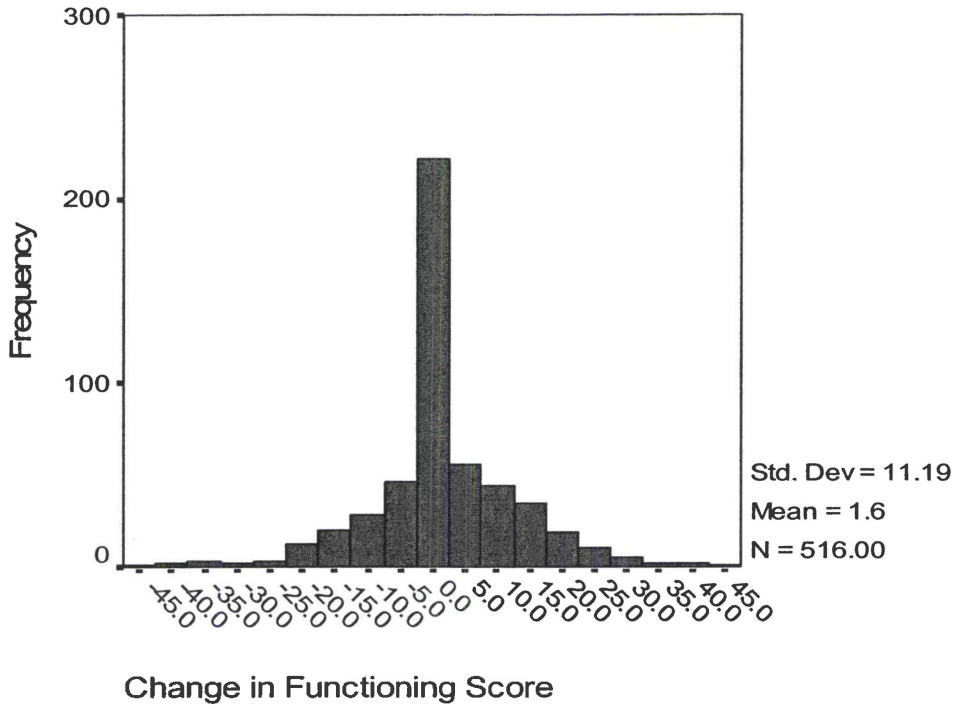Figure 1. Histogram for Change in Problem Severity

Figure 2. Histogram for Change in Functioning

The fifth category included not only conduct disorder but any diagnosis indicating antisocial behaviors, such as pyromania and intermittent explosive disorder. "Other diagnoses" consisted of a number of diagnoses, including primarily developmental disorders and substance abuse (See Table 4). In general, for both the total and regression samples, the majority of the children had a primary diagnosis of AD/HD, followed by depressive disorders and ODD, closely followed by CD/Antisocial and "Other".

Since there was not a significant difference between the total and regression samples' frequencies of diagnoses, the total sample was used for the preliminary analysis. One-way analyses of variance were conducted to examine the effect of diagnosis on change in problem severity and change in functioning. Results indicated that there was a significant difference in change in problem severity, $F(5, 576) = 2.83$, $p = .016$, but not in change in functioning, $F(5, 515) = 1.44$, $p = .209$, as a function of diagnosis. For CD/antisocial disorders, it was hypothesized that change scores would be less. The mean change in problem severity was .94 for depressive disorders, 1.18 for anxiety disorders, 5.47 for AD/HD, 2.89 for ODD, 4.03 for CD/antisocial, and .72 for other disorders. Despite the significant ANOVA, the Neuman-Keuls Post-Hoc was unable to detect differences across diagnoses. Based on this finding, only the largest difference, that being between AD/HD (5.47) and other disorders (.72), can be declared significant.

As exploratory analyses, t-tests were conducted to determine if change in problem severity or change in functioning differed as a function of the presence of any comorbid diagnosis. Results from the t-tests indicated that the presence of a comorbid diagnosis t $(580) = 4.03$, $p = .05$ differed as a function of change in problem severity, but not change in functioning, $t(519) = 2.52$, $p = .11$. The mean change in problem severity for a child

with a comorbid diagnosis was 3.54, SD = 12.63, and the mean change in problem

severity for a child with only a single diagnosis was 2.02, SD = 11.45. Thus, the

presence of a comorbid diagnosis yielded a greater change in problem severity, but not in

change in functioning. A second exploratory analysis was conducted on the presence of

comorbid depression. T-tests indicated that participants with comorbid depression did

not differ from participants without comorbid depression in change in problem severity, t

(580) = 1.04, p = .31 or in change in functioning, t (519) = 1.35, p = .25. The mean

change in problem severity for the comorbid depression condition was 4.10, SD = 12.41,

and the mean change in problem severity for participants without comorbid depression

was 2.55, SD = 12.05. The mean change in change in functioning for the comorbid

depression condition was 2.43, SD = 11.71, and the mean change in change in

functioning for participants without comorbid depression was 1.36, SD = 11.07.

Although they were of interest, these factors were not included in the regression

equations because of redundancy with the primary diagnosis variable.

Initial Problem severity

The mean initial problem severity for the total sample was 25.71, SD = 13.12, and

the mean initial problem severity for the regression sample was 26.27, SD = 11.50. Out

of a range of 0 to 80 points, this is a relatively low problem severity score. Since there

was not a significant difference indicated by the z-test between the initial problem

severity of the total and regression samples, the total sample was used for the preliminary

analysis. A Pearson correlation was calculated to examine the relationship between

initial problem severity and change in problem severity. Results revealed a significant

positive relationship, r = .47, p < .001, indicating that as initial problem severity

increased, change in problem severity increased. The Pearson simple correlation between initial problem severity and change in functioning resulted in a nonsignificant relationship, $r = .23, p < .001$. Scatterplots for the relationship between initial problem severity and the two outcome measures did not indicate any significant outliers.

Initial Functioning

The mean initial functioning score was 42.68, $SD = 12.94$ for the total sample and 42.07, $SD = 11.90$ for the regression sample. Since there was not a significant difference between the total and regression samples' initial functioning levels, the total sample was used in the preliminary analysis. A Pearson correlation was calculated to examine the relationship between initial functioning and change in problem severity. The Pearson correlation run on initial functioning and change in functioning was indicative of a significant negative relationship, $r = -.40, p < .001$. The Pearson correlation resulted in a significant negative relationship, $r = -.30, p < .001$ for the change in problem severity as well. Thus, as the level of initial functioning decreased, the change in problem severity and change in functioning increased.

Treatment Duration

Treatment duration was measured by the total number of hours in the period of time in which the child received services. The mean treatment duration for the total sample was 8346 hours, $SD = 5781$, and the mean treatment duration for the regression sample was 11,223 hours, $SD = 5464$. This would yield a mean length of treatment of 347 days, $SD = 241$, for the total sample, and 468 days, $SD = 228$, for the regression sample. Thus, the average child in the regression sample received services over the course of approximately 1 year, 3 months. Since the Fisher's Z-test indicated a

significant difference in treatment duration, or hours of service, between the total and regression sample, the regression sample was used in the preliminary analysis. A Pearson correlation was calculated to examine the relationship between the hours of service received and change in problem severity. The Pearson correlation between hours in service period and change in problem severity resulted in a nonsignificant relationship, $r = .08, p = .36$. The Pearson correlation between hours in service period and change in functioning also yielded a nonsignificant relationship, $r = .07, p = .41$.

