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Multisystemic Treatment (MST) of Antisocial Behaviour in Youth: The Role of the Family in Facilitating Change

A thesis presented in partial fulfillment of the requirements of the

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New Zealand

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***Live every day of your life
as you would have wished
to have done so when
you are dying***

Abstract

The current dissertation includes three studies that examined (a) the overall effectiveness of Multisystemic Treatment (MST) achieved in previous outcome studies, (b) the effectiveness of MST with antisocial youth in New Zealand, and (c) a range of variables and their ability to predict MST treatment outcomes.

Study 1 adopted meta-analytic strategies to evaluate the overall effectiveness of MST in comparison to other treatment approaches or usual services in the treatment of antisocial behaviour in youth. The meta-analysis integrated the results from seven primary and four secondary MST outcome studies involving 708 participants. Results indicate that across different presenting problems and samples, the average effect of MST was $d = 0.55$; across both instrumental and ultimate outcome measures, youth and their families treated with MST were functioning better and offending less than 70% of their counterparts who received alternative treatment or services (Curtis et al., 2004).

Study 2 used a one-group pre- to post-treatment design to evaluate the efficacy of MST in New Zealand with 65 antisocial youth and their families. Results show that significant pre- to post-treatment improvements occurred in many of the instrumental and ultimate indicators of treatment outcomes. Gains were either maintained at or evident by the 6- and 12-month follow-up intervals.

Study 3 examined data collected from participants in Study 2 to explore a range of variables hypothesised to predict the effectiveness of MST in New Zealand. Results show that parent and youth stages of change were significantly related to improvements in ultimate outcomes (i.e., school attendance and decreased frequency and severity of offending behaviour) at post-treatment. With regard to decisional balance, parent perceptions of youth motivation and improved family relations (pros) were positively related to their youth's readiness to change. Findings related to therapist availability indicate evidence of a potential sleeper effect in that the benefits of therapist contacts during treatment appear not to have been fully realised until follow-up periods. No valid associations were found between adherence ratings and treatment outcomes. Implications of these results for the continued refinement and dissemination of MST are discussed.

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Foreword

Antisocial behaviour in adolescents represents a complex and pervasive clinical problem with significant consequences for individuals, peers, families, and communities. A broad spectrum of interventions and treatment modalities has been developed and applied to this condition. Despite the extensive range of available treatment options for antisocial youth, few have demonstrated sustained effectiveness in the amelioration of pervasive antisocial behaviour (Kazdin, 2000). Multisystemic Therapy (MST) has attracted attention after clinical outcome studies in the United States showed encouraging reductions in arrest and incarceration rates among youth offenders. Recent reviews of empirically supported child and adolescent treatments have identified MST as a "promising treatment" of antisocial behaviour and have noted that MST has been found to be effective across multiple replications, problems, therapists, and settings (Burns, Hoagwood, & Mrazek, 1999; Kazdin & Weisz, 1998).

In response to calls from mental health, social, and judicial services for more effective community-based treatment programmes to address the needs of increasing numbers of antisocial youth, MST has recently been introduced to New Zealand. Despite the success of MST in the United States (U.S.A.), it cannot be assumed that the benefits of this model will automatically be achieved in other countries. In fact, in support of this idea, the interim results of a relatively large ($N = 409$) 4-year controlled-outcome study of MST in Ontario, Canada found that MST was not more effective than the usual services provided by social service agencies (Leschied & Cunningham, 2002). The authors suggested that this might be due to a higher pre-existing level of agency services available to youth and their families in Ontario, Canada compared to the areas in which MST has been applied in the U.S.A. With regard to MST in New Zealand, cultural and social differences between the U.S.A. and New Zealand must also be considered. The existing empirical literature on MST and clinical outcomes suggests that treatment outcomes are

not mediated by culture, ethnicity, or gender (e.g., Borduin, Mann, Cone, Henggeler, Fucci, Blaske et al., 1995). However, given New Zealand's unique blend of social, cultural, and ethnic variables, it is important to ensure that the successful treatment outcomes found in the U.S.A. can be replicated in this country.

This dissertation comprises three related studies. Study 1 presents a meta-analysis of published outcome studies of MST. Study 2 evaluates the effectiveness of MST with antisocial youth and their families in New Zealand. Finally, Study 3 examines potential predictors of MST treatment outcomes. *Chapter 1* provides an overview of antisocial behaviour in youth generally and in New Zealand. The available treatment options for antisocial behaviour in youth in New Zealand are outlined in *Chapter 2*. The theoretical principles and empirical foundations of MST are examined in *Chapter 3*. The results of Study 1 are then presented in *Chapter 4*. *Chapter 5* outlines the study design and methodology of Study 2. The results of Study 2 are then examined and considered in *Chapter 6*. Potential treatment predictors examined in Study 3 are reviewed in *Chapter 7*. *Chapter 8* outlines the design and methodology of Study 3. Findings pertaining to the influence of predictor variables are examined and discussed in *Chapter 9*. Finally, a general discussion examining combined study findings and their implications for the continued refinement and dissemination of the MST model in New Zealand concludes the dissertation in *Chapter 10*.

Chapter One

Antisocial Behaviour in Youth¹

Antisocial behaviour in youth is one of the most challenging social dilemmas of recent times. Unlike most other psychological disorders, the harmful effects of antisocial behaviour often extend beyond the individual and family to disrupt neighbourhoods and communities. Indeed, siblings, parents, peers, teachers, classmates, and even strangers may all fall victim to the effects of acts perpetrated by antisocial youth (Kazdin, 2000). Consequently, this condition poses a significant social, judicial, and public health dilemma.

An alarming trend of increasingly extreme and persistent antisocial behaviours in youth has become evident through the 1980's and 1990's. Evidence of this trend is manifest in the unprecedented numbers of adolescents coming to the attention of mental health, social welfare, and youth justice systems throughout the western world (Kazdin, 2000; Rutter, Giller, & Hagel, 1998). In New Zealand, recent evidence suggests that while youth (i.e., 11-19 years of age) make up approximately 12% of the total population, they account for almost 20% of those affected by mental illness (Mental Health Commission, 1998). Youth experiencing mental health problems have increased significantly over the last twenty years from one in seven in 1982 to one in five in 1996 (Te Puni Kokiri, 1996). Furthermore, there is increasing overlap between antisocial behaviour and a range of mental health disorders (e.g., externalising and substance abuse disorders) and between these and youth crime rates (Federal Bureau of Investigation, 1999; Office of Juvenile

¹ A review based on Chapters 1-3 was published by Curtis, Ronan, Heiblum, Reid, & Harris (2002) in *The New Zealand Journal of Psychology* (See Appendix A).

Justice and Delinquency Prevention (OJJDP), 1997; Robins & Price, 1991). For example, of those adolescents in contact with the youth justice system, thirty five percent are estimated to have an externalising disorder (OJJDP, 1997).

Prevalence and Developmental Course of Antisocial Behaviour

Externalising syndromes in youths are the most common referral to mental health professionals (Frick, 1998; Kazdin, 2000; McGeorge, 1997). Prevalence rates appear to vary across age, gender (Frick, 1998), and ethnicity (McLaren, 2000; Sachdev, 1989). In terms of conduct disorder, the prevalence in children aged 5 to 11 has been estimated as being between 0.5 – 6.0% (Anderson, Williams, McGee, & Silva, 1987; Dimond & Hyde, 1999). However, in adolescence, estimates increase and vary between 9 and 15% (Cohen, Cohen, & Brook, 1993). Boys and ethnic minorities are also more prone to the disorder.

Prevalence rates appear to be similar between countries. For example, in the U.S.A. and U.K., between 4 and 15% of children meet the criteria for an externalising disorder such as conduct disorder (Robins, 1981). In New Zealand, the Dunedin Multidisciplinary Health and Development Study found conduct disorder at a rate of 9.1% among 11 year olds (McGee, Feehan, Williams, & Anderson, 1992). A similar study in Christchurch found a rate of 10.8% among 15 year olds (Fergusson, Horwood, & Lynskey, 1993). Both studies report reductions in prevalence by age 18 with rates dropping to 5.5% and 4.8%, respectively. Children with an early onset of the disorder (i.e., onset before age 10) are predominantly male. However, during adolescence gender differences reduce and prevalence becomes similar for boys and girls (Rutter et al., 1998). The prevalence of conduct disorder among Maori adolescents at age 18 was found in one large-scale study to be 12.1% compared to an average of 5.2% among non-Maori of the same age (Fergusson, Horwood, & Lynskey, 1997).

Not all children and adolescents who develop severe antisocial behaviour follow a common developmental course. Several models of antisocial behaviour have been proposed to account for different developmental trajectories toward antisocial behaviour in adolescence (i.e., Loeber, Wung, Keenan, Giroux, Stouthamer-Loeber, Van Kammen et al., 1993; Moffitt, 1993; Patterson, DeBaryshe, & Ramsey, 1989; Schaeffer, Petras, Jalongo, Poduska, & Kellam, 2003). Loeber et al. (1993) outlined three distinct pathways to account for later development of delinquency and criminal involvement: *overt* (i.e., stable and high levels of aggression evident across childhood, adolescence, and adulthood), *covert* (i.e., covert antisocial acts in childhood leading to non-violent, property crimes later in development), and *authority conflict* (i.e., behaviour that escalates from initial stubbornness to deviance and later status offending). Patterson et al.'s (1989) model proposes two alternative routes toward adult criminality: those of *early starters* (evident from early childhood and involving coercive parenting, school failure, and antisocial behaviour) and *late starters* (evident in early adolescence and involving poor parental monitoring, oppositional behaviour, and involvement with deviant peers).

Moffitt (1993) has also proposed and found evidence for two distinct categories of antisocial behaviour. The *adolescent-limited* form (a brief but intense and turbulent period of disruptive behaviour) and the *life-course persistent* form (characterised by onset in early childhood and a continuous course through adolescence and into adulthood). More recently, Schaeffer et al. (2003) found evidence for four distinct trajectories of aggressive behaviour: three *high-risk* trajectories (chronic high, moderate, and increasing aggression) and one *low-risk* trajectory (stable low aggression).

