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Examining the Influence of Callous-Unemotional Traits on Outcomes in an Evidence-based
Treatment Program for Delinquent Adolescents

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Developmental Psychology

by

Stuart F. White

B.A. George Washington University, 2004

M.A. John Jay College of Criminal Justice, City University of New York, 2006

May, 2010

Dedication

I would like to dedicate this dissertation to my grandfather, George H. “Jack” White. You are the foundation upon which two generations of success are built.

Acknowledgement

First, I would like to acknowledge the families who participated in this study, Dr. Daliah Bauer, Ph.D. of the Jefferson Parish Human Services Authority, the staff of JPHSA, particularly the therapeutic staff and Lindsay Hall. Furthermore, I'd like to acknowledge Dr. John Ryals and the Jefferson Parish Department of Juvenile Services. The commitment of these individuals to serving the families of Jefferson Parish is commendable and without them, this project would not have been possible.

I also would like to thank Keisha Slaughter, Emily Kuhn and Ashley Generose for their invaluable assistance with data collection.

Additionally, I would like to acknowledge my parents, Susan and Gerry White, without whom none of this would have been possible. Their good example, sage advice and unwavering emotional, intellectual and financial support, have been instrumental in all the success that I have enjoyed thus far.

I would also like to acknowledge my sister Nicola for always keeping me honest and being there to push me and Kim for believing in and supporting me unconditionally throughout this whole process.

I would like to acknowledge all of those who served as committee members in this process, Drs. Lisa J. Evans, Ph.D., R. Trent Haines, Ph.D., Robert D. Laird, Ph.D., Monica Ann Marsee, Ph.D. and Carl F. Weems, Ph.D., for all of their hard work and assistance along the way. Also, I would like to acknowledge the faculty and staff of the Psychology Department of the University of New Orleans.

Finally, I would like to acknowledge Dr. Paul J. Frick, Ph.D. Whatever I accomplish professionally will be because he showed me how things should be done.

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Abstract

The current study was an investigation of the effectiveness of Functional Family Therapy (FFT) for improving the mental health, behavioral, and legal outcomes for justice-involved adolescents. A primary focus of the investigation was on whether Callous-Unemotional (CU) traits moderated the effects of treatment and whether therapists tailored the intervention to youths with these traits. The sample was 134 youths (15.34 years) who had been arrested and referred to a community mental health center for treatment by trained FFT therapists. Results indicated modest improvement over the course of treatment in the youths' emotional and behavioral functioning. CU traits were found to moderate treatment effects, wherein CU traits were associated with greater emotional and behavioral dysfunction prior to treatment, as well as greater improvement after treatment. However, CU traits also predicted greater self-reported, but not official reports, of delinquency at follow-up. Furthermore, results indicated some evidence for diverging treatment processes for youth with and without CU traits. Specifically, differences in response to changes in negative parenting varied between youth high and low on CU traits for some measures of emotional and behavioral functioning. Overall, FFT was found to be a promising treatment approach, but significant limitations in its effectiveness were also documented.

Key Words: Callous-Unemotional Traits, Delinquency, Antisocial Behavior, Psychopathy, Treatment

Examining the Influence of Callous-Unemotional Traits on Outcomes in an Evidence-based Treatment Program for Delinquent Adolescents

The cost of juvenile delinquency and crime in the United States is enormous. The estimated cost of a high-risk youth to society, including educational, treatment, and incarceration costs, is approximately \$1.7-2.3 million (Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen & Farrington, 2008). Given the high costs of crime to society, a huge amount of resources is dedicated to combating juvenile crime, yet a number of studies have found very small or non-existent rates of success in treating juvenile offenders (e.g. Henggeler, 1989; Lipsey, 1995). More recently, there has been a push towards using empirically-based, proven treatments (Kazdin & Weisz, 2003), including Functional Family Therapy (FFT; Barnowski, 2004). In addition to this move towards empirically-supported treatments, there has been an increased awareness that antisocial youth do not comprise a homogenous group (e.g. Frick, 2006; Moffitt, 1993).

One important construct contributing to this heterogeneity is psychopathy. The construct of psychopathy in adults has proven to designate a particular severe and violent group of antisocial adults (Hemphill, 2007; Porter & Woodworth, 2006) and a group of adults who seem to have distinct causal processes leading to their antisocial behavior (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Patrick, 2007). There is still substantial debate about how many dimensions best capture the construct of psychopathy in adult samples (see for a discussion Cooke, Michie, & Hart, 2006). However, at least three dimensions consistently emerge, one of which includes Callous-Unemotional (CU) traits and has been variously labeled as “deficient affective experience” (Cooke et al., 2006) or the “affective factor” (Hare, 2003). The other two dimensions include a) an arrogant and deceitful interpersonal style involving a narcissistic view

of one's self and conning and manipulative behavior and b) an impulsive and irresponsible behavioral style involving poorly planned behavior and proneness to boredom. Of particular importance are the findings suggesting that callous-unemotional traits in particular delineate a group of youth that is not only more severe and chronic in their antisocial behavior (Frick & Dickens, 2006), but that also does not respond to the same treatment modalities as other antisocial youth (Hawes & Dadds, 2005; 2007; Waschbusch, Carrey, Willoughby, King & Andrade, 2007).

Callous-Unemotional Traits and Severity and Stability of Antisocial Behavior

The association between psychopathy and severe, stable antisocial behavior is well documented (Edens, Campbell, & Weir, 2007; Frick & Dickens, 2006; Lynam & Salekin, in press; Salekin, 2008). For example, Leistico, Salekin, DeCoster and Rogers (2008) conducted a large scale meta-analysis on psychopathy, examining 95 studies looking at both adult and adolescents ($N_{\text{total}} = 15,826$; $N_{\text{adolescents}} = 2553$). Adolescents scoring high on psychopathy scales were more likely to reoffend in the future, with an effect size of $d = .50$ for overall recidivism and effect sizes of $d = .47$ and $d = .59$ for violent and non-violent recidivism, respectively.

Frick and White (2008) conducted a review comparing CU traits to other dimensions of psychopathy in terms of their association with conduct problems, aggression, and delinquency. Overall, CU traits were less strongly associated with conduct problem measures compared to narcissism and impulsivity. Further, all three dimensions generally showed similar associations with aggression and delinquency. However, CU traits seemed to be most useful in designating a distinct group within antisocial youth who were more severely aggressive and violent (Enebrink, Anderson, & Langstrom, 2005; Frick, Cornell, Barry, Bodin & Dane, 2003; Kruh, Frick, & Clements, 2005), initiated their delinquency at an earlier age (Christian, Frick, Hill, Tyler &

Frazer , 1997; Frick, Stickle, Dandreaux, Farrell & Kimonis, 2005; Silverthorn, Frick & Reynolds, 2001), and were at increased risk for future offending (Pardini, Obradovic, & Loeber, 2006; Salekin, Ziegler, Larrea, Anthony & Bennett, 2003). Examining CU traits exclusively, Frick and Dickens (2006) reported on a qualitative review of 24 published studies using 22 independent samples. Ten of these studies showed a concurrent association between CU traits and measures of aggressive, antisocial, or delinquent behavior and 14 studies showed a predictive relationship with follow-up intervals ranging from 6 months to 10 years.

Importantly, CU traits are relatively stable across development. Moderate stability ($r = .55$) has been found over a one year span in children as young as 4 (Dadds, Frazer, Frost & Hawes, 2005). Burke, Loeber and Lahey (2007) found that CU traits at age 7-12 were predictive of psychopathic traits at age 24. Furthermore, other studies have found stability of CU traits between late childhood and adulthood using a number of different assessment modalities, including self-report (Munoz & Frick, 2007), parent report (Frick, Kimonis, Dandreaux & Farrell, 2003) and both parent and teacher report (Obradovic, Pardini, Long & Loeber, 2007). Of note, however, is a consistent pattern of change over these time periods in the overall levels of CU traits. That is, few youth develop high levels of these traits later in development but a significant number of youth show a decrease in the level of these traits. This decrease has been associated with less conduct problems, higher parental socio-economic status, and better quality of parenting (Frick et al., 2003; Lynam, Caspi, Moffitt, Loeber & Stouthamer-Loeber, 2007).

Callous-Unemotional Traits and Treatment Response

A number of studies suggest that psychopathic traits in both adults (Ogloff, Wong & Greenwood, 1990) and in youths (Falkenbach, Poythress & Heide, 2003; Gretton, McBride, Hare, Shaughnessy & Kumka, 2001; O'Neill, Lidz & Heilbrun, 2003; Spain, Douglas, Poythress

& Epstein, 2004) are related to poorer treatment outcomes in adjudicated settings. In a sample of adjudicated adolescents, O'Neill, Lidz and Heilbrun (2003) reported that psychopathic traits, as measured by the PCL:YV (Forth, Kosson & Hare, 2003), were positively correlated with greater attrition rates, poorer quality of participation, increased substance abuse and decreased overall clinical improvement. Similar findings were reported by Gretton and colleagues for a sample of incarcerated adolescent sex offenders (Gretton, McBride, Hare et al., 2001). Poythress and his colleagues reported that several different measures of psychopathic traits, including the PCL:YV (Forth, Kosson & Hare, 2003), the Childhood Psychopathy Scale (Lynam, 1997) and the Antisocial Process Screening Device (Frick & Hare, 2001) were associated with poorer treatment outcomes in terms of time to treatment level promotion, treatment level demotion (Spain, Douglass, Poythress & Epstein, 2004) and program failure (Falkenbach, Poythress & Heide, 2003) in two samples of adjudicated youth.

In a clinical referred sample, Hawes and Dadds (2005) examined a sample of 56 families, each with a boy aged 4 to 8 (mean= 6.29), participating in a parent focused intervention for severe conduct problems. CU traits were associated with greater conduct problems at pretreatment and these youth were found to have poorer treatment outcomes at 6 month follow-up. Specifically, the authors found that the boys high on CU traits were less responsive to this intervention and attributed this to the fact that children with CU traits showed less emotional responses to the time-out punishment procedures. Hawes and Dadds (2007) published an extension of these results with additional follow-up data. They reported that the intervention did reduce the level of CU traits but the stability of CU traits across treatment was negatively associated with poorer outcomes.

From these studies, there is evidence that youth with CU traits may be more difficult to

treat than other delinquent youth or other children with conduct problems. However, there is evidence that treatments are not completely ineffective. Waschbusch and colleagues examined a small sample of youth (n=37) with ADHD and conduct problems, with and without high levels of CU traits (Waschbusch, Carrey, Willoughby, King & Andrade, 2007). The children high on CU traits were found to be less responsive to behavior therapy; however, these differences in responsiveness disappeared when appropriately administered stimulant medication treatment was added to the behavioral intervention (Waschbusch et al., 2007). Furthermore, Hawes and Dadds (2005) reported that while a time-out intervention was less effective for youth high on CU traits in their parenting program, reward based strategies were equally effective for youth with and without CU traits. Studies such as these have contributed to the growing body of literature which suggest that there are distinct causal processes involved in the development of antisocial behavior in those with and without CU traits that may need to be considered in interventions (Frick & White, 2008).

Different Correlates to Callous-Unemotional Traits

CU traits have a number of distinct emotional, personality and cognitive correlates that are important for distinguishing between groups of antisocial youth and for understanding developmental pathways to antisocial behavior (Frick & White, 2008). Antisocial youth with high levels of CU traits have difficulties processing emotional stimuli, including, pictures (Kimonis, Frick, Fazekas & Loney, 2006), words (Loney, Frick, Clements, Ellis & Kerlin, 2003), vocal tones (Blair, Budhani, Colledge & Scott, 2005) and facial expressions (Blair, Colledge, Murray & Mitchell, 2001; Dadds, Fraser, Frost & Hawes, 2005). Additionally, deficits in verbal IQ, that have been consistently associated with delinquency and antisocial behavior, have not been consistently found in youth with high levels of CU traits (Salekin, Neumann, Leistico &

Zalot, 2004). CU traits have also been associated with sensation-seeking behaviors (Essau, Sasagawa & Frick, 2006a) and low levels of anxiety and neuroticism (Andershed, Gustafson, Kerr & Statin, 2002).

Of particular importance for the non-pharmacological treatment of conduct problems is the differential relationship between parenting and antisocial behavior in those antisocial youth with and without high levels of CU traits. Failures in parental socialization is a central component of most theories developed to explain the etiology conduct problems (e.g., Patterson, Reid, & Dishion, 1992) and ineffective parenting strategies have been repeatedly linked to the development of antisocial behavior in a large number of studies (Frick, 1998; Loeber & Stouthamer-Loeber, 1986). However, there is evidence to suggest that that the association between conduct problems and dysfunctional parenting practices may be different for youth with and without high levels of CU traits. Wootton, Frick, Shelton and Silverthorn (1997) studied a sample of both non-referred and clinic-referred youth ages 6 to 13. They studied the dimensions of parenting that have been most consistently related to conduct problems and delinquency in past research (Shelton, Frick, & Wootton, 1996): low parental involvement, failure to use positive reinforcement, poor monitoring and supervision, inconsistent discipline, and use of corporal punishment. They reported that a composite of these dysfunctional parenting practices showed an interaction with CU traits in predicting conduct problems in this pre-adolescent sample. Specifically, these ineffective parenting strategies were strongly related to conduct problems in children without these traits but unrelated to conduct problems in children high on CU traits.

These findings have been replicated in several different samples. Oxford, Cavell and Hughes (2003) found a similar interaction between CU traits and ineffective parenting for

predicting conduct problems in a sample of 243 second and third grade students recruited for a program designed to prevent later substance abuse and delinquency. Hipwell, Pardini, Loeber, Sembower, Keenan & Southamer-Loeber (2007) also replicated this interaction in a large ($n = 990$) sample of young girls (ages 7 to 8). Specifically, a measure of harsh parenting was highly ($r = .47$) related to conduct problems in girls low on CU traits but only moderately related ($r = .33$) in girls moderate on CU traits and weakly related ($r = .19$) in girls high on CU traits. Finally, Edens, Skopp, and Cahill (2008) reported that harsh and inconsistent discipline was associated with more conduct problems but only in adolescents low on CU traits in a sample of 76 juvenile offenders (mean age 15.63). Interestingly, Edens et al specifically tested whether this moderation of the association between parenting and conduct problems was due to the CU dimension or whether other dimensions of psychopathy also showed this effect and found that the moderation effect was only found for the CU dimension.

This relatively consistent body of evidence suggests that conduct problems are more strongly related to many types of ineffective parenting practices in the absence of CU traits. It is important to note, however, that these findings should not be interpreted to suggest that other parenting dimensions or other factors within the family context may not be related to conduct problems in youth high CU traits. It is possible that the dimensions of parenting that have been studied in this body of research (i.e., methods of parental socialization) are less related to conduct problems in youth with CU traits but that other aspects of parenting (e.g., the parent-child relationship) could still play an important role in the development and maintenance of conduct problems in these youth (Fowles & Kochanska, 2000; Lynam, Loeber & Stouthamer-Loeber, 2008; Robison, Frick, & Morris, 2005). Furthermore, these findings do not necessarily suggest that parental socializations practices may not influence the onset or stability of the CU

traits themselves. For example, Frick, Kimonis, Dandreaux, and Farrell (2003) showed that more effective parental socialization practices were related to a decrease in the level of CU traits in children over a four-year study period.

Temperament and Conscience Development

The relationship between parenting and CU traits may be best understood in the greater context of temperament and conscience development. Many of the characteristics of youth with CU traits closely resemble a temperament that has been described as behaviorally uninhibited or fearless (Frick & Morris, 2004; Pardini, 2006). For example, Kagan, Reznik and Snidman (1988) define behaviorally inhibited children as being shy, quiet, timid and skittish in unfamiliar settings, while behaviorally uninhibited children are sociable, talkative and affectively spontaneous in novel situations and when exposed to new people. Further, uninhibited children tend to seek out novel and dangerous activities and show less physiological arousal to unfamiliar people and circumstances. Similarly, Rothbart and colleagues have identified a similar temperamental dimension referred to as “fearfulness” (Rothbart, 1981). Originally conceptualized as “approach” by Thomas, Chess, Birch, Hertzog and Korn (1963), this dimension deals with reactions to novel or intense stimuli, with children falling on a continuum between low reaction to novel stimuli (fearless temperament) and high reaction to novel stimuli (fearful temperament). Many of these characteristics of behaviorally uninhibited and fearless children are quite consistent with some of the emotional and cognitive characteristics identified in youth with CU traits (see White & Frick, in press, for a review).