Treatment Intensity

Treatment intensity is the proportion of the number of hours of services the child received to the total number of hours in the child's service period. The mean and standard deviations for the treatment intensity of the total and regression samples were the same, M = .02, SD = .02. This indicates that the average child received services for 2% of the entire service period. With an average service period of 1 year, 3 months for the total sample, the typical child would have had approximately 167 hours of services in that time frame. Since the Fisher's Z-test yielded no significant difference between the total sample and regression sample, the total sample was used in the preliminary analysis. A Pearson correlation was calculated to examine the relationship between service intensity (M = .02, SD = .02) and change in problem severity. The Pearson correlation between intensity of service and change in problem severity resulted in a non-significant relationship, $r = .01, p = .91$. The Pearson correlation run between intensity of service and change in functioning also yielded a non-significant relationship, $r = .03, p = .68$.

Hours of Service Types

The hours of service types pertains to the number of hours of each of type of service the child received. The child could receive any combination of the following service types: (a) diagnostic assessment, (b) medical-somatic, (c) individual psychotherapy, (d) group psychotherapy, (e) community support primary, and (f) partial hospitalization. Table 3 presents the means and standard deviations for the number of hours of services received for each service type. On average, the total hours of services received were approximately equal in the Total and Regression samples. In general, for both the Total sample and the Regression sample, most of the hours of services received were Partial Hospitalization, approximately 30% for the Total sample, and approximately 44% for the Regression sample. Overall, children in the Regression sample received more hours of services for each service type than children in the Total sample. However, the standard deviations for the Regression sample were also greater as well. Pearson correlations were calculated to examine the relationship between each type of service and both of the outcome measures, change in problem severity and change in functioning. With the exception of hours of diagnostic assessment, Fisher's Z-tests yielded a significant difference between the total and regression samples, therefore, preliminary analyses were conducted on the regression sample. For each type of service as it relates to both outcome measures, none of the Pearson correlations indicated a significant relationship.

Worker Continuity

Table 4 presents the frequency and percentage of children in the "worker same" and "worker different" categories. The mean change for children for both problem

severity and functioning in the "worker same" and "worker different" categories was limited. Since the Chi-square analysis yielded significant results, the preliminary analysis was run on the regression sample. Two t-tests were calculated to examine the effect of worker continuity, same or different, on the two outcome variables. Results of the first t-test, as a function of change in problem severity, indicated that participants who had the same worker fill out their form, $M = .68$, $SD = 11.11$, did not significantly differ from participants who had a different worker, $M = 3.72$, $SD = 15.20$, fill out their form $t(147) = 1.31$, $p = .19$. Results from the second t-test, as a function of change in functioning, indicated that participants who had the same worker fill out their form, $M = -.23$, $SD = 7.73$, also did not significantly differ from participants who had a different worker, $M = 3.84$, $SD = 16.17$, fill out their form $t(138) = 1.77$, $p=.08$.

Intercorrelations

In order to determine the relationships between variables, simple correlations were conducted between each of the predictor and outcome variables. Table 5 presents an intercorrelation matrix for the variables in the Total sample, and Table 6 presents an intercorrelation matrix for the variables in the Regression sample. An r of .30 was used as a cutoff for the clinically significant range. With the exception of the correlations between Hours of Medical-Somatic and Intensity, $r = .28$, and Hours of Group Counseling and Intensity in the Total Sample, $r = .28$, the correlations that were significant in the Total Sample were also significant in the Regression Sample. Thus, the correlations were similar in magnitude and direction for both samples. While these values were non-significant, a correlation of .28 is close to the cutoff for the significant range of $r = .30$.

Table 5

Intercorrelation Matrix of Continuous Variables for the Total Sample

	ΔPS	ΔFu	PS	Fu	DA	MS	IC	GC	CSP	PH	Dur	Int
ΔPS		.65*	.47*	-.30*	-.04	-.06	-.01	.04	.02	.05	.08	-.01
ΔFu			.24	-.40*	-.11	-.07	-.01	.01	.01	.10	.07	.01
PS				-.72*	.16	.05	.02	.04	-.08	.09	-.00	.13
Fu					-.08	-.06	.01	-.08	.09	-.20	-.05	-.18
DA						.11	.04	.10	-.13	-.13	-.10	-.05
MS							.40*	.80*	.23	.19	.12	.28
IC								.24	.37*	.12	.49*	.02
GC									.02	.14	.11	.28
CSP										.25	.39*	.16
PH											.39*	.71*
Dur												.13
Int												

*p < .05

PS = Initial Problem severity
ΔPS = Change in problem severity
Fu = Initial Functioning
ΔFu = Change in functioning
DA = Hours of Diagnostic Assessment
MS = Hours of Medical-Somatic
IC = Hours of Individual Counseling
GC = Hours of Group Counseling
CSP = Total Hours of CSP
PH = Partial Hospitalization
Dur = Duration
Int = Treatment Intensity

Table 6

Intercorrelation Matrix of Continuous Variables for the Regression Sample

	ΔPS	ΔFu	PS	Fu	DA	MS	IC	GC	CSP	PH	Dur	Int
ΔPS		.69*	.46*	-.34*	-.02	-.08	.05	.07	.07	.10	.08	.10
ΔFu			.25	-.45*	-.13	-.08	.00	.02	.03	.11	.07	.06
PS				-.66*	.15	.12	.03	.10	-.04	.23	-.00	.22
Fu					-.08	-.12	-.02	-.16	.04	-.30*	-.03	-.27
DA						.25	.11	.17	-.10	-.11	-.06	-.06
MS							.37*	.79*	.10	.09	.13	.33*
IC								.20	.32*	-.07	.54*	-.01
GC									-.04	.11	.11	.37*
CSP										.07	.40*	.04
PH											.33*	.82*
Dur												.13
Int												

*$p < .05$

PS = Initial Problem severity
ΔPS = Change in problem severity
Fu = Initial Functioning
ΔFu = Change in functioning
DA = Hours of Diagnostic Assessment
MS = Hours of Medical-Somatic
IC = Hours of Individual Counseling
GC = Hours of Group Counseling
CSP = Total Hours of CSP
PH = Partial Hospitalization
Dur = Duration
Int = Treatment Intensity

Regarding the predictor variables for the Total Sample, a few important trends were indicated. The initial functioning score was significantly negatively correlated with the initial problem severity score, suggesting that children with higher levels of initial functioning had significantly lower levels of problem severity and vice versa. Secondly, the Med-som services were positively correlated with the Individual and Group Counseling. Thirdly, Individual Counseling was positively correlated with Community Support Primary services. Fourth, the Total Hours of Partial Hospitalization were significantly positively correlated with Intensity of services. Fifth, all except for Group Counseling and Med-som were significantly positively correlated with the total hours of services. The correlations among each of these service types may be related to the child's diagnosis. Sixth, the relationship between Change in problem severity and Change in functioning was significantly positively correlated. Therefore, if children experienced a change in symptom severity, they also experienced a similar degree of change in functioning, or the ability to function in the real world. These trends were also indicated in the Regression sample as well (see Table 6).