Consistent with the *late starter* and *adolescent-limited* models, in New Zealand it is known that approximately 25% of all adolescents offend. However, the vast majority offend only once or twice. By comparison, a relatively small group of juvenile males (approximately 6-10%) commit 50-70% of all general crime and 60-85% of all serious crime committed by adolescents (Ministry of Youth Affairs, 2000). This small group may represent the *overt*, *early starter*,

life-course persistent, and *chronic high* trajectories toward stable and persistent antisocial behaviour through adolescence and into adulthood. Prevalence estimates of the *life-course persistent* form of antisocial behaviour range from four to five percent in adult males (Robins, 1985).

Correlates of Antisocial Behaviour

The research literature suggests there is general consensus regarding some of the major risk factors and correlates thought to be associated with the development of antisocial behaviour in adolescents.

Individual Variables

Early aggressive behaviour has been identified as one of the predictors of the *chronic* and *life-course persistent* form of antisocial behaviour (Loeber, 1982; Robins, 1981; Eron, Huesmann, & Zelli, 1991). For example, a high level of aggression in children aged as young as three is a predictor of aggression and antisocial behaviour in adolescence. Within the Dunedin cohort, it was found that children with behavioural problems such as aggression at age five (as rated by their parents) were considerably more likely to show persistent and pervasive antisocial disorder in adolescence (White, Moffitt, Earls, Robins, & Silva, 1990). Furthermore, a review of 18 follow-up studies estimated a 0.63 correlation between earlier and later measurements of aggressive and antisocial behaviour in children (Robins, 1981). Similarly, antisocial behaviour in adolescents is a predictor of antisocial behaviour in adulthood (Farrington, 1996). Other individual characteristics include genetic transmission (Rutter et al., 1998). For example, adoption studies show that children of an antisocial parent are at greater risk of developing antisocial behaviour (Brennan, Mednick, & Kandel, 1991). Temperament is also thought to be a predictor of antisocial behaviour. Groups of children identified as "easy", "difficult", and "slow to warm up" have been found to interact in different ways with their environment (Thomas & Chess, 1977). An association has been found between children with difficult temperaments and aggressive and antisocial behaviour in later childhood and adolescence (Bates, Bayles, Bennett, Ridge, & Brown, 1991). It

has also been suggested that children with a difficult temperament also tend to be fearless and impulsive (i.e., poor self control skills) and are thus at increased risk of later aggressive and violent behaviour (Pepler & Slaby, 1994).

As with temperament, intelligence (IQ), particularly low verbal skills, has also been identified as a risk factor (White, Moffitt, & Silva, 1989). In general, poor scholastic achievement is characteristic of conduct disordered children and adolescents throughout their school career (Moffitt, 1993; Kazdin, 1987). Additional factors identified in the cognitive domain include attributional biases and problem solving deficits (Dodge, 1980). Aggressive children commonly engage in distorted processing and tend to make hostile attributions for the actions of others, particularly in ambiguous circumstances (Dodge & Frame, 1982). Social information processing deficits may develop as a learned behaviour within a hostile and aggressive family environment (Patterson, Chamberlain, & Reid, 1982).

Family Variables

Family relations and the family environment are considered to play a central role in the development and maintenance of antisocial behaviour. Factors identified here include parent management practices, parental characteristics, marital conflict, and parental psychopathology. For example, Patterson and his colleagues (1989) have described how parent management practices can provide direct training in antisocial behaviour (e.g., coercive problem solving strategies) and that intense and aversive interactions are typical in families with antisocial youth. In addition, parents may acquiesce in conflict-ridden interactions with their adolescent thus negatively reinforcing the aversive behaviour, which may then escalate in severity (Patterson, 1982). Other links have been found between overly critical, punitive, and inconsistent parenting styles, and antisocial behaviour (Frick, 1998). Similarly, parents of antisocial children are much less likely to show warmth, empathy, and affection toward their children (Synder, Schrepferman, & St Peter, 1997). Another factor, inadequate parental monitoring and supervision, has been identified as one of the strongest predictors of antisocial behaviour (Henggeler & Borduin, 1990; Loeber & Stouthamer-Loeber, 1986).

The stability of the family environment may also be exacerbated by conflict between parents. For example, parents in conflict tend to use discipline inconsistently and be less able to reason and rationally discuss issues. They also reinforce positive behaviour less often (Frick, 1998; Webster-Stratton & Herbert, 1994). Different implications may arise for an adolescent as a function of the age at which the parental conflict or family disruption occurs. Exposure to severe conflict or trauma in childhood (e.g., divorce, death, serious illness, unemployment) is another factor that may contribute to a variety of problems including antisocial behaviour. Such events may also hinder the development of peer relations and academic skills. Importantly, as described in the following section, adolescents may gravitate towards deviant peer group membership as a response to family disruptions (Patterson, Capaldi, & Bank, 1991).

Of course, it is possible that deficits in parenting skills and dysfunctional family relationships may be related to psychological, substance, or personality problems in parents. Three types of parental psychopathology have been consistently related to antisocial behaviour and conduct disorder: maternal depression (Williams, Anderson, McGee, & Silva, 1990), parental substance abuse (Reich, Earls, & Frankel, 1993), and parental criminal history and antisocial behaviour (Lahey, Loeber, & Burke, 2002).

Peer Relations

It is likely that breakdowns in the socialisation process resulting from individual and family factors predispose adolescents to rejection from normal peers (Loeber & Stouthamer-Loeber, 1986). Learned aggressive behaviour is thought to lead to inappropriate interactions with peers. Aggressive and antisocial youth are more likely to make threats, be physically violent, intimidate, and exclude others compared to normally socialised youth (Dodge & Coie, 1987). Consequently, lacking in social and interpersonal skills, disruptive youth are typically rejected by their peer group (Coie, Lochman, Terry, & Hyman, 1992). Peer rejection not only hinders the development of prosocial skills, it has also been found to set antisocial youth on a path towards the development of associations with other deviant peers (Parker & Asher, 1987). Association with deviant or antisocial peers tends to increase the rate and severity of antisocial

behaviour exhibited (Patterson, Reid, & Dishion, 1992) and is acknowledged in the research community as another powerful predictor of antisocial behaviour (Elliott, Huizinga, & Ageton, 1985; Henggeler, Cunningham, Pickrel, Schoenwald, & Brondino, 1996).

School Performance

Inappropriate relationships extend into the school environment where research indicates antisocial youth interact more frequently and negatively with teachers and spend more time off task and disrupting others (Coie et al., 1992). As a consequence of their non-compliance and failure to spend sufficient time on task, at-risk youth typically experience learning difficulties and failure in the school system (Patterson et al., 1991). Failure in the school environment is also associated with poor relationships between parents and the school, increased association by youth with deviant peers, and increased antisocial behaviour beyond the school in the wider community (Farrington, 1991).

Community and Environmental Variables

Other community and sociodemographic variables interact with problematic individual, family, peer, and school characteristics to influence the development of antisocial behaviour. Research evidence suggests higher rates of antisocial behaviour are more common in deprived urban, social, and economic conditions in which one or both parents are unemployed (Smith, 1996). For example, deprived home environments are more likely to manifest low rates of cohesion, disparate, and disjointed activities, as well as higher rates of domestic violence, and chronic parental conflict (Kazdin, 1996; Rutter et al., 1998). Deprived and disorganised communities are also more likely to have less adequate educational and community facilities and higher rates of truancy, failure, and dropout from schools. In such communities, evidence of a criminal subculture will likely manifest in a greater prevalence of violence, drug sales, teen parenthood, and sexually transmitted diseases (Dryfoos, 1998).

The issues and risk factors outlined thus far are of widespread significance. Other issues relate more specifically to the New Zealand

environment. As noted earlier, Maori youth appear to develop antisocial behaviour at almost three times the rate of non-Maori. Maori youth are also disproportionately represented in juvenile crime statistics. Contributing factors proposed to account for these differences include cultural alienation and loss of identity (Durie, 1994; Sachdev, 1989), rapid urbanisation, associated breakdown of whanau (family) groups (Durie, 1994), and economic destruction (Henare, 1994). In combination, these factors are considered to make Maori youth more vulnerable to developing aggressive and antisocial behaviours. Some of these same factors may also relate to other cultural groups in New Zealand (e.g., Pacific Island, Asian).

Co-morbidity

Along with the factors that influence the development of antisocial behaviour in youth, the manifestation of antisocial behaviour and conduct disorder is also associated with an increased risk of other disorders (Loeber, Burke, Lahey, Winters, & Zera, 2000). Research evidence indicates co-morbid relationships frequently occur between externalising disorders, learning difficulties, mood disorders, anxiety disorders, and substance abuse (American Psychiatric Association, 1994; Robins & Price, 1991). For example, Attention Deficit Hyperactivity Disorder (ADHD) is a common co-morbid condition of conduct disorder in boys, a combination that is also associated with an increased risk for anxiety and depression (Barkley, 1998). In addition to co-morbid psychiatric disorders, evidence also suggests that at-risk behaviours tend to occur together. For example, drug abuse, antisocial behaviour, and academic dysfunction have been found to co-occur. It is likely that when at-risk behaviours manifest more frequently, higher rates of other emotional and behavioural difficulties also occur in an exponential-like fashion (Kazdin, 1996).

Consequences of Antisocial Behaviour

The consequences of antisocial behaviour and conduct disorder are reflected in part by increasing youth crime rates in New Zealand (McLaren, 2000). Similarly, official statistics and victim surveys elsewhere show that

adolescents aged between 14 and 18 account for approximately one quarter to one third of offences in the U.K. and the U.S.A. (Mayhew, Maung, & Mirrlees-Black, 1993; OJJDP, 1997). More precisely, a survey conducted in the U.S.A. found that juveniles under age 18 were involved in 12% of homicides, 27% of all serious violent victimizations, including 14% of sexual assaults, 30% of robberies, and 27% of aggravated assaults (Federal Bureau of Investigation, 1999). The large majority (93%) of these juvenile offenders were male (OJJDP, 1999).