Importantly, there is also evidence that children with this uninhibited or fearless temperament score lower on measures of conscience development (Asendorpf & Nunner-Winkler, 1992; Kochanska, DeVet, Goldman, Murray, & Putnam, 1994; Kochanska, Gross, Lin,

& Nichols, 2002). This association is found when the temperament is measured using behavioral measures of fearful inhibitions (e.g., avoidance of novel, strange, or threatening stimuli) and when it is measured using psychophysiological indexes of reactivity to threatening stimuli (Fowles & Kochanska, 2000). Further, this link has also been documented in prospective studies, with a measure of fearlessness in toddlers predicting parent ratings of guilt and shame at ages 6 and 7 (Rothbart, Ahadi & Hershey, 1994).

Based on these findings, Kochanska (1993) proposed a theory to explain how behaviorally inhibited and behaviorally uninhibited temperaments can influence the development of conscience. She proposed that the anxiety and discomforting arousal that follow wrong-doing and punishment are integral in the development of an internal system that functions to inhibit misbehavior, even in the absence of the punishing agent. Kochanska (1991) labels the negative arousal prompted by prohibited behaviors as “deviation anxiety”. In order to avoid experiencing this deviation anxiety, children learn to adopt the behaviors deemed appropriate by major socializing agents, such as parents and teachers. Kochanska (1993) proposed that behaviorally inhibited children are predisposed to experience higher rates of this deviation anxiety, whereas fearless and behaviorally uninhibited children are not. Thus, the low level arousal may impede conscience development. Dadds and Salmon (2003) proposed a similar model that also focused on the child’s responsiveness to parental socialization attempts and, in particular, their sensitivity to punishment.

There are several findings that support this emphasis on differences in the child’s responsivity to rewards and punishment for understanding the development of CU traits and in explaining their severe and stable pattern of antisocial and aggressive behavior. First, Kochanska and colleagues (Fowles & Kochanska, 2000; Kochanska, 1995; 1997) demonstrated that

relatively fearless children did not show enhanced conscience development when they were exposed to mild, consistent, and low-power assertive parenting that was most effective for other children (Fowles & Kochanska, 2000; Kochanska 1995; 1997). Presumably, such parenting measures did not result in the level of deviation arousal that would be necessary to internalize parental norms. Second, in a sample of 169 detained adolescents (ages 11 to 18), Pardini (2006) reported that scores on a measure of fearlessness were correlated with a measure of CU traits but this association was mediated by a measure of punishment insensitivity. Further, the associations of both the fearless temperament and punishment insensitivity with violent delinquency were mediated by the youth's level of CU traits.

Successful Treatments for Antisocial Behavior: A Multi-Component Approach

As it becomes clearer that parenting practices impact certain groups of children in different ways, and that CU traits can be used to make this distinction, the need for treatment modalities that address these differences becomes more apparent. Programs like the Parent Management Training Oregon Model (Patterson, Reid, Jones & Conger, 1975) have been found to be successful in treating antisocial behavior (Eyberg, Nelson & Boggs, 2008), but they do not consider that there may be certain subgroups of antisocial youth who may require different approaches to intervention.

Thus, it is not surprising that the treatments currently identified as being efficacious for severely antisocial adolescents are multi-component treatments (Eyberg, Nelson & Boggs, 2008). Multi-component treatments are based on Bronfenbrenner's social ecological theory (Bronfenbrenner, 1979), viewing humans as being embedded within a multitude of interconnected systems, including family and community and social institutions, such as school and the justice system (Henggeler & Lee, 2003). Multi-component treatments take into account

relevant variables across these multiple systems and attempt to intervene in a coordinated fashion across all relevant domains (Henggeler & Lee, 2003).

There are several examples of multi-component therapies that are current in use and have evidence to support their effectiveness. The Oregon Multidimensional Treatment Foster Care (MTFC; Chamberlain & Smith, 2003) was developed as an alternative to residential institutionalization for antisocial adolescents. In this program, adolescents are placed in foster home for 6 to 9 months with specially trained foster parents. These foster parents, in conjunction with a behavior support specialist, institute a highly structured behavior management system with a token economy. The youth also meet with the behavior support specialist in community settings to generalize behaviors reinforced in the foster home. Additionally, youth receive psychiatric intervention, individual therapy, anger management, problem-solving skills treatment and educational/vocational assistance. Finally, the biological parents, or other post-treatment placement caregiver, receive intensive parenting training. Thus, MTFC includes multiple approaches to treating antisocial behavior. However, in this approach, the intervention is not individualized across youth; that is, all youth are treated in the same fashion.

Another successful multi-component therapy, but one that is individualized across youth, is Multisystemic Therapy (MST; Henggeler & Lee, 2003). Treatments and procedures in MST are very flexible and are tailored to individual families and include individual, family, and community-based interventions. Possible treatments include cognitive-behavioral and behavioral treatments, parenting training and psychiatric interventions. Given the diversity of possible responses to antisocial behavior, MST is defined by an adherence to a group of core principles, rather than to a particular treatment strategy. MST examines each families current social environment; emphasizes family strengths; focuses on both increasing prosocial behavior

and decreasing antisocial behavior; addresses straightforward problems that families can easily monitor; engages appropriate community resources; supplies interventions that are intensive and require sustained effort by both the youth and the family; and promotes generalization of prosocial attitudes by teaching skills required for success in multiple contexts and by providing close monitoring and feedback to families.

Both MST and MTFC are considered empirically-supported treatments of antisocial behavior. MTFC has been found to be effective in two controlled studies involving 12-17 year olds with chronic histories of delinquency (Chamberlain & Reid, 1998; Leve, Chamberlain & Reid, 2005). Effect sizes in favor of treatment were greater than .20 in both studies for 7 of 8 outcome variables (Chamberlain & Reid, 1998; Leve, Chamberlain & Reid, 2005 as cited in Eyberg, Nelson & Boggs, 2008). A total of five controlled studies of MST have been conducted. While one study did not find significant treatment group/control group differences (Henggeler, Pickrel & Brondino, 1999), MST has generally been found to be effective. The four other studies reported greater positive treatment outcomes for youth participating in MST as opposed to controls (see Eyberg, Nelson & Boggs, 2008 for a discussion).

Functional Family Therapy

Description of the Program

Functional Family Therapy (FFT; Sexton & Alexander, 1999) is another empirically supported multi-component treatment program (Alexander & Parsons, 1973; Barnoski, 2004). FFT has been shown to be successful both in reducing recidivism and in reducing treatment costs when compared to traditional services in both academic research (Alexander, Pugh, Parsons & Sexton, 2000) and in state-wide governmental studies (Aos, Barnoski & Lieb, 1998; Barnoski, 2004). FFT is currently being administered in at least 15 states, including Louisiana.

FFT targets youth aged 11-18 in a variety of contexts, including diversion programs, alternatives to detention, re-entry programs and active probation (Sexton & Alexander, 2000). Treatment is brief, generally over a three month period, and entails up to 30 hours of clinical contact for the client families (Sexton & Alexander, 2000). Therapists generally have caseloads of 10-12 families and make approximately 12 home-visits over the course of the intervention (Sexton & Alexander, 1999).

Like MST, FFT intervention is comprehensive and goes beyond working with just the family. Also, like MST, the FFT intervention is individualized to meet the specific needs of each family. Intervention proceeds in three phases; Engagement and Motivation, Behavior Change and Generalization (Sexton & Alexander, 2000). The Engagement and Motivation phase involves building rapport with the family, assessing the relational problems sequence, and understanding the individual family's context. The Behavior Change phase focuses on changing specific, problematic behaviors and building communication skills. The Generalization phase strives to maintain and generalize change in therapy to other aspects of the family's life and to tie the family into appropriate community support to help maintain changes made in therapy. Each phase involves both assessment and intervention; each subsequent phase builds on and monitors the progress from earlier stages.

Empirical Support for FFT

Before detailing specific studies establishing FFT's status as an empirically based study, it is important to define and consider the two types of empirical support a treatment may have. Efficacy research refers to highly controlled research settings in which observed effects can be confidently attributed to the effects of treatment as opposed to the passage of time, assessment issues or other potential confounds (Kazdin, 1992). Randomized controlled trials are generally

considered the best demonstrations of efficacy (Chambless & Hollon, 1998). Effectiveness, however, refers to the degree to which a treatment can be successfully implemented in clinical settings, opposed to research settings (Kazdin, 1992).

There are a number of studies supporting the efficacy of FFT for treating delinquent youth. Alexander and Parsons (1973) found that FFT was effective in reducing recidivism at both 6 and 18 month follow up in a sample of court referred youth. The authors also compared their FFT intervention with a number of other family interventions and a no treatment control group; the FFT intervention was the most successful (Alexander & Parsons, 1973). Additionally, Alexander and Parsons (1973) found improvements in communication in the target group, while the other family therapies and the control group improved significantly less.

Klein, Alexander and Parsons (1977) conducted a larger examination of FFT. Eighty-six families of delinquent youth were randomly assigned to the FFT intervention, to another family intervention, a psychodynamic individual intervention and a no treatment control group. Klein and colleagues found that family communication processes were significantly improved in FFT when compared to other treatment modalities and the no treatment group. Recidivism rates were also lower in the FFT intervention. Finally, rates of subsequent sibling delinquency (over a 2.5 to 3.5 year follow-up period) were also lower in the FFT group (20%) compared to the no treatment control group (40%), the alternative family therapy approach (59%) and the individual therapy condition (63%).

While these initial studies were conducted with youth in diversion programs (Alexander & Parsons, 1973; Klein, Alexander & Parsons, 1977), later studies examined more seriously offending youth in other localities. Barton, Alexander, Waldron, Turner and Warburton (1985) used FFT in an investigation of group of serious offenders with multiple crimes. These youth

received in-home treatment along with job placement, job training and school placement, compared to another group that was a given group-home placement with a token economy. The FFT group had a significantly lower rate of recidivism than the comparison group at 15 month follow-up. Gordon and Arbuthnot (1990, as cited in Gordon, Graves & Arbuthnot, 1995) used FFT with serious offenders who were on probation. After 21 months, this group had a 30% recidivism rate, as opposed to the 60% to 75% rate that would normally have been expected.

In a subsequent group of studies, Gordon, Arbuthnot, Gustafson and McGreen (1988) examined the effects of FFT in a group of culturally and economically disadvantaged offenders. A 28 month follow-up revealed an 11% recidivism rate for the group receiving FFT, while the treatment as usual group had a recidivism rate of 67%. Gordon, Graves and Arbuthnot (1995) followed-up on this sample 3 years after the original 28 month follow-up when most of the original participants were 20 to 22 years of age. Rates of recidivism at this final follow-up were similarly different for the FFT group and the probation only group (9% and 41%, respectively).

More recently, the Washington State Institute for Public Policy (WSIPP) has released a number of reports on the effectiveness of FFT as implemented on a wide-scale basis across the state. Based on empirically driven cost-benefit estimates (Aos, Barnoski & Lieb, 1998), FFT was identified as a potentially effective treatment for juvenile offenders and was economically beneficial for the taxpayers in Washington. Specifically, in a series of reports, Robert Barnoski (2002; 2004) reported that FFT was found to be successful in reducing recidivism and was found to be cost-effective when delivered by competent therapists. Specifically, 400 families were studied from each of Washington's 34 juvenile courts. Recidivism rates for felony crimes at 12 and 18 month follow-ups were 40% and 38% lower respectively for youth placed in FFT with a competent therapist compared to a treatment as usual control group. At 18 months, the violent

felony recidivism rate for the FFT group with competent therapists, as judged by a program supervisor and a consultant with expertise in FFT, was 50% lower than the control group. Importantly, recidivism rates for youth in FFT with an incompetent therapist were actually higher than the control group. The WSIPP created a cost-benefit analysis algorithm to objectively compare different treatment modalities. The researchers calculated a total cost of the intervention totaling the training, staff and implementation costs of each intervention. WSIPP then calculated a savings total by estimating costs *not* incurred by the state based on recidivism reduction effect sizes. For example, if recidivism is reduced, court resources are freed as are detention center and prison resources. Costs were then subtracted from savings to give a per dollar spent cost for each intervention. Using a conservative estimate of treatment effect size, the WSIPP calculated that FFT saved Washington's taxpayers \$10.69 for every dollar spent when FFT was delivered by a competent therapist but cost \$4.18 for every dollar spent when delivered by an incompetent therapist. Importantly and in contrast with the other studies conducted on FFT, the WSIPP studies were effectiveness studies. FFT was implemented in community mental health centers and did not have the high levels of control that are the hallmark of an efficacy study.

Summary

As previously discussed, CU traits are associated with a variety of negative outcomes, including a more severe, chronic and violent pattern of offending and a variety of distinct emotional, cognitive and behavioral correlates. Furthermore, youth with CU traits have been found to respond less favorably to certain kinds of treatment and generally respond less or differently to punishment than other children. These differences have led some researchers to suggest different developmental pathways to antisocial behavior for youth with high levels of

CU traits and youth with low levels of CU traits, which in turn would indicate a need for different treatments for each group.

Research has found multi-component treatments, such as FFT, effectively reduce antisocial behavior. FFT has been found to be an effective treatment of antisocial and delinquent behavior in a variety of different settings, by a variety of researchers. Importantly, FFT has yielded positive results in both rigorously controlled, academic studies and when implemented non-academic clinical settings. FFT has also been found to be cost-effective.

It remains unclear, however, how youths with high levels of CU traits would respond to FFT. The developers of the treatment indicate that FFT should, because it is an individualized treatment, take any individual differences between offenders into account during treatment (Sexton & Alexander, 2002). Therefore, FFT should, in theory, identify that youth with CU traits who are not responding to treatment and adjust the intervention accordingly. Specifically, youth with high levels of CU traits have been found to be less responsive to punishment based treatment modalities (Hawes & Dadds, 2005; 2007). As a result, FFT therapists would have to find other ways of motivating youth to change. For example, reward-based interventions *have* been found to be effective (Hawes & Dadds, 2005; 2007), so an FFT therapist might set up a reward based behavior program to increase pro-social and decrease antisocial behaviors.

This possibility has yet to be empirically tested and there are a number of potential problems with the contention that an individualized program will be able to deal with the impact of CU traits on antisocial behavior. Being able to incorporate differences in a client's individual circumstances into a treatment format is not the same as being able to shift theoretical paradigms. FFT may indeed be capable of tailoring treatment of antisocial behavior within the theoretical framework that accounts for the antisocial behavior of youth without high levels of CU traits, the

majority of offenders. This, while a valuable attribute of the program, does not inherently leave FFT capable of identifying and accounting for differences in developmental pathways to antisocial behavior.

For example, poor parenting practices are associated with antisocial behavior (Patterson, 1982), but, as previously discussed, this association is not found in youth with high levels of CU traits. FFT's success in treating antisocial behavior indicates that the program is capable of addressing parenting deficits in a number of different settings, as each parent-child relationship is unique. Research indicates, however, that communication practices and ineffective discipline strategies, a major focus of FFT, are not as influential in predicting antisocial behavior in youth with high levels of CU traits. Whether or not FFT is capable of adapting sufficiently to provide youth with high levels of CU traits with effective treatment remains unknown.

Current Project

This project examined whether FFT is equally effective in reducing antisocial behavior in youths with and without high levels of CU traits. Furthermore, the therapeutic process was examined in order to determine whether the course of treatment differed for youth with and without high levels of CU traits.

Specific Hypotheses

Based on the aforementioned considerations, the following hypotheses were made for this study.

1. Successful completion of FFT will be associated with improved outcomes.
 - a. Youth who successfully completed FFT will show a post-treatment reduction in parent and youth reported conduct problems and other mental health problems (anxiety, depression, social problems) when compared to pre-treatment.