<center>Stepped Multiple Regression Analyses</center>

Four stepped forward multiple regression analyses were conducted in order to determine the unique variance contributed by child and treatment variables, with change in problem severity and change in functioning as outcome variables. In order to rule out a change in the worker completing the *Ohio Scales* as a confound, worker continuity was entered on the first step on all four of the regressions. For the first regression, the child variables of initial diagnosis, initial problem severity, and initial functioning were entered on the second step, and the treatment variables of hours of service type, treatment

duration, and treatment intensity were entered on the third step. This regression was run twice, once with change in problem severity as the outcome measure, and once with change in functioning as the outcome measure. For the second regression, the treatment variables of hours of service type, treatment duration, and treatment intensity were entered on the second step, and the child variables of initial diagnosis, initial problem severity, and initial functioning were entered on the third step. This regression was also run twice, once with change in problem severity as the outcome measure, and once with change in functioning as the outcome measure.

Table 7 presents the two regressions with change in problem severity as the outcome variable. In Model 1, the child variables were entered on the second step, followed by the treatment variables on the third step, and in Model 2, the treatment variables were entered on the second step, followed by the child variables on the third step. Table 7 indicates, after removing the effects of worker continuity in combination with treatment variables, the child variables explained 33.6% of the variance in change in problem severity, $F(15, 132) = 4.31, p < .001$. In comparing Step 2 of Model 1 to Model 2, the child variables explained more of the variance in change in problem severity than the treatment variables, after controlling for worker continuity. In Step 2 the percent of the variance explained by the child variables (Model 1) was 24%, in comparison to 7% for the treatment variables (Model 2). The child variables were significant both in Step 2- Model 1 and in Step 3-Model 2 after controlling for both worker continuity and treatment variables. Interestingly, the treatment variables accounted for a significant percent (9%) of the variability in change in problem severity after controlling for the

Table 7

Multiple Regressions for Change in problem severity

Factors (Model 1)	Overall		Change	
	R^2	p	$R^2 \Delta$	pΔ
Step 1	.107	.194	.011	.194
Worker Continuity				
Step 2 (Child Variables)	.499	.000	.238	<.001
Initial Diagnosis,			.033	.303
Initial Functioning,			.001	.692
Initial Problem severity			.113	<.001
Step 3 (Treatment Variables)	.580	.000	.087	.034
Hours Diagnostic Assessment			.002	.513
Hours Medical-somatic			.048	.002
Hours Individual Counseling			.003	.456
Hours Group Counseling			.026	.024
Hours CSP			.009	.190
Hours Partial Hospitalization			.006	.285
Corrected Hours			.004	.342
Intensity of Services			.001	.641

Factors (Model 2)	Overall		Change	
	R^2	p	$R^2 \Delta$	pΔ
Step 1	.107	.194	.011	.194
Worker Continuity				
Step 2 (Treatment Variables)	.279	.242	.066	.276
Hours Diagnostic Assessment			.001	.675
Hours Medical-somatic			.045	.011
Hours Individual Counseling			.001	.749
Hours Group Counseling			.036	.020
Hours CSP			.011	.195
Hours Partial Hospitalization			.000	.883
Corrected Hours			.000	.910
Intensity of Services			.000	.791
Step 3 (Child Variables)	.580	.000	.259	<.001
Initial Diagnosis,			.036	.222
Initial Functioning,			.001	.581
Initial Problem severity			.132	<.001

child variables and worker continuity (Model 1-Step 3), however, they were not

significant when thechild variables were not controlled (Model 2-Step 2).

Table 8 presents the two regressions with change in functioning as the outcome variable.

In Model 1, the child variables were entered on the second step, followed by the

treatment variables on the third step, and in Model 2, the treatment variables were entered

on the second step, followed by the child variables on the third step. Table 8 indicates

that after removing the effects of worker continuity, the child variables together with the

treatment variables (both models, Step 3) explained 28.7% of the variance in change in

functioning, $F(15, 124) = 3.44, p < .001$. In comparing Model 1 to Model 2 again, the

child variables explained more of the variance in change in problem severity than the

treatment variables, after controlling for worker continuity. That is, in Model 1-Step 2,

the percent of the variance explained was 23% by the child variables, in comparison to

6% for the treatment variables (Model 2- Step2). The child variables were significant

both in Step 2-Model 1 and in Step 3-Model 2 after controlling for both worker

continuity and treatment variables. The treatment variables did not significantly

contribute to the variance in either model, Step 3-Model 1 or Step 2-Model 2. It is

important to note that for the regression run with change in functioning as the outcome

measure, the variable of worker continuity approached significance (p = .08).

It is also important to note which predictor variables make a unique contribution

to the variance in each outcome measure. In the change column of both Tables 7 and 8,

the R^2 change is indicated, which is equivalent to the semipartial correlation coefficient

squared, for each predictor variable. When change in problem severity was utilized as

the outcome variable, the R^2 change statistic was significant for the following variables:

Table 8

Multiple Regressions for Change in functioning

Factors (Model 1)	Overall		Change	
	R^2	p	$R^2 \Delta$	pΔ
Step 1	.022	.080	.022	.080
Worker Continuity				
Step 2 (Child Variables)	.070	.569	.224	<.001
Initial Diagnosis,			.035	.301
Initial Functioning,			.112	<.001
Initial Problem severity			.000	.938
Step 3 (Treatment Variables)	.309	.000	.063	.195
Hours Diagnostic Assessment			.018	.073
Hours Medical-somatic			.022	.050
Hours Individual Counseling			.000	.929
Hours Group Counseling			.010	.189
Hours CSP			.000	.804
Hours Partial Hospitalization			.000	.984
Corrected Hours			.000	.853
Intensity of Services			.001	.668

Factors (Model 2)	Overall		Change	
	R^2	p	$R^2 \Delta$	pΔ
Step 1	.022	.080	.022	.080
Worker Continuity				
Step 2 (Treatment Variables)	.246	.000	.048	.569
Hours Diagnostic Assessment			.011	.207
Hours Medical-somatic			.021	.088
Hours Individual Counseling			.003	.552
Hours Group Counseling			.018	.117
Hours CSP			.001	.671
Hours Partial Hospitalization			.005	.395
Corrected Hours			.002	.563
Intensity of Services			.002	.640
Step 3 (Child Variables)	.309	.000	.240	<.001
Initial Diagnosis,			.046	.148
Initial Functioning,			.107	<.001
Initial Problem severity			.002	.593

initial problem severity, hours med-somatic, and hours group counseling, for both Models 1 and 2. When change in functioning was utilized as the outcome measure, the R^2 change statistic was significant for the following variables: initial functioning for both Models 1 and 2, and hours med-somatic for Model 1.

CHAPTER IV

DISCUSSION

Relative Impact of Child Compared to Treatment Factors

Evaluating predictors of treatment outcome in children is a valuable research

endeavor, in that it facilitates understanding as to what truly impacts whether a child is

going to make a significant change with regard to symptom severity and functioning.

The present study found that, overall, children made very little change in terms of their

ability to function in everyday activities and severity of their presenting symptoms.

Although zero was the modal change for both outcome variables, there was considerable

variability across the change scores, with an almost normal distribution. The finding that

the amount of change in therapy was so highly variable intensifies the need to identify

prognostic indicators for treatment outcome.