In New Zealand most 14- to 16-year olds who are apprehended for criminal offending are dealt with by means other than formal prosecution in court (e.g., warning, Police Youth Aid, Family Group Conference). Therefore statistics presented on court convictions under-represent youth offending in New Zealand. For this reason, trends in the number of apprehensions of 14- to 16-year olds are presented.

Between 1994 and 2003, the total number of apprehensions made by Police in New Zealand of 14- to 16-year olds increased from just under 31,000 in 1994 to 33,994 in 2003 (Spier & Lash, 2004). However the number of 14- to 16-year olds apprehended for violent offences has increased by 33% since 1994, with the 2003 figure (3,166 apprehensions) being the highest recorded during the period examined. Although the majority of apprehensions during the 1994-2003 period are for property offences (69%), apprehensions for antisocial and/or drug related offences, and traffic offences increased 52% and 57%, respectively. Males accounted for 83% of the cases involving young people prosecuted in 2003. Maori youth aged between 14- and 18-years accounted for just over half (52%) of the youth cases dealt with by the courts in 2003, a further 36% involved NZ Europeans, 11% involved Pacific peoples, and 2% involved offenders of some other ethnicity (Spier & Lash, 2004). In total, the number of convictions involving young people aged between 14- and 16-years and proved in the youth court has increased from 3,204 in 1994 to 4,315 in 2003. Given the rising prevalence of antisocial behaviours for youth, families, and the wider community, the need for effective, readily available treatments is urgent.

Chapter Two

Treatment Options for Antisocial Youth in New Zealand

In New Zealand, a range of treatments for antisocial behaviours are offered, with some programmes based on a prevention model that targets "at risk" youth and their families. These programmes are aimed at helping the youth *before* their behaviour brings him or her into contact with mental health, social, or judicial systems (Maxwell & Morris, 1999; Singh & White, 2000; McLaren, 2000). However, as also seen overseas, the majority of programmes provide treatment *after* the youth manifests a serious clinical problem. The focus of treatment ranges from individually-based approaches to community-based programmes that integrate a range of services spanning family, school, and broader support systems. The most widely used treatments for youth antisocial behaviour in New Zealand are briefly reviewed in the following section. It is important to note that many of the programmes reviewed in the following section have been developed overseas. In addition to outcomes achieved by these programmes elsewhere, New Zealand outcomes are reported where available.

Individually-Based Treatment Approaches

Problem-Solving Skills Training (PSST)

Problem-solving skills training (PSST) is an individually focused treatment approach that primarily targets cognitive deficits and distortions related to the youth's antisocial behaviour (Dodge, Price, Bachorowski, & Newman, 1990). PSST involves the use of modelling and reinforcement tasks (e.g., problem-solving, turn-taking, identifying sequences in behaviours) to

assist young people in developing and applying appropriate cognitive and behavioural problem-solving skills to real-life situations. Outcome studies with clinically referred conduct-disordered children (Durlak, Fuhrman, & Lampman, 1991; Kendall, Reber, McCleer, Epps, & Ronan, 1990) have demonstrated significant post-treatment reductions in adolescent aggressive and antisocial behaviour at home, at school, and in the community. However, some evidence suggests that youth with higher levels of impairment across various domains (i.e., academic delays, lower reading ability, parent psychopathology, family dysfunction) respond less well to treatment (Kazdin & Weisz, 1998). Although PSST is widely used by clinicians in community mental health settings, research to establish the effectiveness of this programme within New Zealand has yet to be reported.

Residential Services

In recent years in New Zealand, children and youth with severe conduct disorders have increasingly been referred to secure residential facilities. There has also been increasing public demand for such facilities ("Dominion Post Editorial", 2004). These facilities clearly meet an essential need for severely conduct-disordered youth who present an immediate safety risk to themselves or others. These residential centres may also provide care for young people who have no established caregivers or who are unable to return home because their caregivers have been deemed unfit. However, the harmful effects of grouping antisocial youth together in such environments are of increasing concern to mental health professionals. In a meta-analysis of controlled studies on group- and peer-based treatments for antisocial youth, an estimated 29% of interventions demonstrated negative outcomes (Lipsey, 1992). The association with deviant peers that occurs in group- and peer-based treatment settings has been found to contribute to increases in problem behaviours, and negative outcomes in adulthood (e.g., higher rates of unemployment) (Arnold & Hughes, 1998; Dishion, McCord, & Poulin, 1999; Dishion, Spracklen, Andrews, & Patterson, 1996). Moreover, research findings suggest that any treatment gains that do occur in residential setting placements are usually not maintained in the long term (McLaren, 2000; McLean & Grace, 1998; Sherman, Gottfredson,

McKenzie, Edck, Reuter, & Bushway, 1998). Despite this being a commonly used mode of treatment for severe conduct disorder in New Zealand, as yet no research to explore the effectiveness of residential facilities has been reported in New Zealand.

Family-Based Approaches

Parent Management Training (PMT)

Parent Management Training (PMT; Patterson, Chamberlain, & Reid, 1982) is a promising family-based approach in which behavioural strategies are used to help parents develop the necessary skills to manage their children's problematic behaviours more successfully (Kazdin, 1987). Specifically, parents are trained to identify, define, and respond to their youth's problem behaviour through the application of positive reinforcement techniques, negotiation skills, contingency contracting, and negative consequences. Parents are then supported and guided as they apply their newly developed skills to increasingly problematic situations. More recent programmes also emphasise increased warmth, affection, and positive parent-child interaction (e.g., Webster-Stratton, 1998). Although clinically significant treatment effects have been reported on a wide range of post-treatment and short-term follow-up measures (Kazdin & Weisz, 1998), these gains have not been found to be maintained over three years (Long, Forehand, Wierson, & Morgan, 1994). Further, the generalisation of this approach to adolescents appears limited, in that the strongest treatment effects have been found for younger children exhibiting less severe problems (Frick, 1998; Kazdin, 1997; Kazdin & Whitley, 2003). Preliminary outcomes in New Zealand suggest that PMT is able to achieve beneficial and sustainable outcomes with younger disruptive youth with a primary diagnosis of ADHD (Lees & Ronan, 2004).

Functional Family Therapy (FFT)

Functional Family Therapy (FFT; Alexander & Parsons, 1982) is based on a family systems approach to assessing and treating problematic youth behaviour. From this perspective, antisocial behaviour is considered to serve an

emotional or behavioural function within the family context. For example, an adolescent's defiant behaviour may prompt attention from the parent thus fulfilling a need for intimacy not otherwise available in the family. Early outcome studies (Klein, Alexander, & Parsons, 1977) found that FFT was more effective in reducing the frequency and severity of youth problematic behaviours when compared to client-centred, psychodynamic family therapies, and to a no-treatment control. More recent studies have shown that improvements in family communication and lower recidivism for status offences (e.g., truancy, runaway) have been maintained up to 2.5 years post-treatment (Kazdin, 1997). More rigorous replications are required to establish treatment efficacy with serious youth offenders. Again, this approach is reportedly used by clinicians in a range of health settings, however there is not yet any evidence to support the effectiveness of FFT within New Zealand.

Multidimensional Treatment Foster Care (MTFC)

Multidimensional Treatment Foster Care (MTFC; Chamberlain, 1994) is a programme that places young people with antisocial behaviour in therapeutic foster homes within their community. MTFC is tailored to meet the individual needs of each youth and family. The goal of the MTFC programme is to assist youth to expand their pro-social behavioural repertoires to a level that allows participation in sports teams, membership of clubs, and participation in community events. Youth are closely monitored in all settings and frequent contact occurs between foster parents and the case manager. Using principles of social learning theory, the foster family is trained to identify and apply behaviour management strategies and consequences (e.g., extra chores, loss of privileges) for transgressions in the home, school, and community (Chamberlain, 1994). Emphasis is placed on shaping behaviour in areas identified as below average. Positive reinforcement is used to strengthen and expand appropriate behaviour. Concurrently, the natural parents are also introduced to the therapeutic model, with the ultimate goal being the youth's return to his or her natural parents within a relatively short period of time ($M = 7$ months). A recent clinical trial demonstrated that MTFC youths participated in significantly less criminal activity at one- and two-year follow-ups than their

counterparts in residential care post-treatment (Chamberlain & Mihalic, 1998). Owing to these positive treatment gains, MTFC has recently been recognised as a promising programme for violence prevention by the Centre for the Study of Violence at the University of Colorado (Chamberlain & Mihalic, 1998). Youth Horizons Trust introduced a modified version of MTFC to residential centres for antisocial youth in Auckland during 1999. Results of an evaluation of this programme are not yet available.

School-Based Interventions

Numerous and diverse school prevention and treatment programmes for antisocial behaviour in youth are offered throughout the world. Rather than reviewing each individual approach, a recent meta-analysis of 221 school-based intervention programmes on aggressive behaviour in antisocial youth found small effects for routine school-based programmes compared to demonstration (pilot) projects (Wilson, Lipsey, & Derzon, 2003). Among demonstration programmes behavioural ($d = 0.43$) and counselling-based approaches ($d = 0.41$) were found to show the largest effects. Peer mediation programmes and social competence training with or without cognitive-behavioural components achieved slightly smaller effects ($d = 0.28$ and $d = 0.18$, respectively). Multi-modal approaches showed the smallest effects overall ($d = -0.02$). In addition, a key outcome of a recent survey of school programmes suggested that adequate training of service delivery personnel, supervision, and support for school principals were seen as critical to implementing and maintaining programmes successfully (Gottfredson & Gottfredson, 2002).

Tu Tangata, a school-based prevention programme now operating in 27 New Zealand schools is designed to provide at-risk youth with access to high quality education (Puketapu, 1999). Although the focus of the programme is on the child, parents, caregivers, and community members are also encouraged to become involved in the daily learning activities of their children. Tu Tangata aims to emphasise social and cultural values by highlighting the value of the school as a "community place". Parents and community members are encouraged to share their personal skills, experience, and motivation with the children. Preliminary favourable outcomes include reduced student

absenteeism and school suspensions, as well as higher levels of student motivation and achievement (Puketapu, 1999). Ongoing evaluation as to the effectiveness of this programme is required over a longer term.