- b. Successful completion of FFT will be negatively associated with delinquent outcomes at follow up
- 2. Youth with and without high levels of CU traits will not have significantly different treatment outcomes at post-treatment or at follow-up.
 - a. Youth with and without high levels of CU traits who have successfully completed FFT will show comparable changes from pre to post-treatment on youth and parent reported conduct problems and other mental health problems (anxiety, depression, social problems) relative to pre-treatment scores
 - b. Youth with and without high levels of CU traits who successfully completed FFT will have comparable levels of both self-reported and officially reported delinquency.
- 3. There will be different treatment processes operating for youth with and without high levels of CU traits, both in terms of family dynamics and therapeutic processes.
 - a. Youth with and without CU traits whose therapist rates their family's therapy as having been successful will have greater pre to post-treatment changes in conduct problems and mental health problems and fewer negative outcomes at follow-up, both in terms of self-report of delinquency and parole records.
 - b. Youth with and without CU traits whose families who rate their therapy as having been successful, both in terms of youth and parent report, will have greater pre to post-treatment changes in conduct problems and mental health problems and fewer negative outcomes at follow-up, both in terms of self-report of delinquency and parole records.
 - c. Increases in positive parenting behaviors and decreases in negative parenting

behaviors will be associated with positive change over the course of treatment on BASC and YOQ subscales; however, youth with lower levels of CU traits will be more responsive to changes in parenting than youth with higher levels of CU traits.

- d. Youth without high levels of CU traits will be more likely to have the following targets of intervention during the Behavior Change Phase of FFT: improved parenting practices, improved family negativity and family relations, and reduced marital discord endorsed by the therapist. In contrast, youth with high levels of CU traits will be more likely to have drug use, school attendance and delinquent behavior targets endorsed.

Method

Participants

Participants were youth referred to Jefferson Parish Human Services Authority's (JPHSA) FFT program through the Jefferson Parish Department of Juvenile Services, and their parents and/or other family members. JPHSA is a publically funding social service agency that provides a variety of services, including community-based mental health services. The Jefferson Parish Department of Juvenile Services provides services to youth arrested in Jefferson Parish. JPHSA regularly partners with the Jefferson Parish Department of Juvenile Services to provide mental health assessment and treatment, including FFT. All youth had been arrested and processed by the Jefferson Parish Sheriff's Office and the FFT services were provided as a part of the adjudicated youth's post-dispositional interventions. If the youth of the family refused treatment, the parole officer was notified and other post-dispositional alternatives were considered.

The sample consisted of all youth who participated in FFT from November 1, 2007 to June 30, 2009, a total of 134 adolescents. The youth were between the ages of 11 and 17, with a mean age of 15.34 years (SD= 1.34), and 71.6% (n= 96) of the sample were boys. The majority of the youth (59.0%) were African-American (n= 79). European-Americans made up 35.1% (n= 47) of the sample and 4.5% of the youth were identified as Hispanic (n= 6). The remaining 1.4% of the sample (n= 2) did not report their ethnicity. Status offenses made up the index offense for nearly half of the sample (47.8%, n= 64), while the 22.4% of the sample committed violent offenses (n= 30), 19.4% committed property offenses (n= 26) and 6.0% of youth committed drug offenses (n= 8). Six (4.5%) of youth did not have data regarding their index offense.

Procedures

All data collection for this project was done with the approval of the University of New Orleans Institutional Review Board. Active parental consent and youth assent for their information to be used in research was obtained by JPHSA at the outset of treatment. JPHSA's FFT program therapists collected all data as a routine part of their clinical services, which included a clinical outcomes evaluation. Records of arrests, parole violations and positive drug screens for the participants were compiled from records at Jefferson Parish Probation and Parole (a division of Jefferson Parish Department of Juvenile Services).

All data were stored in the participants' confidential clinical file at JPSHA. The current project involved conducting file reviews of all participants and coding data on treatment processes and outcomes. All data collection took place at JPHSA and Jefferson Parish Department of Juvenile Services facilities and no identifiable data left these institutions. Data security procedures approved by the University of New Orleans Institutional Review Board were maintained. Table 1 provides a summary of all measures and the timing of their administration.

Table 1.

Schedule of Measure Administration

Measure	Pre-treatment	During Treatment	Post-treatment	Follow-up
SRD			x	
ICU	x		x	
APQ	x		x	
BASC	x		x	
BCP		x		
COM			x	
TOM			x	
YOQ	x		x	
OD				x

SRD= Self-Report of Delinquency, ICU= Inventory of Callous-Unemotional Traits, APQ= Alabama Parenting Questionnaire, BASC= Behavioral Assessment System for Children, BCP= Behavior Change Phase Target, COM= Client Outcome Measure, TOM= Therapist Outcome Measure, YOQ= Youth Outcome Questionnaire, OD= Official Delinquency, six month and one year follow-up

Measures-Treatment Moderator

Inventory of Callous-Unemotional Traits (ICU; Frick, 2004). The ICU is a 24-item self-report scale designed to assess callous and unemotional traits in youth. The ICU was derived from the callous-unemotional (CU) scale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) that has been widely used in various samples of youth. The 24 items assess CU traits (“is concerned about the feelings of others,” “feels bad or guilty,” “is concerned about schoolwork,” and “does not show emotions”) as rated by parents and youth on a four-point scale (0 = “not at all true,” 1 = “somewhat true,” 2 = “very true,” and 3 = “definitely true”). The validity of the ICU was supported in a mixed gender community sample in which the ICU was significantly correlated with measures of severity of antisocial behavior, functional impairment and sensation-seeking (Essau, Sasagawa & Frick, 2006a). Additionally, the ICU has been validated in a mixed gender sample of 248 detained or incarcerated juveniles and was strongly correlated with aggression and delinquency (Kimonis, Frick, Munoz & Aucoin, 2008). Internal consistency of the ICU was acceptable in the current sample [Cronbach’s $\alpha = .853$].

Measures- Treatment Outcome

Self-Report of Delinquency (SRD; Elliott, Huizinga, & Ageton, 1985). The SRD is a 36-item structured interview that assesses delinquent behavior in youth. It was administered at the end for the treatment and at follow-up for all youth. For each of 36 delinquent acts (e.g., destroying property, stealing, carrying weapons, selling drugs, hitchhiking, physical fighting, rape, alcohol and drug use, arrest) the youth is asked (a) whether or not he or she has engaged in the stated problem behavior in a given time period and (b) the number of times he or she has engaged in the behavior in that given period. The SRD has been found to be significantly correlated with official records of delinquent behavior (Krueger, Schmutte, Caspi, Moffitt, Campbell & Silva, 1994). Both the total delinquency score and separate violent and non-violent subscales were used in analyses.

Behavior Assessment Scale for Children, 2nd edition (BASC -2; Reynolds & Kamphaus, 2004). The BASC is a standardized and norm-referenced rating scale published by the American Guidance Service. It is designed and widely used to evaluate the emotional and behavioral functioning and self-perceptions of children and adolescents. The normative sample is representative of the United States population as of 2001 for geographical, racial, ethnic, economic and demographic variables. The sample consisted of equal numbers of boys and girls and was drawn from normal track, special education and gifted/talented classrooms in both public and private schools. There are separate forms for parent and youth ratings. Each of the scales has been found to be reliable (Kamphaus & Frick, 2005). The Emotional Symptoms Index and the Anxiety, Depression, Interpersonal Relations and Relations with Parents subscales were used from the youth report form, while the Conduct Problems, Anxiety, Depression and Behavioral Symptoms Index subscales were used from the parent report form.

Youth Outcome Questionnaire (YOQ, Youth and Parent versions; Burlingame, Wells & Lambert, 1996): The YOQ was designed as an outcome assessment for youth aged 4-17. The items were constructed with respect to the treatment literature, expert opinion and consultation with treatment clients and their families. The YOQ is scored on a 5 point Likert scale from “Never or Almost Never” to “Almost Always or Always” and has six subscales: the Intrapersonal Distress scale, the Somatic scale, the Interpersonal Relations scale, the Critical Items scale, the Social Problems scale and the Behavioral Dysfunction scale. The YOQ has been found to have adequate psychometric properties with internal consistency estimates ranging from .74 to .93 (Wells, Burlingame, Lambert, Hoag & Hope, 1996). In this sample, estimates of internal consistency ranged from levels approaching adequate to adequate [Cronbach’s α ’s ranging from .664 to .876].

Parole Records- Access to participants Probation data from the Jefferson Parish Department of Juvenile Services was arranged by JPHSA. All official data maintained by Jefferson Parish was gathered and entered into all FFT participants’ files. This information included all charges made against the participants, including all probation violations, and the results of all drug screens conducted by the Parish. From this data, the total number of charges, probation violations and positive drug screens was compiled for three distinct time periods; prior to the start of FFT, from the participants’ treatment end dates until six-months after the end date and from the participants’ treatment end dates until one-year after the end date. The frequency of new charges (excluding probation violations), probation violations and positive drug screens was coded. Due to time restraints, only six month follow-up data was available for the 38 youth enrolled in the final six months of the program.

Measures-Treatment Process

Alabama Parenting Questionnaire (APQ; Frick, 1991). The APQ measures parenting practices that have been consistently related to antisocial and disruptive child behaviors (Frick, 1991). Thirty-five of its 42 items are scored in five domains: Positive Parenting, Poor Monitoring, Inconsistent Discipline, Involvement and Corporal Punishment. This five factor structure has been supported in two large community samples (Elgar, Waschbusch, Dadds & Sigvaldason, 2007; Essau, Sasagawa & Frick, 2006b). The seven remaining items measure discipline practices other than corporal punishment and are included to avoid an implicit negative bias toward the corporal punishment items (Shelton, Frick & Wootton, 1996). Items are rated by both parents and youth on a five point scale related to the frequency of each parenting behavior (1 =never to 5 =always). The five domains on the APQ can be combined into two composites: a positive parenting scale and a negative parenting scale. The positive parenting composite consisted of the Positive Parenting and Involvement subscales, while the negative parenting composite consisted of the Inconsistent Discipline, Poor Monitoring and Corporal Punishment subscales. Both composites were analyzed separately, due to documented differences in how youth with high levels of CU traits respond to positive and negative parenting (Hawes & Dadds, 2005). Specifically, youth with high levels of CU traits were found to respond well to increases in positive parenting, such as promptly rewarding desired behaviors; however, youth high on CU traits did not show improvement when exposed to a treatment focusing on improving negative parenting practices (Hawes & Dadds, 2005).

The APQ has been correlated with conduct problems in community (Dadds, Maujean & Fraser, 2003), clinic referred (Frick, Christian & Wootton, 1999; Hawes & Dadds, 2006) and inpatient samples (Blader, 2004). Additionally, the APQ has been used successfully as an

outcome measures in several treatment studies (Feinfeld & Baker, 2004; Hinshaw, Owens, Wells et al., 2000; Wells, Epstein, Hinshaw et al., 2000), including in studies addressing aggression and conduct problems (August, Lee, Bloomquist, Realmuto & Hektner, 2003; Lochman & Wells, 2002). In this sample, the APQ positive parenting factors showed adequate internal consistency for both parent and youth report [Cronbach's α 's ranging from .701 to .878]. APQ negative parenting subscales showed adequate, or approaching adequate internal consistency for the Poor Monitoring and Inconsistent Discipline factors [Cronbach's α 's ranging from .679 to .786]; however, the three-item Corporal Punishment factor had poor internal consistency at pre-treatment [Cronbach's $\alpha = .554$ for youth report and .611 for parent report], though it had adequate internal consistency at post-treatment [Cronbach's $\alpha = .742$ for youth report and .716 for parent report].

FFT Treatment Forms (Sexton & Alexander, 1999). Data from a number of questionnaires developed for use specifically in the FFT program was coded and used in the current investigation. These included the following forms:

- a. *Behavior Change Phase Plan (BCP)* - Treatment targets for FFT were elucidated in this section of the FFT progress notes. These are the areas that the FFT therapist has focused on as most important for positive change in the family. Due to changes in FFT Inc.'s progress note forms; there were two different possible forms. The earlier form gave therapists 12 of different target areas including parenting, communication, problem-solving skills, family negativity, adolescent drug use, parent drug use, school attendance, delinquency behavior, running away, peer group influence, family relationships and marital disruption/discord. The therapist weighed the relative importance of these targets. All targets weighted as "Very" or "Somewhat" important were coded as present and

included as targeted behaviors, while targets weighted as “A Little Important” or “Not Important” were coded as not present. The new form contained a free-text box for this section. The target areas from the original form were coded as present or not present from the free-text to result in approximately equivalent data across all cases. Family negativity and family relationships were collapsed into one category for this study, due to difficulty distinguishing between the two in the free-text responses.

- b. *Client Outcome Measure (COM)*. The COM was filled out by the clients at the end of treatment to assess the degree to which they viewed that change had occurred since the beginning of treatment. Both youth and parental impressions of the effectiveness of the treatment were solicited on a 6 point Likert scale. Additionally, parents were asked to report on several behaviors markers of treatment progress including school problems, substance abuse and general delinquency. For this study, the five treatment progress items were summed to provide a composite measure of client-reported family functioning improvement. Internal consistency for this scale was adequate for the youth-reported COM [$\alpha = .864$], but somewhat low for the parent-reported COM [$\alpha = .638$.]
- c. *Therapist Outcome Measure (TOM)*. The TOM was filled out by the clinician at the end of treatment to assess the degree to which he or she viewed change as having occurred since the beginning of treatment with the family. All items were answered on a series of Likert scales and are designed to assess both level of improvement in family functioning and current actual level of family functioning. For this study, the five treatment progress items were summed to provide a composite measure of therapist-reported family functioning improvement. Internal consistency for this scale was acceptable [$\alpha = .996$.]

Data Analysis Plan

All analyses were conducted using the Transparent Reporting of Evaluations with Non-randomized Designs (TREND) guidelines (Des Jarlais, Lyles, Crepaz et al., 2004). Accordingly, for all analyses, any youth with data equal to at least 70% of each subscale involved in any analyses were included [i.e. cases were eliminated if they were missing greater than 30% of the data for any given subscale]. The high and low CU traits groups were determined using a median split. A power analysis was conducted to estimate the power of the study. Using the G-Power 3.1.2 program (Faul, Erdfelder, Buchner, & Lang, 2009), it was estimated that assuming an effect of .2, that a power of .95 would require a sample size of 67 for the multiple regression analyses and a sample size of 56 for the repeated measures ANOVAs, including interactions.

For hypothesis 1a a series of repeated-measures ANOVAs were conducted examining the changes in emotional and behavioral dysfunction over treatment. Significant pre and post-treatment changes were subjected to Reliable Change Index analysis. In order to ensure that change between pre and post-treatment scores is meaningful and not due to measurement error, the statistical procedures outlined in Jacobson and Truax (1991) were adhered to. Additionally, for the BASC scales, for which age-based, normative data is available, an analysis of clinical significance was conducted. By analyzing the proportion of youth moving from an abnormal levels of behavioral and emotional problems relative to their peers to a more normative level of functioning, the meaningfulness of change associated with FFT was further explored. A series of Chi-square analyses were conducted to test hypothesis 1b, which compared those youth completing and not-completing FFT on official outcome data.

To test Hypothesis 2a, a series of repeated-measures ANOVAs were conducted examining change from pre- to post-treatment with CU traits as a moderator. For Hypothesis 2b,

series of ANOVAs were used to test for differences in mean levels of self-reported delinquency at post-treatment between youth without high and low levels of CU traits. Also to test Hypothesis 2b, a series of Chi-square analyses were conducted to test for differences in the likelihood of officially reported delinquency for youth with high and low levels of CU traits.

Hypotheses 3a, 3b and 3c were tested using a series of multiple regressions. Some of these regressions used change scores as dependent variables. To calculate these change scores, pre-treatment scores were subtracted from post-treatment scores. For Hypotheses 3a and 3b, Therapist Outcome Measure (TOM) and Client Outcome Measure (COM) scores were entered with CU traits and a CU traits by COM or TOM interaction term to investigate the relationship between these TOM scores and measures of behavioral and emotional dysfunction and whether this relationship was moderated by CU traits. For Hypothesis 3c, similar regression analyses were conducted using change scores in Alabama Parenting Questionnaire scores to predict change scores in measures of behavioral and emotional dysfunction using CU traits as a moderator. All moderation analyses were conducted using the guidelines provided by Baron and Kenny (1986).

Additionally, for Hypotheses 3a and 3b, Therapist and Client Outcome Measure scores were entered into Ordinary Least Squares and Logistic regressions to predict self-reported delinquency and the likelihood of the incidence of officially reported delinquency respectively. CU traits were again tested as a moderator in these analyses. Finally, for Hypothesis 3d, a series of Chi-square analyses were conducted to investigate varying levels of endorsement of various Behavior Change Phase Targets for youth with high and low levels of CU traits.