The primary purpose of the present study was to determine if child factors are the

single best predictor of treatment outcome in children. It was hypothesized that the child

variables of initial functioning, problem severity, and diagnosis would contribute more to

the change in problem severity and change in functioning than the treatment variables of

treatment placement, types of services, treatment duration, and treatment intensity.

Results indicated that a child's initial clinical presentation was the best predictor of

treatment outcome, followed by the treatment characteristics. Although the child's initial

presentation was a consistent predictor of outcome for both severity of symptoms and

functioning, treatment characteristics significantly added to the ability to predict change in severity of symptoms.

The finding from the present study is consistent with other studies (Gabel & Shindledecker, 1991; Kazdin & Wassell, 1998; King et al., 1997; Pelkonen et al., 1990). Gabel and Shindledecker (1991) found the child variable of symptom severity, namely the presence of severe aggressive/destructive behavior, to make a more significant contribution to children's treatment outcome than treatment placement. Furthermore, Kazdin & Wassell (1998) found the child variables of initial child functioning and symptom severity to be more predictive of treatment outcome than treatment compliance. Lastly, Kachele, Kordy, and Richard found that client characteristics of motivation and diagnosis was more predictive of outcome than treatment intensity in adult anorexic inpatients.

While the finding of the present study is consistent with most findings in the research base, it is contradicted by Leone et al. (1986), who found that treatment compliance and day program status accounted for more than 50% of the variance in treatment outcome in contrast to the child variables of IQ and delinquent status. However, the authors noted that day treatment status is confounded by child factors not assessed in the study, particularly the nature and severity of the child's disordered behavior (Leone, et al., 1986).

This finding provides clinicians with a general guideline of realistic expectations to have with regard to treatment success within a child, suggesting that children with more psychologically debilitating conditions initially may not fare as well as children who are higher functioning at the outset of treatment, regardless of their treatment

experience, however there is greater room for improvement. This finding holds true regardless of the length, intensity, or type of services offered. This information is helpful to convey to parents, so they too will have realistic expectations for change. Generating realistic expectations for therapy would be important because perhaps the child would be less likely to drop out of therapy, the therapeutic bond may be strengthened, and all parties involved would be more apt to believe in the child's ability to attain his/her therapeutic potential, given the child's limitations (Shuman & Shapiro, 2002). It should be noted that characteristics of the child's treatment do in fact matter, just not to the same degree as child characteristics.

Specific Child Characteristics Which Impact Prognosis

Regarding the aforementioned child characteristics of initial problem severity, initial functioning, and diagnosis, the initial problem severity and functioning, rather than diagnosis, made the difference. Depending on the regression model, diagnosis explained 3 – 4 % of the variance in change in problem severity, compared to 11 – 13% explained by initial problem severity. Similarly, for change in functioning, diagnosis explained 3 – 5 % of the variance, compared to 11% for initial functioning. Therefore, the child's symptom severity and functioning, regardless of diagnosis, is what makes the most contribution to the amount of therapeutic change a child would make. As previously mentioned, this finding is in accordance with King et al.'s (1997) and Pelkonen et al.'s (1990) results that the child's initial functioning, rather than diagnosis, emerged as the strongest predictor of treatment outcome in children.

It was hypothesized that initial functioning would be negatively correlated with both change in functioning and change in problem severity and that initial problem

severity would be positively correlated with both change in problem severity and change in functioning. The present study's results partially confirmed this hypothesis because as the level of initial functioning decreased, the change in functioning increased. This finding suggests that if a child has a lower level of functioning to begin with, the child has more room with which to make therapeutic gains. However, initial functioning did not predict change in problem severity. This is most likely because the best predictor of change in an instrument would be the initial score on the instrument itself. In other words, because it is the same measure that provides the initial level of problem severity and functioning that the change score is also derived from, it is more highly correlated with the post-test than any other measure. The present study should have perhaps implemented an independent measure for both the initial levels of functioning and initial levels of problem severity. One possibility would have been the Global Assessment of Functioning (GAF) score from the DSM-IV five axis coding system.

The finding regarding the predictive power of initial problem severity is consistent with the literature. In comparison to other studies addressing initial problem severity as a predictor variable, results of the present study were in accordance with Sourander et al.'s (1996) finding that less severe symptomatology was associated with behavioral improvement and Grizenko et al.'s (1994) finding that less severe behavior problems were significantly predictive of more behavioral improvements within the sample.

The finding suggesting that children with lower initial functioning make more change in treatment was unexpected, but a review of the literature offers an explanation. In comparison with other studies, most studies found that if a child had a higher level of

functioning at the outset, he or she would also present better clinically at termination of treatment (King et al., 1997; Pelkonen, 1990). However, these studies did not typically use change scores as the outcome measure, which may offer an explanation as to why this finding from the present study was different from findings of previous studies. An example of one such study is that of Grizenko et al. (1994), who found that children with better initial functioning displayed the most behavioral improvements, based upon initial CGAS scores and final RCBP scores. Sourander et al. (1996) found the strongest predictor of the child's functioning at follow-up to be his or her level of global functioning at admission.

Another hypothesis was that children with less debilitating diagnoses, such as anxiety, depression, or AD/HD would have a greater change in both problem severity and functioning than those with more debilitating diagnoses, such as thought disorders, conduct disorder/antisocial behavior, and ODD. First, as was previously stated, the present study found that diagnosis made a relatively small contribution to the child's treatment outcome. Diagnosis made a difference in the amount of change in problem severity, but not in functioning. More specifically, results indicated that the change in symptom severity for a child with a diagnosis of AD/HD was significantly greater than for a child with a diagnosis of "other". "Other diagnoses" included Thought Disorder, psychoses, and substance abuse. Previous research (Blotcky et al., 1984; Grizenko et al., 1994; King et al., 1997; Pfeiffer & Strzelecki, 1990; Phillips et al., 2000; Sourander et al., 1996) has suggested that diagnosis does make a significant difference in terms of treatment outcome. Studies have found that youth with substance abuse, antisocial disorders, and psychoses have the worst outcomes (Gabel & Shindledecker, 1991). It

should be noted that the diagnoses of substance abuse and psychoses were not included in the present study as separate categories, due to their low frequency of occurrence.

The inability to isolate differences between diagnostic categories was unexpected, as the present study's sample size was larger than most. Most of the other studies examined had a limited sample size, with the average being around 60 participants, whereas the present sample had 149. In light of the present study's larger sample size, it would be expected that differences based on diagnosis would be detected, given the greater amount of statistical power. As previously mentioned, several categories of diagnoses, namely Thought Disorder, psychoses, and substance abuse, were combined to form the category "Other", due to the low frequency in the sample. Perhaps the effects of such diagnoses were attenuated by the inclusion of other diagnoses, which would result in more change.

<center>Comorbidity</center>

Much of the literature has emphasized the issue of comorbidity in terms of the effect it has on children's treatment outcomes. In the present study, the presence of a comorbid diagnosis had a negative impact on treatment outcome, but the presence of a comorbid depressive disorder did not make a difference. Most studies have found that comorbidity has a negative impact on the child's ability to achieve and sustain treatment gains, however this result varies from study to study and is largely contingent upon the nature of the comorbid condition (Phillips et al., 2000). For example, a comorbid condition of depression and either substance abuse, CD, or ODD was predictive of worse outcomes in children (Phillips et al., 2000), and in another study, children with a comorbid condition of conduct disorder had the worst outcomes (King et al., 1997).