The Eliminating Violence (EV) Programme developed by Specialist Education Services (SES) is another programme that helps schools to develop an optimal learning environment free of bullying and intimidation (Adams, 1999). The programme recognises three key aspects of violence typically evident in schools: bullying and harassment, hurtful behaviours, and out of control behaviour. The EV programme aims to assist schools to develop a pro-social environment where staff and students feel safe, welcome, and respected. Pro-active and preventive strategies (i.e., positive reinforcement, contingency planning) are introduced to address and inhibit violent behaviours. Ongoing classroom and playground observations ensure that youth who repeatedly lose control are identified and directed into focused support programmes.

Post-programme observations suggest that a year after programme implementation, reductions in observed physical violence and rates of bullying in schools have occurred (Adams, 1999). In addition, pupils were found to be more likely to report incidents and staff were found to be more likely to intervene. The EV programme is now established in 69 schools throughout New Zealand.

Community Approaches

Family Group Conference (FGC)

The primary mechanism for dealing with youth offenders in New Zealand is a restorative justice form of court diversion referred to as the Family Group Conference (FGC). During the FGC, key stakeholders with an interest in the youth's welfare (e.g., immediate and extended family), as well as those who might have been affected by the youth's behaviours (e.g., the victim) meet to establish a formal and binding decision about how to address the youth's problem behaviours. Offenders and family members are expected and

problem behaviours. Offenders and family members are expected and encouraged to participate in finding solutions and making decisions about how best to satisfy the victim and restore justice (Morris, 1999; Singh & White, 2000). Although nearly 80% of young offenders are currently diverted from court hearings to FGCs, recent evidence suggests that 48% re-offend after six months (Scott, 1999). Moreover, the availability of other programmes to work in collaboration with the FGC's structure and provide follow-up for the FGC treatment recommendations appears to be limited (Barwick, 1999; Brown, 2000).

Strengthening Families

Strengthening Families is a recent initiative jointly developed by the Ministries of Health, Education, and Social Welfare to support at-risk families characterised by disadvantaged family and social circumstances (Wood, 1999). The broad aims of the Strengthening Families programme are to identify children in families at risk, to ensure that parents are aware of and meet their responsibilities to their children, and to improve the quality of services provided to these families through effective interagency collaboration (Wood, 1999). Safer Community Councils and Family Start are other examples of integrated services that facilitate the co-ordination of community agencies responsible for the care of youth. Although anecdotal evidence suggests that these initiatives are "making a difference" (Wood, 1999), methodologically rigorous assessment and evaluation of these programmes has not yet been conducted (McGeorge, 1997; McLaren, 2000).

Mentoring and Community-Based Approaches

Mentoring is becoming an increasingly popular strategy for harnessing the resources and experience of community members (Evans & Ave, 2000). Mentoring has received considerable attention, mostly in the U.S.A., as a proactive approach for intervening in the lives of at-risk youth. Sherman et al. (1998) considers mentoring to provide the most meaningful adult-child interactions of any formal community-based programme. Reports suggest there is a growing interest in implementing mentoring programmes more widely and

particularly in New Zealand schools that serve low-income communities (I. Evans, personal communication, December 4, 2003). New Zealand mentoring programmes include the Mentoring for Children/Youth at Risk Demonstration project conducted by Ave and colleagues (1999) in six sites throughout New Zealand and the Buddy Programme conducted by Presbyterian Support in Dunedin.

Many of the 119 children ($M = 10$ yrs old) that participated in the Mentoring for Children/Youth at Risk Demonstration evaluation were considered "at risk" of later development of behavioural problems as evidenced by conduct problems and underachievement at school, truancy, and abuse of alcohol/drugs. Evaluation outcomes indicate that mentors, family members, and teachers were generally positive about the programme and its benefits. Specific changes observed included improved self-confidence and a tendency for children to be more open and forthcoming with others. Of the initial 77 mentoring relationships established, approximately 50% were maintained at the end of the 18-month evaluation period (Ave, Evans, Hamerton, Melville, Moeke-Pickering, & Robertson, 1999). The recruitment of mentors proved to be a major challenge particularly for matching Maori youth with older Maori in this programme. Ave et al. (1999) concluded that it may take more time before mentoring is widely accepted, supported, and valued in New Zealand.

In summary, current interventions in New Zealand appear predominantly to emphasise more singular modality intervention programmes based on identification of either the youth with an identified problem, or in a more preventive sense, "at risk" families (Ministry of Youth Affairs, 2000). Recidivism rates continue to increase despite the range of treatment approaches available in New Zealand. Consequently, requests for the implementation of more effective community-based treatment programmes have become increasingly urgent (Brown, 2000; Curtis et al., 2002; McGeorge, 1997).

Chapter Three

What is Multisystemic Treatment (MST)?

Theoretical Foundations

Multisystemic Therapy (MST) is a family- and community-based treatment approach that has been shown to achieve beneficial and sustainable outcomes with antisocial youth. The treatment theory underlying MST is based on social-ecological principles (Bronfenbrenner, 1979) and causal modelling studies of serious antisocial behaviour (Elliott et al., 1985; Lipsey, 1992). Causal modelling studies suggest that maladaptive behaviour is determined by difficulties within multiple systems in the youth's ecology as reviewed in Chapter 1 (e.g., family, school, peers, community). In line with this multidimensional approach, MST also considers behaviour to be a function of the person and their interactions with the environment. Accordingly, MST interventions target individual, family, peer, school, and community elements identified as contributing to and maintaining, as well as protecting against, problematic behaviour (Henggeler & Borduin, 1990). In particular, MST is focused on empowering parents and other important members of the youth's ecology to develop the necessary skills and competencies to help the youth function more effectively.

How Does MST Work?

The MST treatment process is intensive (therapists are available to families 24 hours per day, 7 days per week), strengths-based (systemic strengths are identified and used to facilitate positive change), and time-limited

(average duration of treatment is four months). Ecological validity is emphasised by addressing the individual needs of youth and their families directly within home and community settings (Henggeler, 1989). Finally, an important feature of MST is that service providers are accountable for engaging families in treatment and achieving clinically significant outcomes.

MST interventions typically aim to:

- Improve caregiver discipline practices;
- Enhance family affective relations;
- Decrease youth association with antisocial peers;
- Increase youth association with pro social peers;
- Improve youth school or vocational performance;
- Engage youth in pro social recreational outlets;
- Develop an informal support network to help caregivers achieve and maintain such changes.

To facilitate these aims, specific treatment techniques are chosen and integrated from empirically supported therapies, including cognitive behavioural, behavioural, and pragmatic family therapies (e.g., structural, systemic, functional). For example, family therapy approaches (Haley, 1976; Minuchin, 1974) may be applied in conjunction with other models including behaviour therapy, cognitive-behaviour therapy such as PSST (e.g., Kendall & Braswell, 1993; Ronan & Kendall, 1991), and PMT (Patterson et al., 1982). MST is distinguished by the fact that it targets both risk and protective factors specific to the individual and their family. In addition to ameliorating risk factors, MST also seeks to reinforce protective factors by assisting adolescents and parents to take control of their lives (Henggeler et al., 1996). In fact, as introduced at the beginning of this section, MST emphasises family-based “strengths as levers for change” (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998).

Based on this philosophy, a contextually oriented and individualised treatment programme is collaboratively designed to address the multiple factors related to antisocial behaviour. The MST assessment process seeks to identify

and understand the factors that contribute directly or indirectly to behavioural problems (Henggeler et al., 1998). An analytic process (Schoenwald, Henggeler, Brondino, & Rowland, 2000) examines the strengths and needs of each system as well as identifying potential problems and barriers to intervention effectiveness. The design and implementation of MST interventions is based on nine core principles (See Table 1).

Table 1.

MST Treatment Principles

1. *Finding the Fit*:- The primary purpose of assessment is to understand the "fit" between the identified problems and their broader systemic context.
2. *Positive and Strength Focused*:- Therapeutic contacts should emphasize the positive and use systemic strengths as levers for change.
3. *Increasing Responsibility*:- Interventions should be designed to promote responsible behaviour and decrease irresponsible behaviour among family members.
4. *Present – Focused, Action Oriented, and Well-defined*:- Interventions should be present-focused and action-oriented, targeting specific and well defined problems.
5. *Targeting Sequences*:- Interventions should target sequences of behaviour within or between multiple systems that maintain the identified problems.
6. *Developmentally Appropriate*:- Interventions should be developmentally appropriate and fit the developmental needs of the youth.
7. *Continuous Effort*:- Interventions should be designed to require daily or weekly effort by family members.
8. *Evaluation and Accountability*:- Intervention efficacy is evaluated continuously from multiple perspectives with providers assuming accountability for overcoming barriers to successful outcomes.
9. *Generalisability*:- Interventions should be designed to promote treatment generalization and long-term maintenance of therapeutic change by empowering caregivers to address family members' needs across multiple systemic contexts.

Note. From *Multisystemic treatment of serious juvenile offenders and their families* (pp. 113-130), by S. W. Henggeler and C. M. Borduin, 1995 in I. M. Schwartz & P. AuClaire (Eds.). Reprinted from *Home-based services for troubled children* by permission of the University of Nebraska Press. c 1995 by the University of Nebraska Press.