Results

Overall Treatment Effects

Hypothesis 1a posited that completion of FFT would result in improvements on mental health measures (e.g. depression, anxiety, behavioral and social problems) from pre to post-treatment and it would be negatively associated with delinquent outcomes. Mental health outcomes were measured by parent and youth reported Youth Outcome Questionnaire scores on the Intrapersonal Distress, Interpersonal Relations, Social Problems and Behavioral Dysfunction subscales, youth reported Behavioral Assessment System for Children scores on the Anxiety, Depression, Emotional Symptoms Index, Relations with Parents and Interpersonal Relations subscales, and parent reported BASC scores on the Anxiety, Depression, Conduct Problems and Behavioral Symptoms Index subscales. Improvements on these measures over treatment were tested in a series of repeated measures ANOVAs, the results of which are reported in Table 2¹.

There were no significant time effects found for any of the scales on the youth reported YOQ. In contrast, parent reported YOQ scores were all found to significantly decrease from pre- to post-treatment with modest effect sizes (partial η^2) ranging from .105 to .174. A similar pattern of results was found with regards to youth and parent reported BASC scores. Youth reported BASC scores were not found to significantly differ between pre- and post-treatment (see Table 2). Parent reported BASC scores, however, significantly decreased from pre- to post-test for Conduct Problems, Depression and the Behavioral Symptoms Index, but not for Anxiety (see Table 2). The differences for all 3 subscales were modest, with Conduct Problems having the largest effect size (partial η^2 =.100), followed by the Behavioral Symptoms Index (partial η^2 =.098) and Depression (partial η^2 =.086).

¹ Time by age interactions were also tested and were not significant, with partial η^2 's ranging from .000 to .021. Therapist was also examined as a moderator and not found to significantly impact treatment outcomes, with partial η^2 's ranging from .005 to .067.

Table 2.

Analysis of Variance to Estimate Pre- and Post-Treatment Differences in Behavioral and Emotional Functioning

Dependent Variable	Pre-test mean (SD)	post-test mean (SD)	F (df)	η^2
<u>Youth YOQ</u>				
ID	16.66 (11.82)	15.15 (11.98)	1.610 (1, 87)	.018
IR	6.62 (6.29)	5.90 (6.21)	1.387 (1, 87)	.016
SP	4.94 (4.90)	4.36 (4.73)	0.965 (1, 87)	.011
BD	12.89 (7.19)	11.65 (7.44)	2.741 (1, 87)	.031
<u>Parent YOQ</u>				
ID	19.20 (11.39)	15.58 (10.12)	11.637 (1, 87) **	.118
IR	10.56 (7.34)	7.41 (6.63)	18.276 (1, 87) **	.174
SP	7.80 (5.17)	5.97 (4.67)	10.258 (1, 87) **	.105
BD	14.56 (8.48)	12.04 (7.75)	14.158 (1, 87) **	.140
<u>Youth BASC</u>				
ANX	48.65 (9.63)	46.89 (10.41)	2.452 (1, 78)	.030
DEP	52.96 (12.00)	51.03 (10.28)	2.218 (1, 78)	.028
ESI	50.53 (10.06)	51.03 (10.28)	.579 (1, 78)	.007
P-C Rel.	44.51 (11.47)	44.90 (10.56)	.132 (1, 77)	.002
Inter	52.79 (8.48)	51.03 (9.32)	2.563 (1, 78)	.032
<u>Parent BASC</u>				
CP	72.69 (19.67)	67.18 (14.68)	8.841 (1, 76) **	.100
ANX	48.77 (9.56)	47.56 (9.08)	1.157 (1, 76)	.014
DEP	61.21 (15.42)	57.86 (13.19)	7.273 (1, 77) **	.086
BSI	66.00 (14.43)	62.48 (12.39)	8.279 (1, 77) **	.098

*= $p < .05$, **= $p < .01$, η^2 = partial eta squared

BASC= Behavioral Assessment System for Children-2nd Edition, YOQ- Youth Outcome Questionnaire

CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

In order to evaluate the meaningfulness of the significant differences found between pre- and post-test scores, Reliable Change Indices were computed. These indices used criteria outlined by Jacobsen and Truax (1991) and indicate that the observed changes in scores are highly unlikely to be due to measurement error and likely reflect real change in scores. Table 3 reports the number and percentages of youth reliably improving, reliably worsening and those who cannot reliably be said to have changed from pre- to post-treatment for all variables showing a significant effect for time. The parent reported Behavioral Assessment System for

Children scores did not reliably change for approximately between 50% of youth across all three examined scales. The number of youth reliably improving is greater than the number of youth reliably worsening by between 2 and just under 2.8 times. The parent reported Youth Outcome Questionnaire subscales, however, exhibited more variability (see Table 3). The Interpersonal Relations subscale had the largest number of youth reliably improving (48.86%), followed by Intrapersonal Distress (32.95%), Social Problems (28.41%) and Behavioral Dysfunction (21.59%). However, the ordinal rank for all 4 subscales was reversed for the number of youth reliably worsening, with Behavioral Dysfunction having the fewest number of youth with increasing score from pre- to post-test (7.95%) and Interpersonal Relations having the largest number of youth reliably worsening (19.32%).

Table 3.

Estimates of Reliable Change for all Outcome Measures Showing Significant Treatment Effects

Subscale	% reliably improving	% reliably worsening	% not reliably changing
<u>Parent YOQ (n=88)</u>			
ID	32.95% (n=29)	14.77% (n= 13)	52.27% (n=46)
IR	48.86% (n=43)	19.32% (n= 17)	31.82% (n=28)
SP	28.41% (n=25)	11.36% (n=10)	60.23% (n=53)
BD	21.59% (n=19)	7.95% (n=7)	70.45% (n=62)
<u>Parent BASC</u>			
CP (n=77)	36.36% (n=28)	18.18% (n=14)	45.45% (n=35)
DEP (n=78)	28.21% (n=22)	10.26% (n=8)	61.53% (n=48)
BSI (n=77)	32.47% (n=25)	15.58% (n=12)	51.99% (n=40)

BASC= Behavioral Assessment System for Children-2nd Edition, YOQ- Youth Outcome Questionnaire
 CP= BASC Conduct Problems, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

Additionally, the BASC subscales showing changes over treatment were examined for changes in clinical significance. It was only possible to conduct these analyses for the Behavioral Assessment System for Children subscales, as only the BASC provided age-based

normative data. These norms allow for a statistically meaningful assessment of overall levels of dysfunction relative to the general population and to clinical populations. In this case, a subscale with a t-score of greater than 65 was considered to be in the clinical range and t-scores of less than 65 were considered to be subclinical. For all three parent reported subscales, more youth were reported to improve than to worsen; however, in all cases a large percentage of youth (23.08- 45.45%) remained in the clinically significant range of BASC scores (see Table 4).

Table 4.

Estimates of Clinically Significance for all Outcome Measures with Norm-Referenced Scores Showing Significant Treatment Effects

Subscale	Number of youth no longer in clinically sig. range	Number of youth entering clinically sig. range	Number of youth remaining in clinically sig. range
<u>Parent BASC</u>			
CP (n=77)	15.58% (n=12)	7.79% (n=6)	45.45% (n=35)
DEP (n=78)	14.10% (n=11)	8.97% (n=7)	23.08% (n=18)
BSI (n=77)	14.29% (n=11)	7.79% (n=6)	33.77% (n=26)

*= $p < .05$, **= $p < .01$, η^2 = partial eta squared

BASC= Behavioral Assessment System for Children-2nd Edition

CP= BASC Conduct Problems, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index

Hypothesis 1b posits that successful completion of FFT would be negatively associated with delinquent outcomes. A series of Chi-Square tests were conducted comparing proportions of youth who had new charges, probation violations and positive drug screens at six month and one year follow for youth who completed FFT (n= 102 for six months, n= 67 for one year) and those who did not complete FFT (n= 32 for six months, n= 29 for one year). Significant differences were not observed (see Table 5); however, for six month and one year follow-up, the group that completed FFT had a lower proportion of youth with probation violations and positive drug screens, though the group that did *not* complete FFT had a lower proportion of youth with

new charges. Differences on self-reported delinquency could not be explored, as only youth completing treatment were administered the SRD.

Table 5.

Chi-Square Tests to Estimate Differences between Youth Completing and Not Completing FFT on Rates of Official Delinquency

Dependent Variable	Youth Completing Positive for DV	Youth Not Completing Positive for DV	χ^2 (df= 1)
<u>Six month</u>			
Charges	27.5%	25.0%	.074
Probation	14.7%	25.0%	1.815
Pos. Drug	15.7%	18.8%	.167
<u>One-year</u>			
Charges	40.3%	34.5%	.289
Probation	26.9%	27.6%	.005
Pos. Drug	22.4%	27.6%	.300

*= $p < .05$, **= $p < .01$

DV= Dependent Variable, Pos. Drug= positive drug screens

Additionally, the impact of dose on treatment outcomes was examined. The number of FFT sessions attended was correlated with both self-reported and official records of delinquency, as well as BASC and YOQ change scores. The change scores were calculated by subtracting pre-treatment from post-treatment scores for each BASC and YOQ subscale. The total number of FFT sessions was not significantly correlated with either self- or officially reported delinquency [r 's ranging from $-.130$ to $.167$]. Similarly, the total number of FFT sessions was not significantly correlated with BASC or YOQ change scores [r 's ranging from $-.123$ to $.165$].

Summary of Hypothesis 1. Over the course of treatment, parent-reported emotional and behavioral dysfunction was found to decrease modestly. The results indicate that more youth reliably improved than worsened over the course of treatment, but most youth did not change reliably. Additionally, the results indicate that while more youth improved to a clinically significant degree than worsened to a clinically significant degree, most youth did not change to

a clinically significant degree. Finally, youth who completed FFT did not have significantly different levels of officially-reported delinquency than youth who did not complete FFT.

Potential Moderating Role of CU traits in Treatment Effects

Hypothesis 2 posited that CU traits would not have an impact on treatment outcomes at either post-treatment or follow-up. In order to test this hypothesis, a series of 2 by 2 mixed ANOVAs were performed. These ANOVAs examined the impact of time (pre-treatment versus post-treatment), level of CU traits, and their interaction on the above subscales². CU groups were formed using a median split.³

Results for the youth-reported Youth Outcome Questionnaire subscales can be found in Table 6. Using a median split, the main effects for both time and CU traits on the Intrapersonal Distress and the Behavioral Dysfunction subscales were non-significant. More importantly, there was a non-significant interaction between time and CU traits (see Table 6). However, contrary to predictions, for both the Interpersonal Relations and Social Problems subscales, the interaction between time and CU traits was significant, or closely approaching significance, with those youth high on CU traits showing a larger decrease in reported symptoms from pre- to post-treatment [partial $\eta^2 = .044$ and $.066$ respectively] compared to the low CU traits group.

Analyses for the parent reported YOQ subscales are also reported in Table 6. Using a median split to determine high CU traits, there were significant main effects observed for CU traits (see Table 5). For each subscale, youth with high CU traits had greater scores on all 4 subscales, both at pre- and post-treatment [partial η^2 ranging from $.095$ to $.182$]. Contrary to predictions, for the Interpersonal Relations subscale, a significant effect was observed for the time by CU interaction

² Three way time by age by CU traits interactions were also tested. No significant interactions were observed with partial eta²'s ranging from $.000$ to $.034$.

³ The hypothesis 2 analyses were also conducted using an upper-quartile method of creating high and low CU traits groups. There were no differences between the two patterns of results, so only the median-split results are reported.

[partial $\eta^2 = .074$], where youth with high levels of CU traits showed greater improvement over time than those youth with low levels of CU traits.

Similar 2 X 2 mixed ANOVA's were conducted using the BASC outcome measures. No significant interactions were obtained between time and CU traits on the youth reported BASC subscales (see Table 7). A significant main effect for CU traits on the Relationship with Parents subscale, however, was observed [partial $\eta^2 = .092$]. Youth with high levels of CU traits were higher at both pre- and post-treatment on this subscale. For the parent reported BASC subscales (see Table 7), significant main effects for CU traits were observed for Conduct Problems, Depression and Behavioral Symptoms Index subscales, where youth with CU traits had higher BASC subscale scores at pre- and post-treatment. Furthermore, the time by CU traits interaction was observed to approach significance [$p = .058$; partial $\eta^2 = .048$] for the Depression subscale, where youth with high levels of CU traits showed a greater decrease in BASC Depression subscale scores over time.

In order to investigate Hypothesis 2b, that youth with high and low levels of CU traits would not differ on their level of self-reported delinquent acts as measured by the Self Report of Delinquency total, SRD violent and SRD nonviolent scores, a series of ANOVAs were conducted. The results of these ANOVAs are presented in Table 8. The high CU traits group was higher than the low CU traits group on SRD violent subscales scores and this difference approached significance [$F(1,123) = 3.821, p = .053$; partial $\eta^2 = .030$]. The two CU groups did not significantly differ from one another on the SRD Total and Nonviolent subscales.

Table 6.

Repeated Measures- Analysis of Variance Estimating Pre- and Post-Treatment Change in Youth- and Parent-reported YOQ Scores Moderated by CU traits

	<u>Low CU (n= 47)</u>		<u>High CU (n= 38)</u>		Time F (partial η^2)	CU F (partial η^2)	Time x CU F (partial η^2)
	Pre-test Mean (SD)	post-test Mean (SD)	Pre-test Mean (SD)	post-test Mean (SD)			
<u>Youth (df= 1, 83)</u>							
ID	15.78 (11.08)	15.03 (10.72)	15.78 (11.08)	15.03 (10.72)	2.269 (.027)	.195 (.002)	.368 (.010)
IR	4.24 (5.05)	4.58 (5.31)	9.37 (6.66)	7.28 (6.80)	1.974 (.023)	11.942 (.126) **	3.798 (.044) ^a
SP	3.11 (4.04)	3.85 (4.46)	7.02 (5.06)	4.86 (5.07)	1.401 (.017)	9.047 (.098) **	5.871 (.066)*
BD	11.36 (6.40)	11.02 (6.76)	14.91 (7.94)	12.44 (8.37)	3.340 (.039)	3.144 (.036)	1.904 (.022)
<u>Parent (df= 1, 82)</u>							
ID	16.27 (10.42)	13.19 (9.22)	22.60 (11.67)	18.56 (10.39)	10.099 (.110) **	8.603 (.095) **	.187 (.002)
IR	7.50 (6.53)	5.90 (6.49)	14.65 (6.61)	9.20 (6.37)	21.970 (.211) **	18.289 (.182) **	6.551 (.074)*
SP	5.96 (4.39)	4.70 (4.39)	10.30 (5.22)	7.44 (4.53)	12.374 (.131) **	18.224 (.182) **	1.846 (.022)
BD	11.54 (7.22)	9.62 (6.90)	18.43 (8.25)	14.95 (7.96)	15.291 (.157) **	16.426 (.167) **	1.262 (.015)

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, df = degrees of freedom

YOQ= Youth Outcome Questionnaire

ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

Table 7.

Repeated Measures- Analysis of Variance Estimating Pre- and Post-Treatment Change in Youth- and Parent-reported BASC Scores Moderated by CU traits

	Low CU (n= 47)		High CU (n= 38)		Time F (partial η^2)	CU F (partial η^2)	Time x CU F (partial η^2)
	Mean (SD) Pre-test	post-test	Mean (SD) Pre-test	post-test			
<u>Youth</u> (df= 1,75)							
ANX	49.45 (9.59)	47.77 (10.35)	47.30 (9.54)	45.79 (10.69)	1.880 (.024)	1.072 (.014)	.005 (.000)
DEP	50.91 (10.98)	50.75 (11.02)	55.27 (12.25)	51.27 (9.15)	2.449 (.032)	1.310 (.017)	2.089 (.027)
ESI	49.09 (9.13)	48.75 (10.66)	52.45 (10.87)	50.82 (10.06)	.825 (.011)	1.718 (.022)	.354 (.005)
P-C ^y	46.93 (11.73)	47.84 (10.01)	41.65 (10.30)	40.88 (10.44)	.004 (.000)	7.456 (.092) **	.628 (.008)
Inter	53.59 (5.58)	52.77 (8.60)	51.73 (11.09)	49.30 (9.20)	2.179 (.028)	2.595 (.033)	.535 (.007)
<u>Parent</u> (df= 1,73)							
CP	65.83 (16.78)	63.58 (14.60)	79.94 (20.43)	70.80 (13.98)	8.829 (.108) **	10.306 (.124) **	3.232 (.042)
ANX	50.30 (10.22)	48.48 (9.94)	47.09 (8.74)	46.51 (8.30)	1.075 (.015)	1.977 (.026)	.294 (.004)
DEP ^z	56.83 (13.35)	50.30 (12.43)	65.91 (15.54)	59.93 (13.11)	8.077 (.098) **	5.412 (.068) *	3.712 (.048) ^a
BSI	61.25 (12.32)	58.85 (15.03)	71.09 (11.25)	66.37 (12.60)	7.980 (.099) **	10.468 (.125) **	.844 (.011)

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, df = degrees of freedom,

^y- df= 1,74, ^z- df= 1, 75

BASC= Behavioral Assessment System for Children-2nd Edition, YOQ- Youth Outcome Questionnaire

CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index,

ESI= BASC Emotional Symptoms Index, P-C = BASC Parent-Child Relations, Inter= BASC Interpersonal

Also related to this hypothesis, youth with and without high levels of CU traits were compared on their likelihood of having new charges at six months and 1 year post treatment, using a series of Chi Square tests (see Table 9). Youth with high levels of CU traits were found to have significantly more parole violations than youth with low levels of CU traits at six months post-treatment [$\chi^2(1) = 8.036, p = .004$] and at one year post-treatment [$\chi^2(1) = 4.721, p = .025$]. However, there were no significant differences between youth with high and low CU traits on number of new charges either at six months post-treatment [$\chi^2(1) = .004, p = .554$] or at one year post-treatment [$\chi^2(1) = .046, p = .503$]. Similarly, there were no significant differences between youth with high and low CU traits on number of positive drug screens either at six months post-treatment [$\chi^2(1) = .194, p = .420$] or at one year post-treatment [$\chi^2(1) = .514, p = .319$].