Specific Treatment Characteristics

Only the variable of service types made a difference in treatment outcome. The present study found that the hours of med-som services was negatively associated with treatment outcome. This finding may be a function of duration, in that medication may not be working as effectively if the child has been taking it over a sizeable amount of time. Research suggests that the type of service received makes a difference in outcome (Kazdin 2002; Weisz & Jensen, 2001). Specifically, medication has been found to be more effective for the treatment of AD/HD than individual or group therapy (Barkley, 1990; MTA Cooperative Group, 1999). In terms of the specific services provided, the research has advocated a "goodness of fit" between the service type, treatment placement, and clinical severity of the child, meaning that the more severe the child's clinical presentation, the greater number of services and more restrictive placement the child receives (McDermott et al., 2002). Furthermore, the variable of group counseling was significantly positively correlated with both change in severity and change in functioning. Previous research has indicated that group therapy is effective, particularly with children and adolescents (Kleiger & Helmig, 1999; Lumpkin et al., 2002). Group therapy has unique curative factors, particularly universality and instillment of hope, that may explain its superiority to other modes of therapy.

With regard to the unique contribution of treatment duration, the study's findings indicated that treatment duration, alone, did not significantly impact therapeutic gain. Previous studies have found that treatment duration makes a significant contribution to treatment effect only in combination with other variables, including child diagnosis, treatment placement, and treatment intensity (Caton et al., 1986; Ney et al., 1987;

Pelkonen et al., 1990). In all likelihood, this is because treatment duration is largely dictated by these other characteristics, particularly intensity. Research addressing intensity, particularly for the child population, is relatively limited. Leichtman et al. (2001) found that higher intensity, shorter duration (5 weeks), residential treatment was more effective than short duration inpatient hospitalization and longer duration outpatient treatment (20 weeks). In the present study, the average intensity was .02, which averages out to one hour of therapy every other week. In terms of treatment duration, the average child spent 1 year, 3 months in therapy. When choosing the most appropriate placement for a child, the optimum combination between intensity and duration should be considered.

Impact of Change in Therapist on Outcome

In the regression sample, 62% of the children had a different worker fill out their form at intake and at the most recent administration. In terms of the present study, whether or not the same worker filled out the form did not significantly impact the amount of therapeutic change the child obtained. This may reflect a good inter-rater reliability for the *Ohio Scales*. Although it is unclear what effect a change in therapist has on the outcome of the child, the finding of such a large turnover rate at mental health agencies is concerning. Children may fare best when they have consistency in their therapeutic regimen, not only in terms of the services offered, but in terms of the therapist as well (Burns et al., 1999). Moreover, a change in therapist may alter a diagnosis with which a child is labeled, as well as the medication regimen the child is recommended.

Limitations of the Present Study

While the present study resulted in several significant findings pertaining to child and treatment factors and their relative impact on children's treatment outcomes, the study possessed several limitations as well. The model explained 34% of the variance, in terms of change in problem severity, and it explained 28% of the variance in terms of change in functioning. In essence, this means that approximately 70% of what truly accounts for the change in problem severity and functioning was not accounted for. However, Cohen (1988) contests that an r value of .25 to .40 reflects a moderate treatment effect in psychological research, but there is still a great deal of variability in outcome to be explained. A primary limitation of the present study was that several variables which would make a significant impact on treatment outcome had to be excluded from the study. Another major limitation pertained to experimental design considerations.

Variables Excluded from the Study

Previous research has suggested that a child's placement significantly impacts the therapeutic outcome of the child (Green et al., 2001; Phillips et al., 2000). The variable of treatment placement was originally in question for the present study, but was unable to be examined due to incomplete data. In this database, for the children with known placements, more than half indicated a shift in placement from time of admission during the course of treatment. Furthermore, across all studies, there was much overlap in services provided. For example, Green et al. (2000) stated that there was no difference in services among the day treatment and inpatient programs in their study, except for the residential component. The primary implication of this is that perhaps the service type is

the more direct mediator of treatment outcome in children. Perhaps the treatment placement is primarily used as a label to facilitate understanding among professionals, but may vary across locations depending on the unique services each provides.

In addition, research has suggested that variables outside of child and treatment characteristics significantly impact the child's treatment outcomes, most importantly factors pertaining to the family (Gabel & Shindledecker, 1992; Henggeler et al., 1999). Unfortunately, in the database, there was not a feasible indicator of family functioning. Moreover, research (Leone et al., 1986) has also shown treatment compliance to be significantly related to outcome. This was a variable in consideration for the present study, but the database provided no indication of whether or not a client was a "no show", nor did it provide any other indicator of compliance. Additionally, while different hours of service types were accounted for in the database, the distinguishing characteristics among service types remained largely unknown. For example, the characteristics of med-som services, as well as diagnostic assessment were not provided. Research has also suggested that therapeutic orientation is associated with outcomes (Casey & Berman, 1985; Weisz et al., 1995). For example, the literature advocates cognitive-behavioral approaches as a means to achieving therapeutic gains (Kazdin, 2002). Therapy mode was not included in the database, so it was not a variable in the present study. Furthermore, therapist characteristics have also been found to be significant mediators of treatment success, particularly for group psychotherapy (Kleiger & Helmig, 1998). Unfortunately, no information pertaining to the therapist was provided in the present study's database.

In summary, several variables that have been found to significantly impact children's treatment outcomes had to be excluded from the study, namely treatment

placement, family factors, treatment compliance, therapeutic orientation, and therapist characteristics. It is likely that these other factors account for a portion of the remaining 75% of variance that our model was unable to explain.

<center>Experimental Design Limitations</center>

In addition to the exclusion of variables that would potentially contribute to the child's treatment outcome, there were also experimental design limitations. These include the absence of a "true" experiment and measurement error.

Some research has made the distinction between efficacy and effectiveness studies (Kazdin, 2002), demonstrating the conflict between the "lab" versus the "clinic". The present study was an example of an effectiveness study, in that it involved a clinical sample from an agency in the "real world". Therefore, the ability to statistically control for certain variables was compromised. In comparing the present study to the majority of the studies examined in the literature review, this is an important consideration because a large portion of them are efficacy studies rather than effectiveness studies. Such efficacy studies have more experimental control and thus an increased capacity for finding more differences than the present study could.

Problems with the measurement of treatment outcome in the present study stem from two sources, the psychometeric properties of the *Ohio Scales* and the training level of the agency worker informant. The *Ohio Scales-short form*, has not been comprehensively evaluated in terms of its psychometric properties. To date, besides the four samples discussed in the Technical Manual (Ogles et al., 2000), only two studies have been conducted to assess the reliability and validity of the Ohio Scales. One study (Ogles et al., 2001) was conducted by the author of the questionnaire, and the other, a

dissertation project by a graduate student. The present study demonstrates a crucial need for substantiating the claim that the Ohio Scales is a reliable measure of change in problem severity and functioning. Given the finding of the present study that in more than 64% of cases, a different worker rated the child at intake from the most recent administration of the Ohio Scales, the inter-rater reliability of the instrument should be more formally assessed. It is recommended that more studies be conducted on both the reliability and validity of the Ohio Scales, as well as additional studies on the Ohio Scales, in general, before utilizing it as an outcome measure of treatment gains in children.