Families are regarded as the key to achieving positive and sustainable long-term outcomes. Consequently, engagement with the family is considered to be the critical first step of treatment. The successful application of treatment interventions is thought to hinge on the development of a positive and constructive relationship with parents/caregivers (Cunningham & Henggeler, 1999). From the basis of a sound therapeutic relationship, the MST clinician collaborates with parents/caregivers and other family members to develop relevant and individualised treatment goals. A significant focus of MST is then devoted to developing the capacity of the parents/caregivers to achieve these treatment goals (Cunningham & Henggeler, 1999). For example, attempts to increase family structure, cohesion, and warmth may occur by assisting parents to develop new, or reopen old, communication lines with their young person. Parents are also assisted to develop strategies for resolving conflicts and for monitoring and applying consistent discipline. Therapeutic efforts focus on requiring daily or weekly effort by family members that result in observable and measurable behaviour change. The effectiveness of these therapeutic efforts is then evaluated continuously from multiple perspectives (e.g., caregivers, school teachers, supervisor, MST consultant).

The therapist is responsible for engagement with the family and with other key participants in the youth's ecology (e.g., teachers, school administrators, community members, workers from agencies with mandated involvement). Similarly, the therapist and provider agency are held accountable for achieving change and for positive case outcomes. MST therapists often face considerable barriers in their work that can impede the process of engaging and maintaining families in therapy (Huey, Henggeler, Brondino, & Pickrel, 2000). For example, psychopathology in family members (mood and anxiety disorders, ADHD, antisocial personality disorder, substance abuse) must be identified and treated appropriately (Borduin, 1999). Other factors that may need addressing directly include maladaptive parenting beliefs, marital conflict, lack of resources, and low social support.

At the peer level, MST interventions aim to disengage adolescents from deviant peers and concurrently develop relations with pro-social peers

(Cunningham & Henggeler, 1999). Sports teams, church youth groups, and other community organisations are used to assist the youth to develop pro-social relationships. In addition, therapists support parents to increase monitoring of the adolescent's activities, and to apply more appropriate and consistent disciplinary strategies aimed at minimising contact with deviant peers (Huey et al., 2000). At the school level, interventions target academic and social issues and are developed by emphasising collaboration between parents, teachers, and other school personnel.

How is MST Different to Other Treatment Models?

Although the interventions that MST offers are essentially an amalgam of "best practice treatment models", many of which are currently being implemented in New Zealand, MST is distinguished by a number of features: (a) a family preservation model of service delivery and its nine treatment principles, (b) its proven long-term effectiveness through rigorous scientific evaluation, (c) its rigorous quality assurance system which emphasises treatment fidelity and treatment provider accountability and, (d) cost savings compared with alternative programmes.

First, MST is provided within a family preservation model of service delivery. In keeping with its emphasis on ecological validity, MST is delivered in the natural environment (e.g., home, school, community). Treatment plans are designed in collaboration with family members and are therefore family-driven rather than therapist-driven. The ultimate goal of MST is to empower families to build an environment that promotes health and adaptive functioning through the mobilisation of indigenous child, family, and community resources.

Second, a hallmark of MST is the careful effort undertaken to validate this model. Over the course of nearly 30 years of research, empirical findings indicate that MST has long-term efficacy in treating serious antisocial behaviour in adolescents (e.g., Henggeler, Melton, Smith, Schoenwald, & Hanley, 1993; Henggeler, Schoenwald, Pickrel, Rowland, & Santos, 1994). Further, it holds promise in the treatment of related and co-morbid clinical problems. Various

forms of juvenile delinquency, substance abuse, sexual offending, and severe emotional disturbance have been the focus of outcome studies completed to date (Henggeler et al., 1994).

Third, an intensive quality assurance process has been developed to help MST programmes maintain adherence to the guiding principles of the treatment model. Previous MST outcome studies appear to demonstrate that greater treatment adherence is predictive of positive treatment outcomes (e.g., reduced rates of offending and out-of-home placements). Indeed, failure to maintain adherence has been shown to compromise treatment outcomes (Henggeler, Melton, & Brondino, 1997; Henggeler, Pickrel, & Brondino, 1999). Given what appears to be the critical issue of treatment adherence, two measures have been developed to evaluate the fidelity of MST for both therapists and supervisors: (1) the Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992), and (2) the Supervisor Adherence Measure (SAM; Schoenwald, Henggeler, & Edwards, 1998). Evaluation across various U.S.A sites and clinical populations suggests that therapist adherence measures are linked to positive treatment outcomes and that supervisor adherence is linked to therapist adherence (Schoenwald, Henggeler, Brondino, & Rowland, 2000). Related to this research, developing a greater understanding of family and therapist factors that are related to treatment adherence and outcome has become a focus in more recent outcome studies including the current dissertation.

Finally, data supports MST as a cost effective programme given the associated savings in residential placements and long-term criminal justice costs (Washington State Institute, 2001). Indeed, a recent study by the Washington State Institute for Public Policy rated MST as the most cost effective of 16 treatment programmes designed for juvenile offenders. This study found that the savings with MST ranged from US\$31,661 (taxpayer savings only) to US\$131,918 (includes savings to crime victims) per participant. Overall, the benefit-to-cost ratio was US\$28.33 for every dollar spent on MST (Washington State Institute for Public Policy, 2001).

Evaluation of MST Outcomes in the U.S.A.

Another important feature of MST relates to the ongoing evaluation of outcomes. The first outcome study compared MST to usual mental health services in a sample of 116 juvenile offenders referred by the Memphis-Metro Youth Diversion Project in the US state of Tennessee (Henggeler, Rodick, Borduin, Hanson, Watson, & Urey, 1986). Post-treatment assessment found that youths who received MST ($n = 57$) showed significant decreases in problem behaviours and had more adaptive family interactions (i.e., mother-adolescent and marital relations were significantly warmer, and the adolescent was more actively involved in family discussions following treatment), compared to youths in the usual services condition ($n = 23$) who showed no change or deterioration in these areas. In addition, parents reported significant decreases in associations with deviant peers.

Subsequent outcome studies with juvenile offenders compared MST to Department of Juvenile Justice (DJJ) usual services in a randomised trial with chronic juvenile offenders (Henggeler, Melton, & Smith, 1992). At 59 weeks following referral, MST participants were less likely to be arrested (42% vs. 62%) or incarcerated (20% vs. 60%) than those youth receiving the usual court-ordered DJJ services. MST participants spent an average of 73 fewer days detained compared to those youth in the usual services condition, suggesting that the MST recidivists had committed less severe crimes. A follow-up study (Henggeler et al., 1993) of re-arrest rates in this sample found that treatment gains were better maintained 120 weeks post-referral (60% in MST compared to 80% in usual services).

Another outcome study with juvenile offenders in a rural location found that MST completers ($n = 24$) demonstrated significant improvements in identified problematic behaviours, levels of maternal psychological distress, and in aspects of family functioning from pre- to post-treatment assessments (e.g., fewer maternal psychiatric symptoms, increased parental monitoring) (Scherer, Brondino, Henggeler, Melton, & Hanley, 1994).

Successful outcomes were also achieved in a more recent randomised comparison between (home-based) MST and (office-based) individual therapy (IT) conducted with 200 chronic juvenile offenders at high risk of committing additional serious crimes (Borduin et al., 1995). Using a multi-method, multi-agent assessment battery, the investigators demonstrated post-treatment improvements for the MST group compared to the youth in the IT group on most instrumental (i.e., increased family cohesion and adaptability, decreases in parental psychopathology, and reductions in problematic behaviour) and ultimate indices (i.e., frequency and severity of arrests).

In a later study with a different sample, violent and chronic juvenile offenders ($n = 155$) were assigned randomly to MST or usual court services (i.e., probation). The relation of MST treatment fidelity (i.e., the degree to which therapists adhered to the principles of MST) to ultimate outcomes was also investigated in this study (Henggeler et al., 1997). Youths in the MST condition spent less time incarcerated (47% fewer days) than did youths who received usual services. Of note, the two groups differed but not in a statistically significant manner on re-arrest rates (7.6% vs. 18.1% in MST and usual services, respectively). Failure to maintain adherence was found to be a prominent factor compromising outcomes in this study. That is, when important quality assurance safeguards were omitted from training including MST clinicians not being supervised by MST experts, outcomes failed to match previous findings (Henggeler et al., 1997).

MST has also proved effective when compared to parent training (PT) in a randomised trial with a sample of 43 neglected and abused children and adolescents (Brunk, Henggeler, & Whelan, 1987). In contrast to PT, members of the MST group were found to have greater decreases in parental psychopathology, reductions in stress levels, increased responsiveness to children's needs, and an overall reduction in the severity of identified problems (Henggeler et al., 1998). A modest randomised trial with a limited number of juvenile sexual offenders ($n = 16$) compared MST with out patient individual therapy (IT) (Borduin et al., 1990). Results at three-year follow-up showed

significant reductions in arrests for sexual offences among the MST completers compared to those who completed IT (Borduin et al., 1990).

As outlined, the major focus of earlier MST treatment programmes was on adolescents engaged in or at risk of engaging in the juvenile justice system (Henggeler et al., 1986; Henggeler et al., 1992; Borduin et al., 1995; Henggeler et al., 1997). More recently, MST outcome studies have extended to include treatment of substance abusers within the community and the juvenile justice system (e.g., Henggeler, Pickrel et al., 1999).

The efficacy of MST in reducing adolescents' substance abuse and associated antisocial behaviours was investigated in a sample of 118 juvenile offenders who met diagnostic criteria for substance abuse or dependence (Schoenwald, Ward, Henggeler, Pickrel, & Patel, 1996). In comparison to usual community services, youths who received MST were found to abstain more frequently from drug and alcohol abuse, were rearrested less frequently, and had fewer out-of-home placements following treatment (Henggeler et al., 1996).

More recently, studies have been extended to other areas of psychiatric disturbance. MST was evaluated as an alternative to hospitalisation for severe psychiatric disturbance in adolescents. Following the adaptations necessary to address the safety issues and intensive clinical needs of these adolescents, MST was found to be a comparable and effective treatment (Henggeler, Rowland, Randall, Ward, Pickrel, Cunningham et al., 1999). More specifically, changes in team composition, frequency of supervision, and caseload were made. Child psychiatrists trained in MST were fully incorporated into the treatment team and were available to: (a) provide psychiatric evaluations of youth and other family members, (b) consult with the team, and (c) to prescribe and monitor psychotropic medications (Henggeler et al., 1999).