Table 8.

Analysis of Variance Estimating Differences in Self-Reported Delinquency at Post-Test between Youth with High and Low Levels of CU Traits

Dependent variable	Low CU mean	High CU mean	F (df = 1, 123)	η^2
SRD total	1.43 (3.06)	2.32 (3.25)	2.467	.020
SRD violent	0.42 (0.98)	0.78 (1.12)	3.821 ^a	.030
SRD nonviolent	1.02 (2.25)	1.53 (2.45)	1.519	.012

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, η^2 = partial eta squared
 CU= Callous-Unemotional, SRD= Self Report of Delinquency

Table 9.

Chi-Square Tests to Estimate Differences between Youth with High and Low Levels (Median Split) of CU Traits on Rates of Official Delinquency

Dependent Variable	Low CU positive for DV	High CU positive for DV	χ^2 (df = 1)
6 month parole violations	23.8%	76.2%	8.036**
One year parole violations	26.1	73.9%	4.721*
6 month new charges	51.5%	48.5%	0.004
One year new charges	44.1%	55.9%	0.046
6 month positive drug screens	47.6%	52.4%	0.194
One year positive drug screens	52.4%	47.6%	0.514

*= $p < .05$, **= $p < .01$
 DV= Dependent Variable, CU= Callous-Unemotional

Contrary to expectations, the group high on CU traits showed higher rates on several measures of delinquent outcomes than the group low on CU traits, despite showing the greatest level of improvement across treatment on the mental health measures. It is possible that this was due to their higher levels of pre-treatment behavior problems. To test this possibility, the analyses of delinquent outcome were repeated controlling for prior offenses. Specifically, an analysis of covariance was conducted to test if the relationship between CU traits and the SRD violent subscale could be attributed to prior offenses. However, the difference between the high and low CU traits groups on self-reported violent delinquency continued to approach significance controlling for number of prior offenses [$F(1,122)= 3.847, p= .052$; partial $\eta^2=.031$]. Further, after controlling for prior offenses in a logistic regression equation, CU traits was no longer related to probation violations at six months [$\beta = .043, p= .083$] or at one year post-treatment [$\beta = .044, p= .085$], although both estimates approached significance.

Summary of Hypothesis 2. Callous-Unemotional traits were found to play a moderating role in FFT's treatment effects. Youth with high levels of CU traits were found to have greater levels of impairment over the course of treatment, but also to show the greatest treatment response. Furthermore, CU traits were associated with greater levels of self-reported delinquency, both violent and non-violent. Finally, CU traits were associated with an increased likelihood of having violated the terms of their probation, but not with new charges or positive drug screens.

Different Treatment Process for Youth High and Low on CU Traits

Ratings of treatment response. Hypothesis 3 posited that there would be different treatment processes operating for youth with and without high levels of CU traits. Hypotheses 3a and 3b posited that positive ratings of FFT by therapists (3a), as measured by Therapist

Outcome Measure scores, and clients (3b), as measured by youth Client Outcome Measure and parent Client Outcome Measure scores, would be associated with fewer negative outcomes at post-treatment and follow-up regardless of level of CU traits. Both of these hypotheses were tested using a series of regression analyses, the results of which are found in Tables 10 and 11. Overall, CU traits were positively associated with SRD scores, though the association only approached significance for the SRD non-violent subscale. However, TOM scores were not found to significantly predict post-treatment SRD scores, though the association between TOM and SRD violent subscale scores approached significance [$\beta = .192, p = .055$] (see Table 10). No significant TOM score by CU traits interactions were observed. Importantly, TOM scores' association with SRD scores were in the opposite direction hypothesized, in that positive therapist ratings of treatment were associated with greater Self-Reported Delinquency scores. Neither TOM scores, CU traits, nor a TOM by CU traits interaction significantly predicted new charges, parole violations, or positive drug screens (see Table 10).

Table 10.

Regression Analysis to Estimate the Effect of Therapist Ratings of Treatment Success and CU Traits in Predicting Delinquent Outcomes

Dependent Variable	TOM	CU traits	TOM x CU traits	Model R ²
OLS Regression	(β)	(β)	(β)	
SRD total	.166	.217*	.120	.079*
SRD violent	.192 ^a	.237*	.133	.092*
SRD nonviolent	.136	.184 ^b	.109	.057
Logistic Regression	(odds ratio)	(odds ratio)	(odds ratio)	
Six month charges	1.057	1.013	0.997	.019
One year charges	1.036	0.990	0.999	.011
Six months probation	0.931	1.031	1.003	.041
One year probation	0.992	1.036	0.997	.040
Six months drug screens	1.077	1.014	0.999	.021
One year drug screens	0.996	1.015	0.999	.016

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

CU= Callous-Unemotional, TOM= Therapist Outcome Measure, SRD= Self Report of Delinquency

A slightly different pattern of results was observed for client report of FFT's impact on the family in predicting self-reported outcomes (see Table 11). Youth COM scores were found to be positively and significantly associated with SRD total and nonviolent subscale scores. In contrast, parent COM scores were not found to be associated with SRD scores and CU traits, when entered with parent COM scores, were found only to be positively associated with the SRD violent subscale at a level approaching significance [$\beta = .223, p = .059$]. No significant interactions between COM scores and CU traits were observed. As noted with TOM scores, COM scores were all positively associated with increased Self-Report of Delinquency scores, contrary to prediction.

A more complex pattern of results was observed for client report of FFT's impact on the family in predicting official outcomes. Youth reported Client Outcome Measure scores, CU traits, and the CU traits by COM interaction were not predictive of new charges, probation violations or positive drug screens, though COM scores approached significance [youth-reported $\text{Exp}(\beta) = 1.195, p = .053$] (see Table 11). Similarly, parent-reported COM scores, CU traits and the CU traits by COM interaction were not predictive of new charges, probation violations or one year positive drug screens (see Table 11), though COM approached significance in predicting positive drug screens at one year follow-up [parent-reported $\text{Exp}(\beta) = 1.168, p = .060$]. However, the parent-reported COM by CU traits interaction was significant in predicting six month positive drug screens [$\text{Exp}(\beta) = 0.984, p = .028$].

Table 11.

Regression Analysis to Estimate the Effect of Client Ratings of Treatment Success and CU Traits in Predicting Delinquent Outcomes

Dependent Variable	COM	CU traits	COM x CU traits	Model R ²
YOUTH COM				
OLS Regression	(β)	(β)	(β)	
SRD total	.221*	.264*	.062	.097*
SRD violent	.164	.267*	.009	.080 ^b
SRD nonviolent	.221*	.232*	.079	.085*
Logistic Regression	(odds ratio)	(odds ratio)	(odds ratio)	
Six month charges	1.007	1.013	0.996	.011
One year charges	0.975	1.000	0.998	.012
Six months probation	0.964	1.018	0.995	.034
One year probation	1.028	1.044	1.001	.042
Six months drug screens	1.051	1.016	0.999	.016
One year drug screens	1.195 ^a	1.060	0.995	.138
PARENT COM				
OLS Regression	(β)	(β)	(β)	
SRD total	.097	.199	.059	.049
SRD violent	.131	.223 ^a	.035	.056
SRD nonviolent	.070	.165	.063	.036
Logistic Regression	(odds ratio)	(odds ratio)	(odds ratio)	
Six month charges	1.046	1.026	0.990	.066
One year charges	1.028	1.005	0.997	.013
Six months probation	0.947	1.026	0.993	.064
One year probation	0.993	1.060	0.987	.141
Six months drug screens	1.108	1.052	0.984*	.124
One year drug screens	1.168 ^a	1.072	0.988	.135

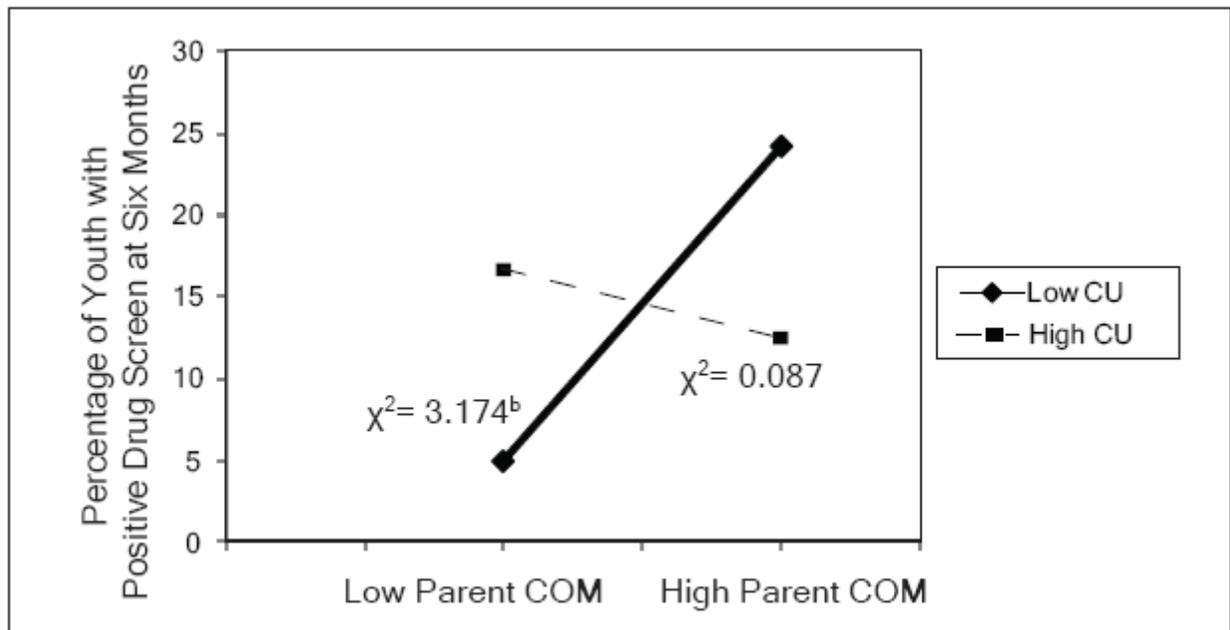
*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

CU= Callous-Unemotional, COM= Client Outcome Measure, SRD= Self Report of Delinquency

Post-hoc analysis indicated that a higher proportion of youth with high parent COM scores had positive drug screens (24.17%) compared to youth with low parent COM scores (5.00%) at six months post treatment for youth with low levels (median split) of CU traits [$\chi^2 = 3.174, p = .079$]; however, a *lower* proportion of youth with high parent COM scores had positive drug screens (12.50%) compared to youth with low parent COM scores (16.67%) at six months post treatment for youth with high levels of CU traits [$\chi^2 = 0.087, p = .576$] (see Figure 1).

Figure 1.

Interaction between Parent-Reported Client Ratings of Treatment Success and CU Traits in Predicting Positive Drug Screens at Six Month Follow-up



*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

COM= Client Outcome Measure, CU= Callous-Unemotional Traits

The above results, which indicated that improvement in therapy, as measured by the Therapist Outcome Measure and youth and parent-reported Client Outcome Measure, was associated with poorer delinquent outcomes on several outcome measures, seem to contradict findings that FFT had a positive impact on outcomes. Additionally, both CU traits and TOM and COM scores were positively associated with increased delinquency; however, TOM scores ($r = -.156, p = .121$), youth COM scores ($r = -.207, p < .05$) and parent ($r = -.156, p < .01$) COM scores were negatively correlated with CU traits. Two possible explanations for these results were explored. First, it is possible that prior levels of delinquency were obscuring or altering the observed relationship between TOM and COM scores and delinquency outcome measures. This possibility was investigated by re-conducting the regression analyses controlling for prior

delinquency. Controlling for prior delinquency did not change the pattern of relationships observed in the original analyses.

The second possible explanation for these results is that youth with high levels of CU traits had the greatest amount of pre-treatment problems, showed the largest amount of improvement, but were often still endorsing more dysfunction than youth with low levels of CU traits. Therefore, TOM and COM scores may have been positively associated with treatment progress, but still predicted *greater* levels of delinquent outcomes. To investigate this possibility, a series of regression analyses were conducted with TOM and COM scores now predicting change scores on the BASC and YOQ. It was hypothesized that positive therapist and client ratings of therapy would be associated with a decrease in dysfunction as measured by the BASC and YOQ subscales tested in hypotheses 1 and 2. A moderation effect of CU traits was tested using criteria outlined in Baron and Kenny (1986).

The results of the regression analyses in which Therapist Outcome Measure scores predicted BASC subscale change scores can be found in Table 12. TOM scores significantly predicted improvement in the parent-reported Behavioral Symptoms Index subscale [$\beta = -.261$] and Depression subscales [$\beta = -.241$]. They also predicted youth-reported Anxiety subscale at a level approaching significance [$\beta = -.221$]. CU traits predicted improvement in the parent-reported Conduct Problems [$\beta = -.402$], Depression [$\beta = -.330$] and Behavioral Symptoms Index [$\beta = -.363$] subscales as well as in the youth-reported Depression [$\beta = -.338$] and Emotional Symptoms Index [$\beta = -.267$] subscales. CU traits predicted the youth-reported Anxiety subscale at a level approaching significance [$\beta = -.211$]. There were no significant interactions observed between CU traits and TOM scores. The results of the regression analyses in which TOM scores predicted YOQ subscale change scores can also be found in Table 12. TOM scores did not

significantly predict any YOQ subscales. However, CU traits significantly predicted parent-reported Interpersonal Relations [$\beta = -.227$] and youth-reported Social Problems [$\beta = -.242$]. No significant interactions between CU traits and TOM scores were observed.

Table 12.

Regression Analysis to Estimate the Effect of Therapist Ratings of Treatment Success and CU Traits in Predicting Change¹ in Behavioral and Emotional Functioning

Dependent Variable	TOM (β)	CU (β)	TOM x CU (β)	Model R^2
<u>Parent BASC</u>				
CP	-.176	-.402**	-.013	.169**
ANX	-.201	-.075	.035	.043
DEP	-.241*	-.330**	.006	.138*
BSI	-.261*	-.363**	-.089	.175**
<u>Youth BASC</u>				
ANX	-.221 ^a	-.211 ^a	-.093	.089
DEP	-.140	-.328**	.090	.108*
ESI	-.191	-.267*	.026	.088
P-C Rel.	.163	.097	.159	.056
Inter	.124	.032	-.050	.018
<u>Parent YOQ</u>				
ID	-.072	-.091	-.089	.021
IR	-.129	-.227*	-.101	.078
SP	-.194	-.178	.015	.064
BD	-.155	-.156	.061	.049
<u>Youth YOQ</u>				
ID	.020	-.033	.003	.002
IR	-.142	-.109	-.214	.070
SP	.039	-.242*	.048	.055
BD	-.049	-.096	-.081	.019

*= $p < .05$, **= $p < .01$, ^a= $p < .065$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales apart from P-C Rel and Inter which are scored in the opposite direction. BASC= Behavioral Assessment System for Children-2nd Edition, YOQ= Youth Outcome Questionnaire

TOM= Therapist Outcome Measure, CU= Callous-Unemotional

CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

The results of the regression analyses in which youth Client Outcome Measure scores predicted BASC and YOQ subscale change scores can be found in Table 13. Youth COM scores

were observed to significantly predict improvement in youth-reported Parent-Child Relations [$\beta = .393$] and parent-reported Conduct Problems [$\beta = -.236$]. CU traits were found to significantly predict improvement on the parent-reported Conduct Problems [$\beta = -.410$], Depression [$\beta = -.277$], and Behavioral Symptoms Index subscales [$\beta = -.376$] and in the youth-reported Depression [$\beta = -.322$] and Emotional Symptoms Index [$\beta = -.265$] subscales. No significant interactions between youth COM scores and CU traits were observed. Youth COM scores were not observed to be related to YOQ change scores. CU traits, however, were found to significantly predict improvement on the parent-reported YOQ Interpersonal Relations subscale [$\beta = -.304$] and on youth-reported Social Problems [$\beta = -.230$]. Additionally, CU traits were found to approach significance in predicting improvement on the parent-reported Social Problems [$\beta = -.219$] subscale. No significant interactions between CU traits and youth COM scores were observed.