Measures in other studies have been consistently empirically validated, as well as widely used in clinical populations; examples of such measures include the CBCL and CAFAS (Green et al., 2001; Sourander et al., 1994). In contrast to these scales, the *Ohio Scales* lacks a cutoff score for the clinically significant range. The absence of empirical validation for the measure raises serious concerns as to the validity of the findings from the present study.

A second area of concern is that at the agency from which the data was derived, rather than the primary therapist serving as the informant, the bachelor's level treatment specialists typically fills out the problem severity and functioning scales. The treatment specialists are not independently licensed, nor do they have sufficient experience at accurately reporting children's symptom severity and functioning levels.

<u>Recommendations for Future Research</u>

In addition to empirical studies conducted on the psychometric properties and practical utility of the Ohio Scales, another suggestion for future research would be to

conduct a discriminant function analysis. Utilizing this statistical design, groups would

be divided based upon which ones achieved significant positive change, negative change,

or no change. Based upon the child and treatment factors that characterize each group,

distinguishing characteristics among instances in which children became worse, had no

change, or became better, would be determined. Not only is it important to understand

what significantly relates to positive treatment outcome in children, it would be beneficial

if we had understanding of what correlates with negative outcome in children. Another

consideration would be to compare children who showed improvement on one measure,

for example, increase in functioning level, but decline on another measure, for example,

increase in problem severity to children who improve on both measures. This was not

taken into account in the present study, but would be interesting to address in a future

study. A final topic of interest for future research would be to expand the sample of the

study to include children from middle and upper SES backgrounds. In the present study,

only children from lower SES backgrounds were represented.

<div align="center">Summary and Conclusions</div>

Despite the limitations of the present study, the study resulted in important

findings for researchers, clinicians, as well as agency administrators. There are a

multitude of factors that interplay and effect treatment outcome in children, however, a

child's initial presenting clinical picture, particularly with regard to levels of symptom

severity and functioning, are going to largely dictate the capacity for change within the

child. That being said, the clinician will be able to have a general sense of what sort of

progress he/she can expect the child to make. The successfulness of the therapeutic

intervention is largely already predetermined based upon the child's functioning and

problem severity level. The study has the underlying implication that a diagnosis, while important for professionals and medical practitioners, merely serves as a label for the underlying pathology as manifested in a child's symptom severity and debilitations in functioning. In essence, whether or not a child will improve over the long-term is largely dictated by how he/she initially presents in therapy. Based upon this finding, realistic expectations can be generated in order to help reduce burnout in clinicians, ease frustration of the parents, and prevent them from "treatment shopping" when the child does not immediately improve.

References

Barkley (1990). The treatment of AD/HD: A review. Clinical Child and Family Psychology Review, 4, 87 – 99.

Blanz, B. & Schmidt, M. (2000). Practitioner review: preconditions and outcome of inpatient treatment in child and adolescent psychiatry. Journal of Child Psychology and Psychiatry, 41, 703 – 712.

Blotcky, M., Dimperio, T., & Gossett, J. (1984). Follow-up of children treated in psychiatric hospitals: a review of studies. American Journal of Psychiatry, 141, 1499   - 1501.

Burns, B., Farmer, E., Angold, A., Costello, E. & Behar, L. (1996). A randomized trial of case management for youths with serious emotional disturbances. Journal of Consulting and Clinical Psychology, 54, 132 – 145.

Burns, B. & Friedman, R. (1990). Examining the research base for child mental health services and policy. Journal of Mental Health Administration, 17, 87 – 98.

Burns, B., Hoagwood, K., & Mrazek, P. (1999). Effective treatment for mental disorders in children and adolescents. Clinical Child and Family Psychology Review, 2, 199 – 254.

Casey, R. & Berman, J. (1985). The outcome of psychotherapy with children. Psychological Bulletin, 98, 388 – 400.

Cauce, A., Morgan, C., Wagner, V., Moore, E., Sy, J., Wurzbacher, K., Weeden, K., Tomlin, S., & Blanchard, T. (1994). Effectiveness of Intensive case management for homeless adolescents; Results of a three Month follow-up. Journal of Emotional and Behavioral Disorders, 2, 219 – 227.

Caton, C., Mayers, L., & Gralnick, A. (1986). The long-term hospital treatment of the young chronic patient: follow-up findings. The Psychiatric Hospital, 21, 25 – 30.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd Edition). New York, NY: Lawrence Erlbaum.

Cook, N. Wagner, G., March, M., Biederman, L., Landau, G., Wolkow, K. & Messig, L. (2001). Long-term sertraline treatment of children and Adolescents with obsessive-compulsive disorder. Journal of Consulting & Clinical Psychology, 7, 119 – 125.

Dierker, L. Nargiso, J. Wiseman, R., & Hoff, D. (2001). Factors predicting attrition within a community initiated system of care. Journal of Child and Family Studies, 10, 367 – 383.

Evans, M., Banks, S., Huz, S. & McNulty, T. (1994). Initial Hospitalization and Community tenure outcomes of intensive case management for children And youth with serious emotional and behavioral disabilities. Journal of Child and Family Studies, 3, 225 – 234.

Evans, M., Dollard, N. & McNulty, T. (1992). Characteristics of seriously emotionally disturbed youth with and without substance abuse in intensive case management. Journal of Child and Family Studies, 1, 305 – 314.

Farmer, E., Stangl, D., Burns, B., Costello, E., & Angold, A. (1999). Use, persistence, & intensity: patterns of care for children's mental health across one year. Community Mental Health Journal, 35, 31 – 46.

Friedman, R. (1996). The evaluation of the Fort Bragg Demonstration Project: an alternative interpretation of the findings. Journal of Mental Health Administration, 23, 128 – 136.

Gabel, S. & Shindledecker, R. (1990). Parental substance abuse and suspected child abuse/maltreatment predict outcome in children's inpatient treatment. Journal of the American Academy of Child and Adolescent Psychiatry, 29, 919 - 924.

Gabel, S. & Shindledecker, R. (1991). Adolescent psychiatric inpatients: characteristics, outcome, and comparison between discharged patients from a specialized adolescent unit and nonspecialized units. Journal of Youth and Adolescence, 21, 391 – 407.

Gadow, K. (1991). Clinical issues in child and adolescent psychopharmacology. Journal of Consulting and Clinical Psychology, 59, 842 – 852.

Garland, C., Woodruff, G., & Buck, D. (1988). Case Management. Reston, VA: Division for Early Childhood, Council for Exceptional Children.

Green, J., Kroll, L., Imrie, D., Frances, E., Begum, K., Harrison, L., & Anson, R. (2001). Health gain and outcome predictors during inpatient and related day treatment in child and adolescent psychiatry. Journal of the American Academy of Child and Adolescent Psychiatry, 40, 325 - 332.

Grizenko, N., Sayegh, L., & Papineau, D.(1994). Predicting outcome in a mutimodal day treatment program for children with severe behavior problems. Canadian Journal of Psychiatry, 39, 557 – 561.