Despite the encouraging research outcomes that have been reported for MST in recent narrative reviews (see also Borduin, 1999; Borduin, Schaeffer, & Ronis, 2003; Brown, Borduin, & Henggeler, 2001), some methodological limitations were apparent in individual studies. Most notably, collection of

outcome evaluation data was carried out across all studies by therapists and/or supervisors, a limitation addressed in the current dissertation. In addition, no systematic quantitative review of this body of research has been conducted. As other countries, including New Zealand, begin to adopt MST, it is now important to determine the extent of the overall treatment effectiveness of MST to date as well as summarise other relevant features of treatment including attrition rates.

Chapter Four

Study One

An Integrated Statistical Analysis of MST Outcome Studies²

As described in Chapter 3, the rigorous evaluation of outcomes has been a cornerstone of the development of MST. As the dissemination of MST occurs in other countries, including New Zealand, it is important to determine the extent of the overall treatment effectiveness of MST achieved to date. The present review examines the effectiveness of MST by quantifying and summarising the magnitude of effects (treatment outcomes) across all eligible MST outcome studies. Categorical variables that may account for variation in treatment outcomes are also examined.

Literature Review Procedures

Literature Search

The time frame of the literature search spans from 1986 (when controlled outcome research on MST began) through 2003. Ninety-one articles were identified from studies listed in the Psychological Literature and Educational Resources Information Centre databases using the key words *multisystemic therapy* and *multisystemic treatment* crossed with *treatment outcomes*, *juvenile delinquency*, *antisocial behaviour*, and *family relations*. In addition, the recent

² A report of the results from this study was published by Curtis, Ronan, and Borduin (2004) in the *Journal of Family Psychology* (see Appendix B).

contents of journals most likely to publish studies on MST were manually searched.³

Selection Criteria

Inclusion of studies in the meta-analysis required (a) identification of the treatment approach as MST, including documented adherence to the MST treatment principles (Henggeler et al., 1998); (b) random assignment of participants to MST and one or more control groups; (c) a clinical sample in which youths or their parents/caregivers manifested antisocial behaviour (defined as social rule violations, acts against others, or both) and/or prominent psychiatric symptoms; (d) use of both pre- and post-treatment assessment measures and/or follow-up assessment measures; and (d) use of test statistics suitable for meta-analysis (means, standard deviations, and/or Fishers *F* ratios).

Search Outcome

Overall, seven primary outcome studies containing a total of 708 participants and 35 MST therapists met inclusionary criteria and were included in this meta-analysis. These studies were all published in peer-reviewed journals between 1987 and 2002. One other primary study was not included in the meta-analysis because insufficient test statistics were reported (i.e., Henggeler et al., 1986). Four secondary studies (i.e., studies reporting secondary analyses of data from primary outcome studies) were also included (Brown, Henggeler, Schoenwald, Brondino, & Pickrel, 1999; Henggeler, Borduin, Melton, Mann, Smith, Hall et al., 1991; Henggeler, Clingempeel, Brondino, & Pickrel, 2002; Schoenwald et al., 2000). Three other secondary studies were not included because insufficient test statistics were reported (i.e., Henggeler et al., 1993; Schoenwald et al., 1996) or data were reported from a small sub sample of a later primary study (i.e., Scherer et al., 1994).

³ Recent volumes of the following journals were hand searched: *Journal of the American Academy of Child and Adolescent Psychiatry*, *Journal of Consulting and Clinical Psychology*, *Journal of Counseling Psychology*, *Psychological Bulletin*, *Journal of Child and Family Studies*, *American Journal of Psychiatry*, *Mental Health Services Research*, and the *International Journal of Offender Therapy and Comparative Criminology*.

Statistical Procedures

Effect sizes

To derive information about the magnitude of the differences between treatment groups, comparisons were expressed in terms of a standardised measure of effect size, the d index (Cohen, 1977). The d index is defined for present purposes as the difference between the mean change scores of two groups divided by the average or common standard deviation of the groups. This calculation results in a measure of the degree to which two groups differ in standard deviation units.

Effect sizes were calculated from three primary studies that used an alternative treatment as the control group and from four primary studies that used a usual services control group. Effect sizes from secondary studies ($n = 4$) were only included when the outcomes were not reported in the related primary study. In studies in which means and standard deviations were not reported ($n = 2$), effect sizes (d indexes) were estimated by converting reported F values (Cooper, 1998).

Correction for bias

Effect sizes based on small samples tend to inflate the population values that they estimate and must be reduced (Lipsey, 1992). To account for small sample bias ($N < 30$), the effect size of one study (Borduin et al., 1990) was adjusted using the correction procedure recommended by Hedges (1991). The specific weighting coefficient used for effect size adjustments in this study was $1 - (3/4n_t + 4n_c - 9)$, where n_t is the sample size for the treatment group and n_c is the sample size for the control group (Hedges & Olkin, 1985). No other attempts were made to adjust for sample size at the time of measurement (as recommended by Lipsey, 1992).

Confidence levels

Ninety-five percent confidence intervals (CIs) are reported for the overall effect size estimate. The standard error was estimated by applying the following formula to each study's effect size (Hedges & Olkin, 1985):

$$CI = [d - 1.96(SE)] \text{ to } [d + 1.96(SE)]$$

$$\text{where } SE = 1 / \sqrt{\sum w^j} \quad (w^j = \frac{1}{v^j}) \quad \text{and} \quad v_i = \frac{n^t + n^c}{n^t n^c} + \frac{d^2}{2(n^t + n^c)}$$

Statistical power

The power of a statistical test is defined as the probability that it will yield a true effect that is statistically significant (i.e., reducing the likelihood of making a Type II error) (Cohen, 1988). In a meta-analysis, a power survey estimates the proportion of studies that should yield a statistically significant effect (Borenstein, Rothstein, & Cohen, 1997). Statistical power was calculated based on sample sizes, Cohen's (1988) power tables, and effect size conventions ($d = .20$ for small effects, $d = .50$ for medium effects, and $d = .80$ for large effects).

Homogeneity of effect sizes

The Q_i statistic was computed to test for homogeneity among primary study outcomes. This statistic evaluates whether all studies have the same population effect size (i.e., whether the variation in effect sizes is no greater than would be expected due to errors in sampling or measurement) (Hedges & Olkin, 1985). Q_i is distributed as a chi-square variable with $K - 1$ degrees of freedom, where K equals the number of effect sizes. If the Q_i is not significant, the reviewer can assume the effect sizes reported for the group of studies are homogeneous. If the Q_i is significant, the effect sizes are considered to be heterogeneous, and the reviewer should try to determine which studies (or effect sizes) might be included in further subsets of the studies. In other words, the studies can be partitioned into groups of effect sizes based on the theoretical or practical importance of the grouping variable.

Assuming that the Q_t is significant and that studies can be partitioned into meaningful groups, two other tests are then used to evaluate possible differences between the groups. First, the Q_b statistic (which has an approximate chi-square distribution with $p - 1$ degree of freedom, where p equals the number of categories or groups) is used to test whether the average effect sizes from the groupings are homogeneous (Cooper, 1998). If the Q_b is not significant, then the average d indexes are considered homogeneous and the grouping factor does not explain variance in effects beyond that associated with sampling error. If Q_b exceeds the critical value (i.e., is significant), then the grouping factor is a significant contributor to variance in effect sizes. However, Q_b can only be interpreted correctly in conjunction with a second statistic called Q_w . The Q_w statistic (distributed as a chi-square with $K - p$ degrees of freedom) is used to provide an estimate of within-class homogeneity. As recommended by Lipsey and Wilson (2001), a correctly specified grouping variable (i.e., categorical moderator) that accounts for the heterogeneity among effect sizes across studies is achieved when the value of Q_b is significant (i.e., mean d differs between/among groups) and the value of Q_w is not significant (i.e., no heterogeneity remains unmodeled given the moderator and the conditional variances/weights that quantify random subject sampling).

Results

Characteristics of Participants

All studies were conducted in the United States, and the primary studies were funded through local, state, and/or federal mental health agencies ($n = 6$) or by a research centre of excellence ($n = 1$). Study sample sizes ranged from 16 to 176, with a median of 116. The 708 youth ranged in age from 8.3 to 17.6 years ($Mdn = 14.8$), 70% were male, and 81% lived with at least one biological parent. Fifty-four percent ($n = 380$) of the youth were African American, 45% ($n = 319$) Caucasian, 0.7% ($n = 5$) Hispanic American, and 0.5% ($n = 4$) Asian American. Fifty-nine percent ($n = 415$) of the youth were classified as chronic, at risk, and/or violent juvenile offenders; 17% ($n = 118$) were classified primarily as substance abusers; 16% ($n = 116$) required emergency psychiatric

hospitalisation (presenting problems included suicidal ideation, homicidal ideation, and psychosis); 6% ($n = 43$) were classified as abused (including physical abuse and psychological trauma) and/or neglected (including abandonment, lack of supervision, and inadequate care); and 2% ($n = 16$) were classified as sexual offenders. Eighty-four percent ($n = 593$) of the youth had been arrested previously.

Insufficient information was provided in the primary studies to derive an overall socio-economic score using Hollingshead's (1975) criteria. However, based on information regarding parental education, employment status, single-parent status, and median income, it appears that the samples in most studies were drawn from disadvantaged populations.

Characteristics of Treatments and Therapists in Primary MST Studies

MST was compared with a range of usual services in four studies and with other treatment programmes in the remaining three studies (see Table 2). Usual services were provided through (a) juvenile justice agencies, (b) a community mental health centre, (c) an outpatient substance abuse treatment programme, and (d) an inpatient psychiatric hospital. Youth assigned to juvenile justice agencies were monitored for school attendance and were seen weekly, fortnightly, or monthly by probation officers for up to six months; these youth were also referred to other social service agencies (i.e., substance abuse treatment agencies, community mental health agencies) as necessary. Youth in the community mental health comparison group received family or individual counselling, social skills training, and/or vocational training. The outpatient substance abuse service offered adolescent group therapy. Youth in the inpatient hospitalisation group were provided with crisis stabilisation, psychiatric evaluation, and intensive individualised care. Across studies, youth in usual services conditions received an average of 20 more hours of services than did youth in MST.