The results of the regression analyses in which parent Client Outcome Measure scores predicted BASC and YOQ subscale change scores can be found in Table 14. Parent COM scores were found to significantly predict improvement on the parent-reported Behavioral Symptoms Index [$\beta = -.238$] and Anxiety [$\beta = -.362$] subscales. CU traits were observed to predict improvement on the parent-reported Conduct Problems [$\beta = -.444$], Depression [$\beta = -.348$] and Behavioral Symptoms Index [$\beta = -.425$] subscales as well as on the youth-reported Depression [$\beta = -.331$] and Emotional Symptoms Index [$\beta = -.279$] subscales. No interactions between parent COM scores and CU traits were observed. In regards to the YOQ, parent COM scores were found to significantly predict improvement on the parent-reported Behavioral Disruption [$\beta = -.284$] subscale and parent COM scores approach significance in predicting improvement on the parent-reported Interpersonal Relations subscale [$\beta = -.214$].

Table 13.

Regression Analysis to Estimate the Effect of Youth Ratings of Treatment Success and CU Traits in Predicting Change¹ in Behavioral and Emotional Functioning

Dependent Variable	COM (β)	CU (β)	COM x CU (β)	Model R^2
<u>Parent BASC</u>				
CP	-.236*	-.410**	.044	.194**
ANX	-.067	-.001	.152	.027
DEP	-.003	-.277*	.074	.087
BSI	-.191	-.367**	.003	.144**
<u>Youth BASC</u>				
ANX	-.014	-.201	.077	.039
DEP	-.162	-.322**	-.119	.117*
ESI	-.160	-.265*	-.071	.080
P-C Rel.	.393**	.187	.193	.178**
Inter	.210	.042	-.135	.068
<u>Parent YOQ</u>				
ID	.049	-.128	.003	.021
IR	-.167	-.304**	.035	.101*
SP	-.122	-.219 ^a	.113	.066
BD	-.065	-.206	.195	.076
<u>Youth YOQ</u>				
ID	-.127	-.068	-.042	.017
IR	-.114	-.187	-.030	.041
SP	-.009	-.230*	-.109	.070
BD	-.085	-.146	-.016	.024

*= $p < .05$, **= $p < .01$, ^a= $p < .065$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales apart from P-C Rel and Inter which are scored in the opposite direction. BASC= Behavioral Assessment System for Children-2nd Edition, YOQ= Youth Outcome Questionnaire, TOM= Therapist Outcome Measure, CU= Callous-Unemotional, CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

CU traits were observed to predict improvement on the parent-reported Interpersonal Relations [$\beta = -.324$] and Social Problems [$\beta = -.262$] subscales. No significant interactions were observed between parent COM and CU traits.

Table 14.

Regression Analysis to Estimate the Effect of Parent Ratings of Treatment Success and CU Traits in Predicting Change¹ in Behavioral and Emotional Functioning

Dependent Variable	COM (β)	CU (β)	COM x CU (β)	Model R ²
<u>Parent BASC</u>				
CP	-.171	-.444**	.074	.180**
ANX	-.362**	-.106	-.103	.131*
DEP	-.178	-.348**	.040	.116*
BSI	-.238*	-.425**	.033	.180**
<u>Youth BASC</u>				
ANX	-.099	-.181	-.056	.042
DEP	.004	-.331**	.012	.097 ^b
ESI	-.164	-.279*	.047	.076
P-C Rel.	.182	.153	.006	.042
Inter	.176	.080	-.073	.034
<u>Parent YOQ</u>				
ID	-.129	-.055	-.150	.040
IR	-.214 ^a	-.324*	.095	.108*
SP	-.183	-.215	.057	.058
BD	-.284**	-.191	-.054	.100 ^a
<u>Youth YOQ</u>				
ID	.033	-.088	.060	.008
IR	.012	-.173	.042	.026
SP	.018	-.262*	-.047	.085
BD	.024	-.098	.023	.009

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales apart from P-C Rel and Inter which are scored in the opposite direction. BASC= Behavioral Assessment System for Children-2nd Edition, YOQ= Youth Outcome Questionnaire, TOM= Therapist Outcome Measure, CU= Callous-Unemotional, CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

Summary of ratings of treatment response. Therapist and client ratings of treatment success do appear to be related to improvement on measures of behavioral and emotional functioning. The association between these ratings and increased follow-up delinquency suggested that those youth with the most problems at pre-treatment showed the most improvement over the course of FFT. However, these youth were still functioning fairly poorly at post-treatment and were still at the most risk for recidivism.

The role of parenting in treatment outcome for those high and low on CU Traits.

Hypothesis 3c asserts that increases in positive parenting and decreases in negative parenting would be associated with improvement over the course of treatment, but that this would be moderated by the level of CU traits. The impact of parenting, as measured by the Alabama Parenting Questionnaire, on all treatment outcomes was assessed by a series of regression analyses using APQ change scores [post-treatment – pre-treatment], CU traits and an APQ change score by CU traits interaction to predict BASC and YOQ subscale change scores over treatment.

The results of youth reported Alabama Parenting Questionnaire positive parenting change scores in predicting BASC subscale score change can be found in Table 15. Increases from pre-treatment to post-treatment on youth-reported APQ positive parenting significantly predicted improvement on the parent-reported Conduct Problems [$\beta = -.314$], Depression [$\beta = -.287$] and Behavioral Symptoms Index [$\beta = -.356$] subscales as well as on the youth-reported Depression [$\beta = -.322$], Emotional Symptoms Index [$\beta = -.290$] and Parent-Child Relations subscales [$\beta = .612$]. However, no significant APQ by CU traits interactions were observed, suggesting that this association between increases in positive parenting and decreases in mental health problems was consistent for those high and low on CU traits. The results of parent reported positive parenting change scores in predicting BASC subscale score change can be found in Table 15. Parent-reported positive parenting change scores did not significantly predict change on any BASC subscales and no significant APQ by CU traits interactions were observed.

Table 15.

Regression Analysis to Estimate the Effect of Positive Parenting Change and CU Traits in Predicting Change¹ in BASC Scores

Dependent Variable	APQ (β)	CU traits (β)	APQ x CU (β)	Model R^2
Youth-reported APQ				
<u>Parent BASC</u>				
CP	-.314**	-.388**	-.170	.311**
ANX	-.211	-.003	-.024	.048
DEP	-.287*	-.356**	.124	.182**
BSI	-.356**	-.338**	-.148	.289**
<u>Youth BASC</u>				
ANX	-.076	-.229 ^a	-.095	.076
DEP	-.322**	-.302**	-.031	.194**
ESI	-.290*	-.262*	-.091	.175**
P-C Rel.	.612**	.145	.073	.422**
Inter	.230	.027	-.039	.049
Parent-reported APQ				
<u>Parent BASC</u>				
CP	-.061	-.372**	.017	.144*
ANX	.002	-.042	-.016	.002
DEP	-.093	-.293*	.018	.096 ^b
BSI	-.114	-.330**	.004	.124*
<u>Youth BASC</u>				
ANX	-.035	-.131	-.077	.027
DEP	.151	-.283*	.138	.110*
ESI	.059	-.203	.029	.042
P-C Rel.	-.078	.076	.088	.018
Inter	-.209	.006	.130	.057

*= $p < .05$, **= $p < .01$, ^a= $p < .065$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales apart from P-C Rel and Inter which are scored in the opposite direction.

BASC= Behavioral Assessment System for Children-2nd Edition

APQ= Alabama Parenting Questionnaire, CU= Callous-Unemotional

CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations

The results of youth reported Alabama Parenting Questionnaire positive parenting change scores in predicting YOQ subscale score change can be found in Table 16. Increases in youth-reported APQ positive parenting scores significantly predicted improvement only on youth-reported YOQ Social Problems subscale scores [$\beta = -.280$]. However, no significant APQ by CU traits interactions were observed. The results of parent reported APQ positive parenting change

scores in predicting YOQ subscale score change can also be found in Table 16. Parent-reported APQ positive parenting scores did not significantly predict change in any YOQ subscale scores and no significant APQ by CU traits interactions were observed.

Table 16.

Regression Analysis to Estimate the Effect of Positive Parenting Change and CU Traits in Predicting Change¹ in YOQ Scores

Dependent Variable	APQ (β)	CU traits (β)	APQ x CU (β)	Model R^2
Youth-reported APQ				
<u>Parent YOQ</u>				
ID	-.073	-.136	-.031	.028
IR	-.141	-.284*	.003	.101 ^a
SP	-.144	-.239*	.041	.074
BD	-.125	-.145	-.087	.055
<u>Youth YOQ</u>				
ID	-.005	-.036	-.071	.007
IR	-.173	-.137	-.104	.074
SP	-.280*	-.216 ^a	-.061	.145**
BD	-.025	-.103	-.053	.017
Parent-reported APQ				
<u>Parent YOQ</u>				
ID	-.110	-.156	-.054	.044
IR	-.103	-.279*	-.094	.106*
SP	-.106	-.194	-.014	.053
BD	-.121	-.181	-.107	.068
<u>Youth YOQ</u>				
ID	.048	-.063	.013	.006
IR	-.038	-.124	-.107	.031
SP	.120	-.198	-.042	.052
BD	-.150	-.038	-.080	.033

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales

YOQ= Youth Outcome Questionnaire, APQ= Alabama Parenting Questionnaire, CU= Callous-Unemotional, ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

The results of youth reported Alabama Parenting Questionnaire negative parenting change scores in predicting BASC subscale score change can be found in Table 17. Youth-reported APQ negative parenting scores did not significantly predict change in any BASC

subscales and no significant APQ by CU traits interactions were observed. The results of parent-reported APQ negative parenting change scores in predicting BASC subscale score change can also be found in Table 17. Parent-reported APQ decreases in negative parenting significantly predicted improvement on the parent-reported Conduct Problems [$\beta = .240$] and Depression [$\beta = .284$] subscales. However, no significant APQ by CU traits interactions were observed.

Table 17.

Regression Analysis to Estimate the Effect of Negative Parenting Change and CU Traits in Predicting Change¹ in BASC Scores

Dependent Variable	APQ (β)	CU traits (β)	APQ x CU (β)	Model R^2
Youth-reported APQ				
<u>Parent BASC</u>				
CP	.090	-.372**	.015	.149*
ANX	-.138	-.011	-.013	.020
DEP	-.105	-.313*	.047	.106 ^b
BSI	-.096	-.327**	.055	.115 ^a
<u>Youth BASC</u>				
ANX	.081	-.245*	.100	.078
DEP	.077	-.299*	.178	.128*
ESI	.058	-.277*	.157	.105 ^a
P-C Rel.	-.107	.130	-.050	.032
Inter	-.193	.011	.042	.036
Parent-reported APQ				
<u>Parent BASC</u>				
CP	.240*	-.319**	.025	.190**
ANX	.002	-.042	-.016	.015
DEP	.284*	-.225 ^a	.142	.176**
BSI	.196	-.291*	.043	.149*
<u>Youth BASC</u>				
ANX	.081	-.130	.044	.028
DEP	.008	-.267*	-.020	.072
ESI	.036	-.193	.009	.041
P-C Rel.	.092	.089	-.042	.017
Inter	.046	.002	-.121	.019

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales apart from P-C Rel and Inter which are scored in the opposite direction. BASC= Behavioral Assessment System for Children-2nd Edition, APQ= Alabama Parenting Questionnaire, CU= Callous-Unemotional, CP= BASC Conduct Problems, ANX= BASC Anxiety, DEP= BASC Depression, BSI= BASC Behavioral Symptoms Index, ESI= BASC Emotional Symptoms Index, P-C Rel.= BASC Parent-Child Relations, Inter= BASC Interpersonal Relations

The results of youth reported Alabama Parenting Questionnaire negative parenting change scores in predicting YOQ subscale score change can also be found in Table 18. Again, youth-reported APQ negative parenting scores did not significantly predict change in any YOQ subscale scores. However, the APQ by CU interaction approached significance in predicting the parent-reported YOQ Interpersonal Relations and Behavioral Disruption subscales. Post-hoc analyses⁴ indicated that as youth-reported levels of negative parenting increased, youth with low levels of CU traits showed less improvement on the parent-reported Interpersonal Relations [$\beta = .301, t = -2.409, p = .104$] and Behavioral Disruption [$\beta = .245, t = 1.320, p = .191$] subscales. Youth with high levels of CU traits, however, showed *increased* improvement as youth-reported levels of negative parenting increased on both the Interpersonal Relations [$\beta = -.106, t = -.735, p = .465$] and Behavioral Disruption [$\beta = -.204, t = -1.392, p = .169$] subscales. Figure 2 shows the post-hoc analyses for the Behavioral Disruption subscale. The results for the Interpersonal Relations subscale are not shown as they are very similar to those shown in Figure 2.

The results of parent-reported Alabama Parenting Questionnaire negative parenting change scores in predicting YOQ subscale score change can also be found in Table 18. Parent-reported decreases in negative parenting scores significantly predicted improvement on the youth-reported YOQ Social Problems [$\beta = .355$] subscale. Additionally, significant interactions between CU traits and APQ change scores were observed for parent-reported Social Problems and parent-reported Behavioral Disruption.

⁴ Post-hoc analyses conducted as per Holmbeck, 2002. Simple slopes were estimated for the regression lines at one standard deviation above and below the mean of the moderator and these lines were graphed in Figure 1. This allows for an investigation of the impact of a continuous moderator on the continuous relationship between the DV and IV.

Table 18.