Gottheil, E., McLellan, T., & Druley, K. (1992). Length of stay, patient severity and treatment outcome: sample data from the field of alcoholism. Journal of Studies on Alcohol, 53, 69 – 75.

Henggeler, S., Rowland, M., Randall, J., Ward, D., Pickrel, S., Cunningham, P., Miller, S., Edwards, J., Zealberg, J., Hand, L., & Santos, A. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youths in psyhiatric crisis: clinical outcomes. Journal of the American Academy of Adolescent Psychiatry, 38, 1331 - 1339.

Kachele, K., Korde, H., & Richard, P. (2001). Mediators of treatment success for Anorexic inpatients. Zeitscrift fuer Psychologie, 42, 899 – 906.

Kazdin, A. (2002) Effectiveness of psychotherapy with children and adolescents. Journal of Consulting and Clinical Psychology, 59, 785 – 798.

Kazdin, A., Esvelt-Dawson, D., French, W., & Unis, A. (1990). Empirical and clinical focus of child and adolescent psychotherapy research. Journal of Consulting and Clinical Psychology, 58, 729 – 740.

Kazdin, A. & Wassell, G. (1998). Therapeutic changes in children, parents, and families resulting from treatment of children with conduct problems. Journal of the American Academy of Child and Adolescent Psychiatry, 37, 1414 – 1420.

Kazdin, A. & Wassell, G. (2000). Predictors of barriers to treatment and therapeutic change in outpatient therapy for antisocial children and their families. Mental Health Services Research, 2, 27 – 40.

Kearney, M. & Silverman, P. (1998). Treatment interventions for childhood anxiety. Journal of Consulting and Clinical Psychology, 42, 187 – 194.

Kessler, K., Edelman, K., Janeway, R., Orlowski, D., Pietrobono, B., Kymissis, & N. (2000). The effect of stress management group therapy on patients on an adolescent psychiatric unit. Journal of Child and Adolescent Group Therapy, 10, 151 – 158.

King, C., Hovey, J., Brand, E., & Ghaziuddin, N. (1997). Prediction of positive outcomes for adolescent psychiatric inpatients. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 1434 – 168.

Kleiger, J. & Helmig, L. (1999). Evolution of a group therapy model for adolescent residential treatment. Journal of Child & Adolescent Group Therapy, 9, 187 – 197.

Kutash, K. & Rivera, V. (1996). What Works in Children's Mental Health Services? Baltimore, MD: Brookes Publishing.

Lambert, E., Brannan, A., Breda, C., Heflinger, C. & Bickman, L. (1998). Common patterns of service use in children's mental health. Evaluation and Program Planning, 21, 47 – 57.

Lambert, W., Salzer, M. & Bickman, L. (1998). Clinical outcome, consumer satisfaction, and ad hoc ratings of improvement in children's mental health. Journal of Consulting and Clinical Psychology, 66, 270 – 279.

Leichtman, M., Leichtman, M., Barber, C., & Neese, D. (2001). Effectiveness of intensive short-term residential treatment with severely disturbed adolescents. American Journal of Orthopsychiatry, 71, 227 – 235.

Leone, P., Fitzmartin, R., Stetson, F., & Foster, J. (1986). A retrospective follow-up of behaviorally disordered adolescents: identifying predictors of treatment outcome. Behavioral Disorders, 87 – 97.

Lomonaco, A., Scheidlinger, S. & Aronson, S. (2002). Five decades of children's group treatment: An Overview. Journal of Child and Adolescent Group Therapy, 10, 77 – 96.

Lumpkin, A. Silverman, J., Weems, R., Markam, L. & Kurtines, T. (2002). Clinical outcome of youth with anxiety disorders receiving cognitive-behavioral group psychotherapy. Journal of Child and Adolescent Group Therapy, 12, 142 – 148.

McDermott, B., McKelvey, R., Roberts, L.& Davies, L. (2002). Severity of children's psychopathology and impairment and its relationship to treatment setting. Psychiatric Services, 53, 57 – 62.

Multimodal Treatment of AD/HD (MTA) Cooperative Group. (1999). Collaborative Multimodal Treatment Study of Children with AD/HD. Washington DC, NIMH.

National Comorbidity Survey (1999). Results from the MECA sample. Washington DC, NIMH.

Ney, P., Adam, R., Hanton, B., and Brindad, E. (1987). The Effectiveness of a Child Psychiatric Unit: A follow-up study. Canadian Journal of Psychiatry, 33, 793 – 799.

Ogles, B., Melendez, G., Davis, D., & Lunnen, K. (2000). The Ohio Youth Problem, Functioning, and Satisfaction Scales: Technical Manual. Ohio Mental Health Consumer Outcomes Initiative.

Ogles, B., Davis, D., & Lunnen, K. (2001). The interrater reliability of four measures of functioning. Journal of Community Psychology, 16, 306 – 316.

Paulson, M. Gratton, B. Stuntzer-Gibson, A. & Summers, T. (1995). Follow-up of youth in case management services: The Partner's Project. Journal of Consulting & Clinical Psychology, 48, 125 – 137.

Pelkonen, M. (1990). Inpatient psychiatric adolescents function better than expected after discharge: a follow-up study. Scandanavian Journal of Psychiatry, 81, 317 – 321.

Pelkonen, M., Marttunen, M., Laippala, P., & Lonnqvist, J. (2000). Factors associated with early dropout from adolescent psychiatric outpatient treatment. Journal of the American Academy of Child and Adolescent Psychiatry, 39, 329 – 336.

Pfeiffer, S. & Strzelecki, S. (1990) Inpatient psychiatric treatment of children and adolescents: a review of outcome studies. Journal of the American Academy of Child & Adolescent Psychiatry, 29, 847 - 853.

Philips, S., Hargis, M., Kramer, T., Lensing, S., Taylor, J., Burns, B., & Robbins, J. (2000). Toward a level playing field: predictive factors for the outcomes of mental health treatment for adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 39, 1485 - 1495.

Riddle, M., Kastelic, E. & Frosch, E. (2001). Pediatric Psychopharmacology. Journal of Child Psychology and Psychiatry, 42, 73 – 90.

Rohde, J. Clarke, M., Lewinsohn, T., Seeley, P., & Kaufman, A. (2001). Cognitive-behavioral group therapy for depressed adolescents. Journal of Child & Adolescent Group Therapy, 8, 33 – 40.

Roberts, R. & Attkisson, C. (1998). Prevalence of psychopathology among children and adolescents. American Journal of Psychiatry, 55, 715 – 725.

Shuman, A. & Shapiro, J. (2002). The effects of preparing parents for child psychotherapy on accuracy of expectations and treatment attendance. Community Mental Health Journal, 38, 3 – 16.

Sourander, A., Helenius, H., & Piha, J. (1996). Child psychiatric short-term inpatient treatment: CGAS as follow-up measure. Child Psychiatry and Human Development, 27, 93 – 103.

Stroul, B. & Friedman, R. (1986). A System of Care for Children and Youth with Severe Emotional Disturbances. Washington, DC: Georgetown University Press.

Stroul, B. & Goldman, (1990). Study of community-based services for children And adolescents who are severely emotionally disturbed. Journal of Mental Health Administration, 17, 61 – 77.

Tuma, J. (1989). Mental health services for children: The state of the art. American Psychologist, 44, 188 – 199.