Table 2.

Clinical Population, Comparison Condition, and Mean Effect Size for MST Outcome Studies

	Study	N	Population	Comparison condition	d	SD
1	Brunk et al., 1987	43	Abusing/neglectful parents	Parent training	1.32	.65
2	Borduin et al., 1990	16	Juvenile sexual offenders	Individual therapy	1.08	.23
3	Henggeler et al., 1991		Same sample as studies 4 and 5		.64	.33
4	Henggeler et al., 1992	84	Violent and chronic juvenile offenders	Usual services	.37	.13
5	Borduin et al., 1995	176	Violent and chronic juvenile offenders	Individual therapy	.66	.43
6	Henggeler et al., 1997	155	Violent and chronic juvenile offenders	Usual services	.27	.25
7	Henggeler, Pickrel et al., 1999	118	Substance abusing juvenile offenders	Usual services	.25	.08
8	Henggeler, Rowland et al., 1999	116	Psychiatrically disturbed adolescents	Usual services	.19	.92
9	Brown et al., 1999		Same sample as study 7		.60	.36
10	Schoenwald et al., 2000		Same sample as study 8		.52	.22
11	Henggeler et al., 2002		Same sample as study 7		.15	.02

The three other comparison treatment programmes included parent training ($n = 1$ study) and individual therapy ($n = 2$ studies). Parent training consisted of weekly group sessions in which caregivers received instruction on human development, behavioural management techniques, and positive parent-child interactions. Individual therapy for the youth included an eclectic blend of psychodynamic, client-centred, and behavioural approaches in which therapists focused on personal, family, and academic issues and provided encouragement for behaviour change. Youth in individual therapy conditions received an average of 6.3 hours more of treatment than did youth in MST. Treatment completion rates ranged from 76% to 100% for MST and from 56% to 100% for other treatment conditions. The average treatment completion rate over primary and secondary studies was 86% for MST and 78% for other treatments.

MST was most often conducted in family homes and other community settings (e.g., schools). MST was of brief duration, averaging approximately 40 hours over 15 weeks for up to 24 weeks. Ninety-seven percent of the MST therapists were either current graduate students (with a bachelor's or master's degree) or had earned a terminal master's degree. MST therapists had from 1 to 15 years of clinical experience in social work, pastoral counselling, psychology, and other related mental health fields. MST therapists received from three to six days of intensive didactic and experiential training and attended additional quarterly booster training sessions. Forty-three percent ($n = 15$) of MST therapists were male, 37% ($n = 13$) were American African, and 63% ($n = 22$) were Caucasian. MST therapists received an average of 1.7 hours of supervision each week.

Also of note, although all of the MST outcome studies were conducted in community settings with real-world clinical samples, three of the seven studies (Borduin et al., 1990; Borduin et al., 1995; Brunk, Henggeler, & Whelan, 1987) used graduate students as therapists and thus should probably be classified as "efficacy" (rather than "effectiveness") studies (see Bickman & Noser, 1999). Even so, for economy of expression, the term effectiveness is used throughout the paper when referring to the overall outcomes of MST and differentiates between the two in moderator analyses.

Outcome Measures

A multiagent, multimethod assessment approach was used in six of seven studies, with a total of 23 different outcome measures being used ($M = 6.4$ per study; see Table 3). Assessment was carried out in all studies by MST therapists and/or supervisors. The one study that did not use multiple assessment measures (Borduin et al., 1990) determined treatment outcomes from re-arrest data obtained from juvenile court, adult court, and state police records.

Measurement batteries assessed key variables representing instrumental and ultimate goals (Rosen & Proctor, 1981) of MST. Assessment of instrumental goals, which are theory driven, relied primarily on self-reports from youth and other family members or behaviour ratings by therapists, parents, and/or teachers to evaluate instrumental outcomes in various domains (i.e., symptomatology and individual adjustment in youth and their primary caregivers; family relations; youth peer relations). Two studies (Borduin et al., 1995; Brunk et al., 1987) also included observational measures of family relations. Measures of instrumental goals were administered at pre- and post-treatment assessment sessions in most studies ($n = 6$).

Ultimate goals, which are common to all treatments of juvenile offenders, were assessed across studies, including changes in (a) the rate, frequency, and seriousness of adolescent criminal activity; (b) days incarcerated; (c) days absent from school; (d) alcohol and marijuana use; and (e) days in mandated out-of-home placements (including hospitalisation). Ultimate outcomes were typically assessed at post-treatment (i.e., treatment completion) and follow-up assessments, the latter of which were conducted from 12 weeks to 4 years following treatment completion.

Treatment Adherence

Therapist adherence to the MST treatment protocol was assessed using the 26-item Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) in three of the studies (Henggeler, Pickrel et al., 1999; Henggeler et al., 1997;

Henggeler, Rowland et al., 1999). Items on the measure assess six factors that reflect (a) therapist adherence to the MST treatment principles, (b) the degree to which therapy sessions were non-productive, (c) problem-solving efforts of the therapist and family, (d) therapist attempts to change family interactions, (e) lack of therapeutic direction in sessions, and (f) the degree of family-therapist consensus. The measure was administered to families and therapists following randomly selected sessions during the fourth and eighth weeks of treatment.

Magnitude of Effects

Effect sizes ranged in magnitude from -0.02 to 5.79. As recommended by Cooper (1998), both significant and non-significant d index values were included in the analyses in an attempt to minimize bias and maximize confidence in any conclusions that were drawn. There were a total of 101 d index values, and six of the seven studies had multiple indexes. These d index values were averaged to yield one d index per study.

The average effect of MST across the seven primary and four secondary outcome studies was $d = 0.55$ ($Mdn = 0.52$). The significance of this effect size was tested by computing a 95% confidence interval, which ranged from $d = 0.40$ to 0.70. As the lower limit of the 95% confidence interval is well above zero, the mean d index value is assumed to be significantly different from zero (Shadish & Haddock, 1994). Of note, for 6 of the 101 d indexes (6%), improvements in the control group exceeded those in the MST group.

U_3 is a measure of distribution overlap that provides another method of interpreting the d index (Cohen, 1988). U_3 tells the percentage of people in the lower meaned group who are surpassed by the average person in the higher meaned group. In the present case, a d of 0.55 equates to a U_3 of 0.70, meaning that the average participant in the MST condition surpassed 70% of the control condition participants on the measures of instrumental and ultimate outcomes.

Table 3.

Mean Effect Size for Domain and Source of Outcome Measure

Outcome Variable	Effect Size (<i>d</i>)		Relevant Studies
	Domain	Sub-domain	
<i>Individual</i>	.28		2, 4, 6, 7, 8, 9, 10
Youth symptoms		.43↓	2, 4, 9, 10
Parent symptoms		.33↓	2, 9, 10
Youth behaviour problems		.34↓	2, 7, 9
Hospitalisation		.52↓	11
<i>Family</i>	.57		2, 4, 7, 9, 10
Self-reported family relations	.64		
Adaptability/cohesion		.31↑	2, 7, 9, 10
Parental monitoring		.60↑	2
Stress		1.01↓	4
Observed family interactions	.76		2, 4
Conflict-hostility		.62↓	2, 4
Overall family supportiveness		.84↑	2, 4
Parental effectiveness		.94↑	2, 4
Verbal activity		.22↑	2, 4
Youth non-compliance		.92↓	2, 4

<i>Peer relations</i>	.11		2, 7, 9, 10
Aggression		.02↓	2, 7, 9
Bonding		.08↑	2, 7, 9
Social maturity		.07↑	2, 9
Social competence		.28↑	7, 10
Association with deviant peers		.31↓	9, 10
<i>School attendance</i>	.54		3, 10
<i>Ultimate outcomes (criminal activity)</i>	.50		1, 2, 6, 7, 8, 9, 10
Number of arrests for all crimes		.55↓	1, 2, 7, 8, 9, 10
Number of arrests for substance abuse crimes		.29↓	6, 7, 10
Seriousness of arrests		1.01↓	2
Days incarcerated		.55↓	7, 9
Self-reported delinquency		.07↓	8, 9
Self-reported drug use		.64↓	5

Note. 1 = Borduin et al., (1990); 2 = Borduin et al., (1995); 3 = Brown et al., (1999); 4 = Brunk et al., (1987); 5 = Henggeler et al., (1991); 6 = Henggeler et al., (2002); 7 = Henggeler et al., (1992); 8 = Henggeler, Pickrel et al., (1999); 9 = Henggeler et al., (1997); 10 = Henggeler, Rowland et al., (1999); 11 = Schoenwald et al., (2000). Upward and downward arrows indicate a respective increase or decrease in the associated domain.

Power Analysis

The d of 0.55 calculated in this study can be categorized as a moderate effect (see Cohen, 1988). Based on the overall comparison between MST ($n = 361$) and control groups ($n = 347$), the power to detect a moderate effect size was 0.57 ($Mdn = 0.73$). Thus, on average, investigators had a 57% chance of detecting an effect size in the moderate range. In terms of detecting a moderate effect, power failed to reach the 80% criterion for design sensitivity (Cohen, 1988). Accordingly, as there is an increased likelihood of making a Type II error, results of this analysis should be interpreted with some caution.

Relationship between Effect Size and Treatment Domain

The effect sizes achieved in the different instrumental domains (individual, family, peer) that are targeted in the MST model were examined. A comparison of average effect sizes on measures of individual adjustment ($d = 0.28$) versus measures of peer relations ($d = 0.11$) did not reveal a significant difference ($z = -0.92$, ns). However, measures of family relations demonstrated a larger average effect size ($d = 0.57$) than did measures of individual adjustment ($d = 0.28$) or measures of peer relations ($d = 0.11$, $Z_s > -2.13$, $p's < .03$). Table 3 summarizes the effect sizes for various domains and sub-domains.