Regression Analysis to Estimate the Effect of Negative Parenting Change and CU Traits in Predicting Change¹ in YOQ Scores

Dependent Variable	APQ (β)	CU traits (β)	APQ x CU (β)	Model R^2
Youth-reported APQ				
<u>Parent YOQ</u>				
ID	-.018	-.154	-.144	.043
IR	.081	-.271*	-.206 ^b	.109*
SP	.142	-.242*	-.155	.090
BD	.002	-.187	-.227 ^a	.080
<u>Youth YOQ</u>				
ID	.223 ^a	-.059	.038	.056
IR	.164	-.148	.003	.047
SP	.097	-.233*	.022	.064
BD	.187	-.122	-.037	.048
Parent-reported APQ				
<u>Parent YOQ</u>				
ID	.079	-.177	.106	.055
IR	.281	-.255*	-.047	.172*
SP	.355**	-.115	.265*	.197**
BD	.364	-.116	.250*	.196**
<u>Youth YOQ</u>				
ID	-.122	-.070	.028	.020
IR	-.036	-.166	-.195	.054
SP	-.004	-.180	.066	.040
BD	-.145	-.113	-.093	.030

*= $p < .05$, **= $p < .01$, ^a= $p < .065$, ^b= $p < .80$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales

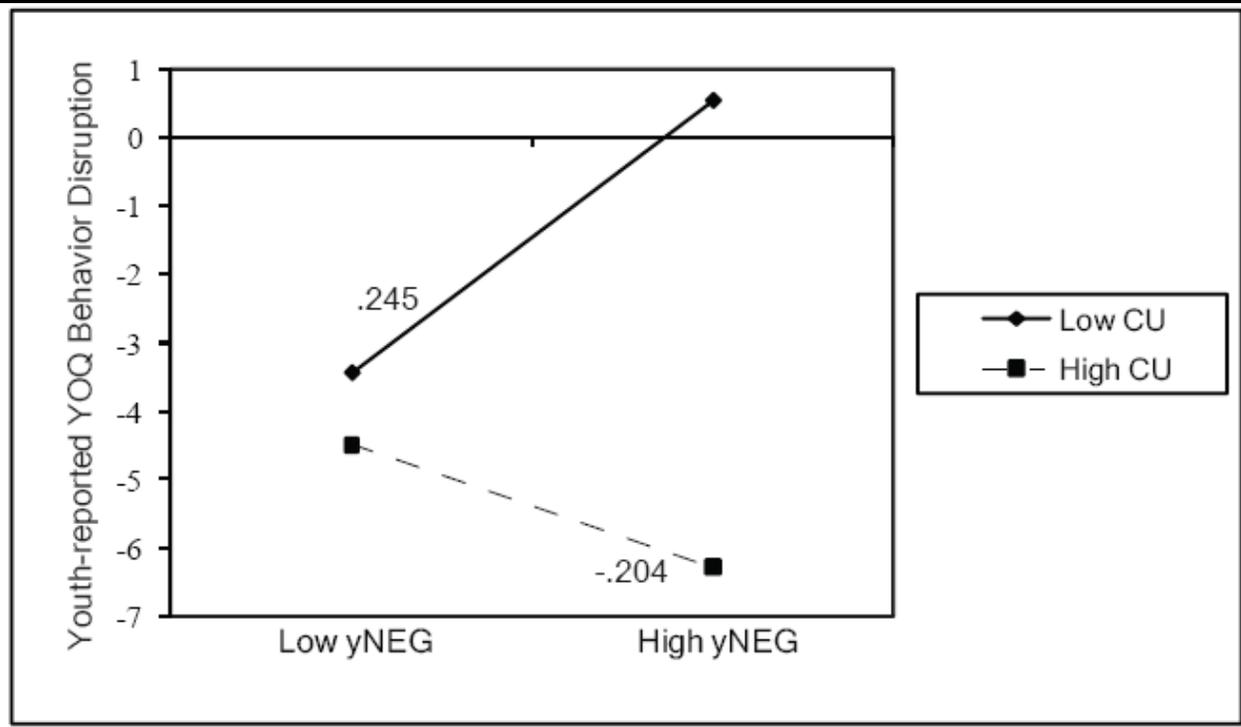
YOQ= Youth Outcome Questionnaire

APQ= Alabama Parenting Questionnaire, CU= Callous-Unemotional

ID= YOQ Intrapersonal Distress, IR= YOQ Interpersonal Relations, SP= YOQ Social Problems, BD= YOQ Behavioral Disruption

Figure 2.

Interaction between Youth-Reported Negative Parenting and CU Traits in Predicting Change¹ in the YOQ Behavior Disruption subscale



*= $p < .05$, **= $p < .01$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales

yNeg= Youth-reported Negative Parenting from the Alabama Parenting Questionnaire
YOQ= Youth Outcome Questionnaire, CU= Callous-Unemotional Traits

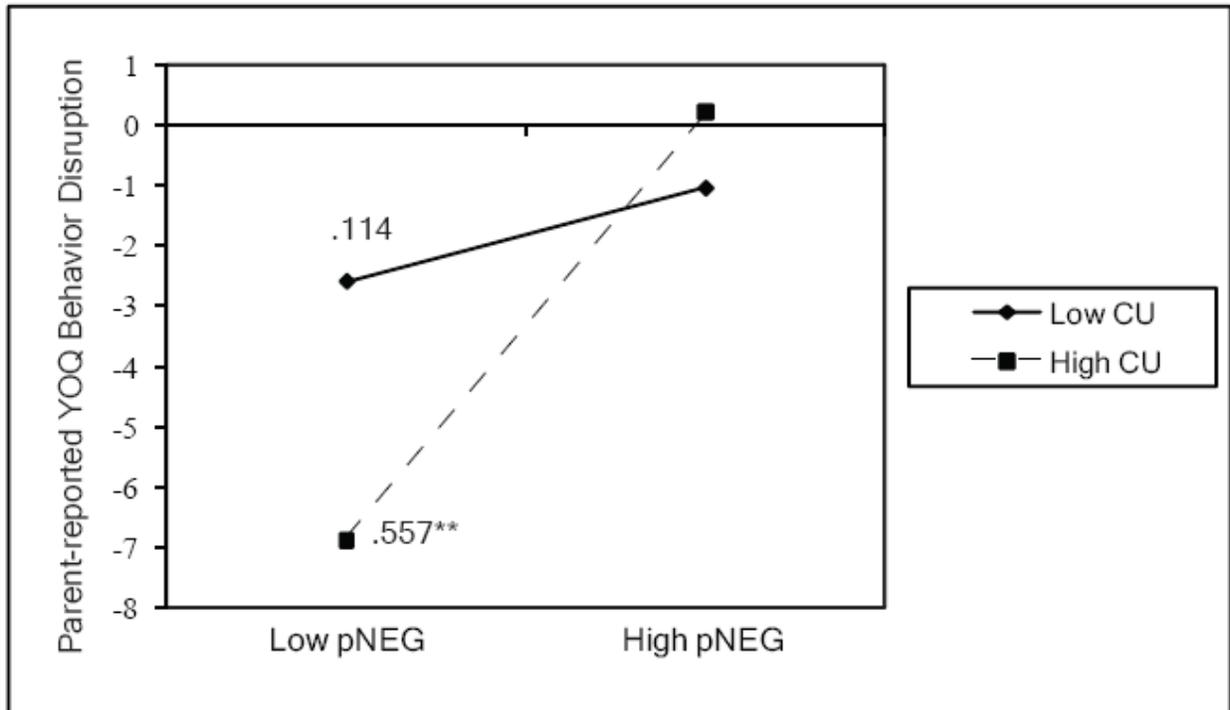
Post-hoc analysis indicated that as levels of parent-reported negative parenting increased, youths with high levels of CU traits showed less positive improvement on both the Social Problems [$\beta = .506$, $t = 3.582$, $p = .001$] and Behavioral Disruption subscales [$\beta = .557$, $t = 3.561$, $p = .001$].

Youth low on CU traits, however, were less responsive to increases in parent-reported negative parenting for both Social Problems [$\beta = .089$, $t = -.993$, $p = .324$] and Behavioral Disruption [$\beta = .114$, $t = .806$, $p = .423$]. Figure 3 shows the post-hoc analyses for the Behavioral Disruption

subscale. The results for the Social Problems subscale are not shown as they are very similar to those shown in Figure 3.

Figure 3.

Interaction between Parent-Reported Negative Parenting and CU Traits in Predicting Change¹ in the YOQ Behavior Disruption subscale



*= $p < .05$, **= $p < .01$

¹- Change scores were calculated by subtracting pre-treatment scores from post-treatment scores. Therefore negative β weights are indicative of improvement (i.e. lower dysfunction) on all subscales

pNeg= Parent-reported Negative Parenting from the Alabama Parenting Questionnaire
 YOQ= Youth Outcome Questionnaire, CU= Callous-Unemotional Traits

Summary of the role of parenting. Improvements in parenting, both decreases in negative parenting and increases in positive parenting were associated with improvement in behavioral and emotional functioning. The results suggest, however, a possible moderating effect for CU traits in terms of negative parenting. Youth-reported increases in negative parenting were associated with poorer response to treatment in youth with low levels of CU traits, but with

better treatment response in youth with high levels of CU traits. However, parent-reported increases in negative parenting were associated with no change in treatment response for youth with low levels of CU traits, but with substantially *poorer* treatment response in youth with high levels of CU traits.

Therapist Ratings of Treatment Goals. Hypothesis 3d posited that therapist would likely target different problem areas for those youth with and without high levels of CU traits. To test this, a series χ^2 tests were conducted. The results of these χ^2 tests can be found in Table 19.

There were no significant differences between youth with and without high levels of CU traits on any of the behavior change targets.

Table 19.

Chi-Square Tests to Estimate Differences between Youth with High and Low Levels (Median Split) of CU Traits on Behavior Change Targets

Dependent Variable	Low CU positive for DV	High CU positive for DV	χ^2 (df =1)
Parenting	26.4%	21.7%	0.023
Communication	41.5%	34.9%	0.250
Problem Solving Skills	30.2%	26.4%	0.303
Family Negativity	23.6%	19.8%	0.057
Adolescent Substance Abuse	1.9%	0.0%	1.624
Parental Substance Abuse	1.9%	0.0%	1.624
School Problems	6.6%	4.7%	0.039
Delinquent Behaviors	2.8%	1.9%	0.040
Running Away	1.9%	0.0%	1.624
Delinquent Peers	0.9%	1.9%	0.624
Parental Marital Problems	2.8%	0.0%	0.498
Psychological Issues	6.7%	4.8%	0.025

*= $p < .05$, **= $p < .01$

DV= Dependent Variable, CU= Callous-Unemotional

Discussion

CU traits have been associated with chronic, severe antisocial behavior (Frick & Dickens, 2006) and with a number of distinct correlates suggesting a unique developmental pathway to antisocial behavior in comparison to antisocial youth without CU traits (Frick & White, 2008).

In particular, antisocial behavior in youth with high levels of CU traits has not been associated with problematic parenting practices to the same extent as in other antisocial youth (Hipwell et al., 2007; Oxford, Cavell & Hughes, 2003; Wootton et al., 2003) and CU traits have been associated with poor treatment outcomes (Falkenbach et al., 2003; Gretton et al., 2001; O'Neill et al., 2003; Spain et al., 2004). However, Functional Family Therapy is a multi-component, individualized treatment, which purports to adjust treatment approaches based on what is and is not effective for each family enrolled (Sexton & Alexander, 1999). This suggests that FFT could be useful in treating antisocial behavior in youth with and without CU traits by adjusting treatment to fit the distinct differential correlates of CU traits and to account for the unique developmental pathways associated with the different types of antisocial behavior.

Summary of Key Findings.

The results of the current study suggest that FFT has a positive and significant impact on the families that it serves. FFT appears to influence both emotional and behavioral factors, with effect sizes accounting for approximately 10% of the variance in change from pre- to post-treatment parent-reported Behavioral Assessment System for Children and Youth Outcome Questionnaire scores. Importantly, the data suggest that these changes are reliable and there is evidence of clinically significant improvement. Additionally, the data indicate that very few youth in the sample got worse over the course of treatment. Furthermore, a lower proportion of youth completing treatment had probation violations and positive drugs screens when compared to youth who did not complete FFT. However, there were no significant differences between those who did and did not complete FFT on follow-up rates of official delinquency and the proportion of youth with new charges was higher for those completing FFT than not completing FFT.

Interestingly, there were significant changes from pre- to post-treatment only on parent-report of emotional and behavioral problems. Youth-report of adjustment did not significantly change over the course of treatment. There are a number of potential explanations for this discrepancy. Parents may have been more attuned to the consequences of failure to improve (i.e., greater likelihood of future detention, adult incarceration, poor educational and occupational outcomes) and therefore were more likely to endorse positive changes in behavior than youth. Also, parents may have been more likely than youth to expect changes from the intervention and, thus, have their scores more influenced by expectancy effects. Alternatively, there is evidence to suggest that parents are better raters of conduct problems than youths (Frick, Barry, & Kamphaus, 2010). Given that FFT places an emphasis on changing behaviors, specifically problematic behaviors, parents may actually be more accurate raters. The finding of improvement on parent-reported BASC Depression, however, is not consistent with this suggestion. Thus, further investigations of differences between youth- and parent-reports of treatment outcomes are important because it appears that the evaluation of a treatments success may depend greatly on the source of information.

While there are no currently available studies reporting treatment effect sizes or rates of clinically significant change for FFT, there is data on recidivism rates for FFT and youth not participating in treatment or participating in other treatments. In two studies with small group sizes, quite large differences between those participating and not participating in FFT were found. Alexander and Parsens (1973) found that youth completing FFT had a recidivism rate of 26% at 18 months, while no treatment controls had a recidivism rate of 50%. Gordan et al (1995) found even more pronounced results, finding that youth participating in FFT had a recidivism rate of only 8.7% after 5 years, compared to a 40.9% recidivism rate for youth that

received probation services only. Of note, this study had an initial sample of only 27 families, with only 23 families receiving a “full ‘dose’” of FFT (Gordon et al, 1995). A much larger study conducted by the Washington State Institute for Public Policy found recidivism rates of 34.5% for youth completing FFT compared to a rate of 40.6% for youth completing treatment as usual (Barnowski, 2002). Importantly, this finding was *not* statistically significant. Barnowski (2002) did find a marginally significant difference between recidivism rates for felony recidivism; 13.3% for those completing FFT compared to 19.2% for the treatment as usual group.

The current study’s findings for rates of recidivism, 40.3% at one year for those completing FFT compared to 34.5 % for those not completing FFT, are very similar to reported by Barnowski (2002). However, in the current sample, youth *completing* FFT have a greater number of new charges. The current study cannot fully replicate the findings of the Washington State Institute for Public study without treatment fidelity and therapist competence data. Barnowski (2002; 2004) reported that competent and highly competent therapist proved effective treatment, while incompetent and borderline competent therapists did not. In this study, a competent therapist was defined in terms of the clinicians’ ability to perform accurately and appropriately the therapeutic techniques outlined by FFT’s manual. Treatment fidelity refers to how closely the clinician is adhering to the treatment manual with their clients. The Washington State Institute for Public Policy study identified therapists who stuck to the FFT treatment guidelines and did so competently. Despite the finding for this study that there were *not* significant difference on outcomes between therapists, the low number of youth per therapist (mean of 23.33) indicates that further investigation into variables such as therapist competence and adherence to the FFT program is warranted.

The data also indicate that there is an important role played by CU traits in FFT's impact on the youth it serves. Youth with high levels of CU traits, consistent with previous research (Frick & White, 2008), were found to have more behavioral dysfunction at pre-treatment than youth with low levels of CU traits. The elevated levels of emotional dysfunction for youth high on CU traits, who also have high levels of behavioral dysfunction, is also consistent with previous findings (Frick & White, 2008). After treatment, again consistent with past research, youth with high levels of CU traits were still more impaired than youth with low levels of CU traits (Spain et al., 2004); however, the difference between these groups at post-treatment was much smaller than at pre-treatment and for some subscales was no longer a significant difference. Those youth with the largest amounts of pre-treatment dysfunction and high levels of CU traits were also the youth that showed the most change over the course of treatment.

Consistent with past findings, CU traits were related to self-report ratings of violent delinquency at post-treatment and at six months and one year follow-up CU traits were associated with official reports of parole violations at a level approaching significance (Frick & Dickens, 2006). In contrast to past findings, other post-treatment and follow-up measures of delinquency did not show these differences between youth with high and low levels of CU traits. Of note, however, is the fact that youth in the low CU group, who had fewer initial levels of problems, did not change significantly over treatment. This finding suggests that FFT may be better at treating severe problems, but youth at the end of treatment are still significantly impaired. Certainly, some previous studies indicate that FFT is effective with serious offenders (Barton et al., 1985; Gordon et al., 1995); however, previous work on FFT in similar (i.e. diversion) samples to the current study's has also shown improvement in youths' behavioral problems.

Our findings are consistent with past research that found youth participating in FFT to improve, but to still have a significant rate of reoffending and problematic behavior (Barnowski, 2002; 2004; Gordon et al, 1988; 1995). Indeed, other studies have not found significant difference between treatment programs on rates of general recidivism, even when other gains were clearly made (e.g. Barnowski, 2002; 2004; Caldwell, et al., 2006). Caldwell and colleagues (2006) specifically suggest that general, low-level offending may be largely influenced by environmental factors and therefore less susceptible to treatment altogether. Information on levels of violent reoffending and other major crimes in addition to general recidivism may have yielded different results.

Our results are also somewhat consistent with the treatment outcome research on CU traits. Several studies have shown some improvement by youth with CU traits, but not at the same level as other youth (e.g. Hawes & Dadds, 2005). Additionally, the pattern of results found in this study suggest that some of the negative outcomes associated with CU traits reported in other studies (e.g Falkenbach et al., 2003; Gretton et al., 2001; O'Neill et al., 2003; Spain et al., 2004) might not be due to a lack of treatment response per se, but may be due overall levels of dysfunction remaining high in these youth over the course of treatment. Caldwell, Skeem, Salekin and Van Rybroek (2006) studied juvenile offenders with psychopathic traits in two different treatment programs and found that youth with psychopathic traits in the more intensive treatment program were significantly less violent than those in the treatment as usual program. Levels of general recidivism in the two groups were comparable, however.