Van de Weil, A., Matthys, P., Cohen-Kettenis, L., & van England, R. (2002). Psychotropic interventions for youth with Conduct Disorder. Journal of Child Psychology & Psychiatry, 45, 112 – 119.

Weersing, V. & Weisz, J. (2002). Mechanisms of action in youth psychotherapy. Journal of Child Psychology and Psychiatry, 43, 3 – 29.

Weisz, J., Donenberg, G., Han, S., & Weiss, B. (1987). Effectiveness of psychotherapy with children and adolescents; a meta-analysis for clinicians. Journal of Consulting and Clinical Psychiatry, 55, 542 – 549.

Weisz,, B. & Weiss, J. (1995). Effectiveness of psychotherapy. Journal of American Academy of Child and Adolescent Psychiatry, 34, 971 – 972.

Weisz, B. & Jensen (2001). Effects of psychotherapy with children and Adolescents revisited: A meta-analysis of treatment outcomes studies. Psychological Bulletin, 117, 450 – 468.

APPENDIX A

Ohio Scales – short form (W)

Ohio Mental Health Consumer Outcomes System
Ohio Youth Problem, Functioning, and Satisfaction Scales

W

Agency Worker Rating – Short Form

Child's Name: _____ Date: _____ Child's Grade: _____ ID#: _____

Child's Date of Birth: _____ Child's Sex: ❑ Male ❑ Female Child's Race: _____

Form Completed By: _____ ❑ Case Manager ❑ Therapist ❑ Other: _____

Instructions: Please rate the degree to which the designated child has experienced the following problems in the past 30 days.	Not at All	Once or Twice	Several Times	Often	Most of the Time	All of the Time
1. Arguing with others	0	1	2	3	4	5
2. Getting into fights	0	1	2	3	4	5
3. Yelling, swearing, or screaming at others	0	1	2	3	4	5
4. Fits of anger	0	1	2	3	4	5
5. Refusing to do things teachers or parents ask	0	1	2	3	4	5
6. Causing trouble for no reason	0	1	2	3	4	5
7. Using drugs or alcohol	0	1	2	3	4	5
8. Breaking rules or breaking the law (out past curfew, stealing)	0	1	2	3	4	5
9. Skipping school or classes	0	1	2	3	4	5
10. Lying	0	1	2	3	4	5
11. Can't seem to sit still, having too much energy	0	1	2	3	4	5
12. Hurting self (cutting or scratching self, taking pills)	0	1	2	3	4	5
13. Talking or thinking about death	0	1	2	3	4	5
14. Feeling worthless or useless	0	1	2	3	4	5
15. Feeling lonely and having no friends	0	1	2	3	4	5
16. Feeling anxious or fearful	0	1	2	3	4	5
17. Worrying that something bad is going to happen	0	1	2	3	4	5
18. Feeling sad or depressed	0	1	2	3	4	5
19. Nightmares	0	1	2	3	4	5
20. Eating problems	0	1	2	3	4	5

(Add ratings together) Total _____

ROLES: Enter the number of days the youth was placed in each of the following settings during the past 90 days. (For example, the youth may have been in a detention center for 3 days, a group home for 7 days and with the biological mother for 80 days.)

_____	Jail	_____	Foster Care
_____	Juvenile Detention Center	_____	Supervised Independent Living
_____	Inpatient Psychiatric Hospital	_____	Home of a Family Friend
_____	Drug/Alcohol Rehabilitation Center	_____	Adoptive Home
_____	Medical Hospital	_____	Home of a Relative
_____	Residential Treatment	_____	School Dormitory
_____	Group Emergency Shelter	_____	Biological Father
_____	Residential Job Corp/Vocational Center	_____	Biological Mother
_____	Group Home	_____	Two Biological Parents
_____	Therapeutic Foster Care	_____	Independent Living with Friend
_____	Individual Home Emergency Shelter	_____	Independent Living by Self
_____	Specialized Foster Care	**90**	(*Total for the two columns should equal 90*)

Markers:

School Placement: _____

Current Psychoactive Medications: _____

_____

	Number in Past 90 Days
Arrests	_____
Suspensions from school	_____
Days in Detention	_____
Days of School Missed	_____
Self-Harm Attempts	_____

Instructions: Please circle the number corresponding to the designated youth's current level of functioning in each area.

	Extreme Troubles	Quite a Few Troubles	Some Troubles	OK	Doing Very Well
1. Getting along with friends	0	1	2	3	4
2. Getting along with family	0	1	2	3	4
3. Dating or developing relationships with boyfriends or girlfriends	0	1	2	3	4
4. Getting along with adults outside the family (teachers, principal)	0	1	2	3	4
5. Keeping neat and clean, looking good	0	1	2	3	4
6. Caring for health needs and keeping good health habits (taking medicines or brushing teeth)	0	1	2	3	4
7. Controlling emotions and staying out of trouble	0	1	2	3	4
8. Being motivated and finishing projects	0	1	2	3	4
9. Participating in hobbies (baseball cards, coins, stamps, art)	0	1	2	3	4
10. Participating in recreational activities (sports, swimming, bike riding)	0	1	2	3	4
11. Completing household chores (cleaning room, other chores)	0	1	2	3	4
12. Attending school and getting passing grades in school	0	1	2	3	4
13. Learning skills that will be useful for future jobs	0	1	2	3	4
14. Feeling good about self	0	1	2	3	4
15. Thinking clearly and making good decisions	0	1	2	3	4
16. Concentrating, paying attention, and completing tasks	0	1	2	3	4
17. Earning money and learning how to use money wisely	0	1	2	3	4
18. Doing things without supervision or restrictions	0	1	2	3	4
19. Accepting responsibility for actions	0	1	2	3	4
20. Ability to express feelings	0	1	2	3	4

January 2000 (Worker-2)   **(Add ratings together) Total _____**

APPENDIX B

Informed Consent from Agency Worker

ST. JOSEPH
CHILDREN'S TREATMENT CENTER

Where Hope Lives

May 28, 2002

The University of Dayton
Attn: IRB
300 College Park Avenue
Dayton, Ohio 45469

Dear Sir or Madam:

Angela M. Breitmeyer has submitted her Thesis proposal "The Effects of Child and Treatment Factors on Children's Treatment Outcomes" , senior management staff and I have reviewed the proposal and agree to have here examine our data and use the data for her Thesis.

Ms. Breitmeyer shall have access to the files for the purpose of gathering the data. She is a paid intern and thus an employee of the agency and is covered by our confidentiality policy. She shall be the only person connected to the thesis project who shall have access to the individual client data. The Thesis shall report only aggregate data and no personal identification of individual clients will occur.

This project poses no risk to individual client confidentiality.

If You have any questions please feel free to contact me.

Sincerely,

William E. Crider, MS, LPCC
Director of Quality Improvement

Cc: Beth Detrich, AED

MAIN CAMPUS
650 St. Paul Avenue
Dayton, OH 45410
Tel: (937) 254-3562
Fax: (937) 254-6777

KETTERING
2555 S. Dixie Dr.
Dayton, OH 45409
Tel: (937) 294-7896
Fax: (937) 294-3568

CINCINNATI
THE EDGECLIFF
2200 Victory Parkway
Cincinnati, OH 45206