The results of the current study also provide some insight into the different treatment processes operating for youth with and without CU traits. While the FFT Behavior Targets were not different for youth with and without high levels of CU traits, CU traits were associated with

lower parent and youth ratings of treatment progress. Therapist ratings of treatment progress followed this trend but were not significant. Despite these relationships, therapist and youth and parent ratings of treatment progress were positively related to behavioral and emotional improvement. Generally, clients and therapists rated the treatment progress of youth with high levels of CU traits as having less treatment success, while these youth actually had the most treatment success.

Clouding this result is the finding presented in Figure 1, which illustrates the significant interaction between parent-reported COM and CU traits in predicting positive drug screens at six month follow-up, despite a lack of significance for the overall model. Among youth with high CU traits, a greater proportion of youth with *low* parent COM scores had positive drug screen than youth with high COM scores. This difference, however, was not significant. However, the proportion of youth with positive drug screens in the low CU traits group was much higher when parents reported high COM scores than when parents reported low COM scores. This pattern of results approached significance [$\chi^2 = 3.174, p = .079$] and was in line with general pattern that parental positive ratings of treatment success were related to less treatment success. Thus, despite a significant interaction, it appears that the general trend of client ratings of treatment success predicting poor treatment outcomes is consistent across parent and youth report.

It is possible that these findings were a product of the fact that the youth who improved the most over treatment, were still the most dysfunctional at the end of treatment. The finding that CU traits were related to poorer assessments of treatment success is also consistent with previous research. Spain and colleagues (2004) found that youth with psychopathic traits, specifically affective features including CU traits, were more likely to have their treatment “level” dropped by staff.

Furthermore, parenting had important implications for treatment process in the current study. Improvement in parenting was associated with improvements in behavioral and emotional functioning for youth-reported positive parenting and parent-reported negative parenting; however, there were some differences in the nature of these relationships for youth with and without high levels of CU traits. As youth-reported negative parenting decreased, youth with low levels of CU traits showed greater improvement on the YOQ Behavior Disruption and Interpersonal Relations subscales. In contrast, youth with high CU traits showed more improvement on these subscales with increased levels of negative parenting. This is consistent with earlier findings suggesting that more authoritarian parenting may be necessary to socialize youth with high levels of CU traits (Cornell & Frick, 2007). However, when parents reported increases in negative parenting, youth with high levels of CU traits were more responsive to these changes than youth with low levels of CU traits, though both groups showed less improvement on the YOQ Social Problems and Behavior Disruption subscales. This pattern of results is inconsistent with a variety of research showing a lower responsivity to negative parenting for youth high on CU traits (Oxford, Cavell & Hughes, 2003; Hipwell, et al., 2007; Wootton et al, 1997).

Importantly, these results seem contingent upon the reporter of negative parenting, possibly indicating different meanings for parent- versus youth-report of negative parenting in understanding antisocial behavior. It is possible that when youth report increased levels of negative parenting, those results may be associated with increased levels of parental control and rigid boundary setting rather than actual harsh parenting. There is evidence to suggest this approach may be beneficial for youth with CU traits, but not those low on these traits (Cornell & Frick, 2007). However, when parents report increased levels of negative parenting, it is possible

that those results are associated with increased levels of overly harsh and damaging parenting, as opposed to strict and rigid parenting strategies. A more thorough investigation of the overall parenting styles associated with scores and changes in scores on the APQ would help to identify patterns of behavior associated with the behaviors directly measured by the APQ. For example, videotaping parent-child interactions at pre- and post-treatment in situations where parents report increases in negative parenting, where youth report increases in negative parenting and where both parties report increases in negative parenting, would allow for observational coding. By coding the nature of, and changes in, these interactions, a better understanding of the processes mediating treatment change might be gained.

Clinical Implications

The results of the current study support previous research indicating that FFT may improve the mental health of antisocial youths, although data in the current study did not show the dramatic differences in recidivism rates that previous research has found (Alexander & Parsons, 1973; Barnowski, 2002; 2004; Gordon, Graves & Arbuthnot, 1995; Parsons & Alexander, 1973). Furthermore, in the current study a differential pattern of results was discovered for those youth high on initial levels of dysfunction. This pattern of results, in which youth with more severe behavior problems at pre-treatment improved substantially, while youth with only moderate problems at pre-treatment did not change substantially over the course of treatment, suggests the possibility that FFT treats severe behavioral problems better than moderate behavior problems and that modifications to FFT may be indicated. For example, improvements that are made in family contexts are not sufficiently generalizing to other domains, such as school and neighborhood and that greater emphasis should be on the youth's broader social context, not just in the family.

Additionally, the results of the current study are consistent with previous research in indicating the importance of CU traits in identifying a subgroup of more severely antisocial youth. Specifically, CU traits were largely responsible for the distinction between youth with high initial levels of dysfunction identified above (Frick & Dickens, 2006). Additionally, the results of this study further support the notion that CU traits are generally associated with poorer legal outcomes for youth receiving treatment in the juvenile justice system (Falkenbach, et al., 2003; Gretton, et al., 2001; O’Neill, Lidz & Heilbrun, 2003; Spain, et al., 2004) and that CU traits have an impact on treatment processes (Hawes & Dadds, 2005). Despite some conceptions of CU traits and psychopathy being treatment resistant or even treatment immune (Falkenbach et al., 2003), FFT did manage to substantially reduce both the behavioral and emotional symptoms in youth with high levels of CU traits over the course of treatment. This may indicate that youth with high levels of CU traits need additional, supplementary or different methods of treatment in order to continue to respond to treatment. For example, Caldwell and colleagues (2006) found that youth with psychopathic traits, including CU traits, who participated in an intensive treatment program fared much better than youth with psychopathic traits who participated in a treatment as usual group. The program had extremely small staff to youth ratios, including professional staff (psychologists, psychiatrists, psychiatric nurses and social workers). The treatment program also adhered to a treatment model emphasizing a shift from sanctions based discipline system to a “decompression” model (Monroe, Van Rybroek & Maier, 1988). In this treatment modality, positive interactions between staff and patients are emphasized and patients are gradually integrated into a treatment milieu. In contrast to other programs, the focus is on ensuring aggressive behaviors, and the negative, punitive and restraining staff responses, do not occur. The creators of this treatment argue that this disrupts a negative cycle where aggressive

client behaviors are met with aggressive responses from staff. By eliminating these mutually aggressive interactions, clients are better able to benefit from therapy as the fear of restraint and confinement is removed. Furthermore, staff is less frightened of clients and is free to develop more positive and therapeutically beneficial relationships with clients. There is some evidence to support the effectiveness of this treatment approach (Caldwell, et al., 2006; Monroe, Van Rybroek & Maier, 1988).

Furthermore, youth with low levels of CU traits did not respond to FFT, which may also indicate a need for modifying FFT or how FFT is delivered by JPHSA. Possibly some issues, (i.e., open defiance and parental supervisions issues) are being addressed by JPHSA's FFT therapists and this is leading to reductions in major behavioral problems. However, it is possible that more subtle therapeutic goals, such as increasing warmth and closeness within the family are not being met. Figuring out which needs of these youths and families are not being adequately met is important, however, as there were still substantial rates of delinquent outcomes reported at treatment follow-up.

Limitations

A number of important limitations restrict the generalizability of this study. Prominently, there is a large amount of missing data for the sample as a whole. It was not possible to collect post-treatment data from any youth that did not complete FFT and a large number of youth and parents did complete FFT failed to complete or to fully complete various measures. Furthermore, a number of subscales, particularly on the YOQ had internal consistency estimates below ideal levels. This lack of internal consistency makes confidence in utilizing these scales in statistical analyses low.

Additionally, the lack of a control group or a “treatment as usual” group limits the interpretation of these results. For example, without a treatment as usual group, it is not possible to determine if the particular therapeutic techniques employed by FFT were responsible for the observed changes or if any treatment might have been just as effective. Similarly, a control group would allow for treatment effects to be compared the simple passage of time. For a treatment to be considered effective, it must reduce symptoms to a greater extent than would be the case without treatment (Kazdin & Weisz, 2003). Furthermore, it is possible that youth in a control group might have continued on a trajectory of increasing behavioral and emotional problems, as opposed to decreasing over time, however modestly. In that light, FFT may be even more effective than the data in the current study suggest. Conversely, if the youth in the control group also moderately declined in terms of their behavioral and emotional over time, FFT may be less effective than the data currently suggest. In other studies examining FFT, however, youth in control and treatment as usual groups showed significantly poorer outcomes than youth participating in FFT (Alexander & Parsons, 1973; Barnowski, 2002; 2004; Gordon, Graves & Arbuthnot, 1995).

Similarly, follow-up arrest data were restricted to official data. Hindelang, Hirschi and Weis (1979) conducted a thorough review of the discrepancies between self-reported delinquency and official reports of delinquency. The authors showed that many of the weak correlations between self-reported delinquency and official data were due to the types of behaviors that each was querying (Hindelang, Hirschi & Weis, 1979). For example, most of the self-report questionnaires reviewed tapped only misdemeanor and minor offenses, while official data tended to tap into much more severe offending behavior (Hindelang, Hirschi & Weis, 1979). The SRD utilized in the current study queries mostly minor, misdemeanor offenses and so the

weak, non-significant correlation between SRD scores and official reports of delinquency are unsurprising (r 's ranging from .000 to .126). These weak associations make it difficult to determine if the non-significant associations between CU traits and delinquent outcomes are necessarily indicative of a non-significant relationship between actual delinquency and CU traits, or if official records are simply an insufficiently broad measure of delinquency to capture the relationship.

Finally, the current study did not assess therapist competence or fidelity to the treatment program. Without some measure of fidelity to the FFT treatment manual, it is not possible to determine the degree to which the FFT program was adhered to and how completely the FFT program was administered. In order to make statements about FFT itself, as opposed to FFT as administered specifically by the group of therapists involved in this study, further data would be needed. This deficit is particularly important when viewed in light of findings from Barnowski (2002; 2004), which found that level of therapist competence in FFT, including adherence to the FFT manual, was an extremely important factor in reducing negative outcomes. Incompetent therapists were actually found to *increase* negative outcomes overall (Barnowski, 2002; 2004). While there were no significant differences in outcomes between the therapists involved with this study, a complete investigation of treatment processes was not possible in this study.

Future Directions

While conclusive statements about FFT cannot be made on the basis of this study alone, the results presented here indicate further study of FFT is warranted. Future studies should address the limitations cited above. In particular, future studies should include a “treatment as usual” group and a control group for the reasons previously stated. Also, a more thorough exploration of self-reported delinquency at pre-test and follow-up would be beneficial. The

availability of official data for all participants in this study allowed for the inclusion of youth who dropped out of treatment; however, future studies that can follow-up with all youth for self-reported, as well as official data, would allow for a more complete understanding of FFT and its treatment effectiveness.

Future studies should also be sure to include a variety of different outcome data. Prior to the current study, outcomes for FFT have been reported only in terms of recidivism rates (Alexander & Parsons, 1973; Barnowski, 2002; 2004; Gordon, Graves & Arbuthnot, 1995; Parsons & Alexander, 1973) or treatment processes (Klein, Alexander & Parsons, 1977). Without providing information on pre-treatment and post-treatment functioning of the participants, treatment effect sizes for FFT are difficult to calculate. Furthermore, while officially reported recidivism is an important indicator of outcome, it is far from the *only* important indicator of outcome (Hindelang, Hirschi & Weis, 1981).

Additionally, future studies should address the issue of therapist competence and treatment fidelity. There is evidence that multi-component treatments, such as FFT, are more effective at reducing delinquent behavior (Eyberg, Nelson & Boggs, 2008; Henggeler & Lee, 2003; Henggeler, Pickrel & Brondino, 1999). In order to evaluate therapeutic techniques and programs specifically, therapist variables must be measured and controlled for. This is particularly vital in light of the Washington State Public Policy Institute findings (Barnowski, 2002; 2004), which found that therapist competency was an important variable in predicting treatment outcomes and that incompetent therapists actually made participants worse.

Finally, additional studies should continue to investigate the effectiveness of FFT in a variety of geographically and demographically diverse settings. Most of the original research conducted on FFT was conducted in the Western United States in medium sized metropolitan

areas (Alexander & Parsons, 1973; Barnowski, 2002; 2004; Klein, Alexander & Parsons, 1977; Parsons & Alexander, 1973) or rural Midwestern areas (Gordon, Graves & Arbuthnot, 1995) and the current study took place in a medium-sized Southern metropolitan area. The effectiveness of FFT in major metropolitan areas and in areas outside the United States has yet to be explored.

FFT, overall, had a modest, but positive impact on the youth it served. Relatively few youth deteriorated over the course of treatment and some youth reliably and clinically significantly improved. However, the majority of youth did not show reliable or clinically significant change and while many of the most dysfunctional youth showed improvement, FFT did not overall bring their behavioral or emotional functioning into the normal range and many of the only moderately impaired youth did not show significant change over the course of treatment. FFT shows promise, but much work is still needed to improve the program. Additionally, particular attention should be paid to the youth with lower levels of dysfunction. If improvement can be made with these youth, and any effective techniques applied to the end of treatment for the more severely impaired youths' treatment, the JPHSA FFT program might show great improvement. The relationship between CU traits, severe and the differences in FFT treatment response may provide some clues as to what more effective measures might be.

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Appendix A: Institutional Review Board Human Subjects Approval

Project Report and Continuation Application

(Complete and return to IRB, GP 2001. Direct questions to IRB administrator Jessica Grande 280-6013 or IRB Chairman Bobby Laird at 280-5454)



THE UNIVERSITY of NEW ORLEANS

Committee for the Protection of Human Subjects in Research GP 2076 Phone: 504-280-6013 Fax: 504-280-6049 humansubjects.uno.edu

IRB # 03Dec07 Current approval expires on: Feb 1, 2010

Review Type: Expedited Risk Factor: Minimal

PI: Paul Frick Department: Psychology Phone: 36012

Co-Investigators: Stuart White

Project Title: Evaluating the Effectiveness of a Functional Family Therapy Program Implemented in a State Human Services Agency Setting Six Months and One Year after Program Completion

Please read the entire application. Missing information will delay approval!

I. PROJECT FUNDED BY: UNO Proposal #

II. PROJECT STATUS: Check the appropriate box and complete the following:

- 1. Active, subject enrollment continuing; # of subjects enrolled:
2. Active, subject enrollment complete; work with subjects continues.
3. Active, work with subjects complete; data analysis in progress.
4. Project stat postponed. New start date:
5. Project complete. end date:
6. Project cancelled. No human subjects used.

III. PROTOCOL: Check one.

- Protocol continues as previously approved
Changes are requested* List (on separate sheet) any changes to the approved protocol.

IV. UNEXPECTED PROBLEMS: (did anything occur that increased risks to participants?)

Number of events since study inception: 0 since last report: 0
Have there been any previously unreported events? Y?N N
If such events occurred, describe them (on a separate sheet) and how they affect risks in your study.

V. CONSENT FORM AND BENEFIT RATIO

Does new knowledge or adverse events change the risk/benefit ratio ? Y?N N
Is a corresponding change in the consent form needed? Y/N N

VI. ATTACH A BRIEF, FACTUAL SUMMARY of project progress/results to show continued participation of subjects is justified; or to provide a final report on project findings.

VII. ATTACH CURRENT CONSENT FORM (only if subject enrollment is continuing); and check the appropriate blank:

- Form is unchanged since last approved
Approval of revision requested herewith; (identify changes)

(Electronic) Signature of Principal Investigator Paul Frick, Ph.D. Date Jan 4, 2010

IRB Action: Continuation approved; Approval Expires: Jan 4, 2011
Continuation disapproved
File closed
Signed: Robert D. Laird Date Jan 13, 2010

Vita

Stuart F. White was born in Bern, Switzerland of British parents and was raised in Massachusetts. He received his B.A. in Psychology and International Affairs from the George Washington University in 2004 and his M.A. in Forensic Psychology from John Jay College of Criminal Justice at the City University of New York in 2006. Upon graduation from the University of New Orleans, Stuart will begin a post-doctoral fellowship at the National Institutes of Mental Health in Bethesda, Maryland, which he hopes will be the first step in a long and productive research career.