Categorical Moderator Analyses

The homogeneity analysis for the effect sizes in the present review revealed there was more variability in the combined d indexes than would be expected due to sampling error or other sources of expected error, Q_t ($df\ 1$) = 11.73, $p < .05$. Potential moderator variables were then tested to identify sources of heterogeneity among studies.

Studies were initially grouped into mutually exclusive categories on the basis of the target population (i.e., violent and chronic juvenile offenders vs. all other youth populations, including psychiatrically disturbed youth, substance abusing juvenile offenders, juvenile sexual offenders, and abused or neglected

youth). Three of the seven studies (i.e., Borduin et al., 1995; Henggeler et al., 1992; Henggeler et al., 1997) used MST with populations of violent and chronic juvenile offenders. The average effect size achieved in these studies ($d = 0.44$, $CI = \pm .19$) was compared with the average effect size achieved by the remaining studies ($d = 0.38$, $CI = \pm .27$). The analyses of differences in effect sizes across studies ($Q_b (df 1) = .11$, *ns*) and within studies ($Q_w (df 5) = 11.62$, $p < .05$) indicated that the type of target population did not moderate treatment effects.

Given that target population did not account for the heterogeneity between studies, an examination of whether differences in study conditions (i.e., efficacy vs. effectiveness conditions) might moderate treatment effects was carried out. As indicated earlier, although all of the MST outcome studies were conducted in community settings, three of the seven studies (i.e., Borduin et al., 1990; Borduin et al., 1995; Brunk et al., 1987) used closely supervised (by MST developers) graduate students as therapists. That is, more control was exercised over the treatment conditions than in the remaining four studies that relied on community-based therapists (Henggeler et al., 1992; Henggeler, Pickrel et al., 1999; Henggeler et al., 1997; Henggeler, Rowland et al., 1999). The average effect size achieved in more controlled studies using graduate student therapists ($d = 0.81$, $CI = \pm .33$) was compared with the average effect size achieved in studies using community-based therapists ($d = 0.26$, $CI = \pm .06$). The computed values of the tests of differences in effect sizes across studies ($Q_b (df 1) = 8.74$, $p < .05$) and within studies ($Q_w (df 5) = 2.99$, *ns*) indicated that the effect sizes were not homogeneous across groups. Thus, the study conditions variable may account for the heterogeneity among studies.

Discussion

The primary objective of this review was to establish an estimate of the overall effectiveness of MST in treating antisocial and associated behaviours in a range of youth and family populations. Across both instrumental and ultimate outcome measures, youths and their families treated with MST were functioning better and offending less than 70% of their counterparts who received

alternative treatment or services. Specifically, MST was found to be relatively effective in reducing emotional and behavioural problems in individual family members, in improving parent-youth and overall family relations, in decreasing youth aggression toward peers and involvement with deviant peers, and in reducing youth criminality. Follow-up data suggest that treatment effects were sustained for up to four years.

This review found that MST demonstrated larger effects on measures of family relations than on measures of individual adjustment or peer relations. This finding is consistent with the emphasis that MST places on family interventions (Henggeler & Borduin, 1990) and with previous studies of change processes in MST showing that improvements in family relations predicted decreases in individual problems (i.e., symptoms, delinquent behaviour) and in delinquent peer affiliation (Huey et al., 2000; Mann, Borduin, Henggeler, & Blaske, 1990). The larger observed effect of MST on family relations measures than on other measures was also likely due to the fact that the comparison conditions (i.e., usual services or an alternate treatment) typically focused on the individual adolescent and not on the family. Indeed, two of the studies included in this review (Borduin et al., 1995; Henggeler et al., 1992) showed that, in contrast to MST, the individually focused comparison conditions led to deterioration in family relations over the course of treatment. This deterioration in family relations has also been observed in other studies of individually focused child and adolescent treatments (e.g., Szapocznik, Rio, Murray, Cohen, Scopetta, Rivas-Vasquez et al., 1989) and is consistent with the systemic perspective that child misbehaviour often serves a functional purpose (e.g., by uniting parents who are otherwise in conflict) in the family (Hoffman, 1981; Minuchin, 1985). From this perspective, treatments that focus primarily on improving the individual child's behaviour may destabilise the family system by removing the child from his or her central position in family (or marital) conflicts.

The results of this review also indicate that treatment effect sizes in MST outcome studies were not moderated by the type of target population (broadly defined as violent and chronic juvenile offenders versus other populations of youth) that participated in MST. MST was originally developed and validated

with populations of serious and violent juvenile offenders and has only been more recently extended to populations of youths with substance abuse problems or serious emotional disturbances. Although the results of this review suggest that MST appears to be a promising approach for populations other than violent and chronic juvenile offenders, additional studies evaluating the effectiveness of MST with these other populations will be needed before more definitive conclusions can be drawn and before dissemination efforts would be justified.

A critical issue highlighted by this review pertains to the dissemination of efficacious treatments to community settings. The results indicated that treatment effects in MST outcome studies may have been moderated by differences in study conditions (i.e., efficacy vs. effectiveness conditions). It is entirely possible that the highly trained and motivated graduate students supervised by the MST developers in the efficacy studies contributed to the higher effect sizes that were observed in those studies ($d = 0.81$) versus the effectiveness studies ($d = 0.26$). In fact, Schoenwald et al. (2000) have noted that ongoing quality assurance procedures (e.g., therapist and supervisor adherence protocols) are indispensable when disseminating MST to community settings. It is also important to note that most of the recent MST clinical trials have emphasised ongoing evaluation of various components of the MST quality assurance process. In particular, several studies have examined determinants (e.g., supervision by MST-trained supervisors, organisational support for the MST model) of therapist fidelity to the MST model (Henggeler et al., 1997; Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002; Huey et al., 2000; Schoenwald & Hoagwood, 2001). It remains to be seen whether MST effectiveness studies will be able to demonstrate results that are comparable to those that have been obtained in MST efficacy studies.

Underpinning MST quality assurance systems, supervision processes, and therapy is the expectation that clinicians, supervisors, and administrators are accountable for treatment outcomes. Although therapists using a variety of treatment modalities in a range of settings are generally considered accountable for many components of practice (e.g., patient satisfaction, billable

hours), the MST model places strong emphasis on team members holding themselves responsible for engaging families in treatment and attaining desired clinically significant outcomes (Henggeler et al., 1998). In particular, the issue of accountability and maintaining a strengths-based approach to working with families precludes "pathologising" or blaming families. When interventions are not successful, therapists are expected to identify barriers to change and to develop and implement strategies for overcoming those barriers.

The overall treatment completion rate of 86% in MST outcome studies exceeds treatment completion rates (ranging from 40% to 60%) in other intervention studies with younger antisocial youth (Armbruster & Kazdin, 1994; Kazdin, Mazurick, & Bass, 1993; Wierzbicki & Pekarik, 1993). The treatment completion rate in MST likely reflects the extent to which clinicians and families have jointly engaged in the treatment process, in addition to the extensive availability of the MST therapist (24 hrs/day, 7 days/week). Engagement in MST represents an active collaboration between the therapist and family members, who are full participants in establishing treatment goals and plans. Other likely contributors to the differences in treatment completion rates are that MST services are provided in the natural environments of the youth and family (i.e., home, schools, neighbourhood settings, social service agencies) and that MST therapists tailor interventions to the unique needs and strengths of each family.

Limitations

First, given the relatively small number of outcome studies that were available for inclusion in the review, the conclusions of the meta-analysis should be considered tentative. Nevertheless, a total of 708 participants helped to offset the limited number of separate investigations. Second, some of the subcategories of effects were based on a small number (i.e., subgroup) of studies, thus limiting the generalisability of the findings. Third, the confounding of study condition (efficacy vs. effectiveness) with type of control group (alternative treatment vs. usual services) in the moderator analysis clouds the interpretation of the results. Fourth, it is prudent to acknowledge the potential for bias in the current review due to the pooling of sample studies (Hedges & Olkin, 1985). However, it is also the case that a more conservative approach to

pooling effect sizes strengthens confidence in the results. Finally, assessment of study outcomes was carried out by therapists or supervisors, an obvious demand characteristic. Study 2 addresses this limitation with independent evaluation.

In conclusion, as an empirically established treatment for violent and chronic juvenile offenders, MST appears to be worthy of wider implementation and continued evaluation. The overarching objective of MST (i.e., empowering parents to facilitate pragmatic changes in the youth's and family's natural environments) appears to work with this population. Ongoing attempts are also required to increase understanding of the complex mechanisms of change at play in the treatment of antisocial youth. These results indicate that MST may have promise as a treatment programme for antisocial youth and their families in New Zealand. The next chapter begins to explore that potential.

Chapter Five

Study Two

MST Treatment of Antisocial Youth in New Zealand

Introduction

Results of the meta-analytic review conducted in Study 1 confirm the outcomes of other recent qualitative reviews (Burns, Hoagwood, & Mrazek, 1999; Kazdin & Weisz, 1998) and indicate that MST is an effective treatment of antisocial behaviour in youth across a range of disorders and with different populations.

In contrast, the interim results of a relatively large ($N = 409$) 4-year controlled multi-site outcome study of MST in Ontario, Canada found that MST was not more effective than the usual services provided by social service agencies (Leschied & Cunningham, 2002). The authors suggested that this might be due to a higher pre-existing level of agency services available to youth and their families in Ontario, Canada compared to the areas in which MST has been applied in the U.S.A.

Notwithstanding the range of treatment options currently available in New Zealand (see Chapters 1-3), failure to provide effective community-based treatments has been identified as a critical link missing in the "total system" of service delivery for challenging youth and their families (see also Brown, 2000; Curtis et al., 2002; Morris, 1999).

In an attempt to meet this need, Richmond Fellowship (NZ) worked with USA-based MST Services to introduce and disseminate MST within New Zealand. The process of training and establishing teams began in 2001. MST teams are now applying the MST model in four regions of New Zealand.⁴ The goals of introducing MST in New Zealand are fourfold: (a) to reduce the frequency and severity of offending behaviour in youth, (b) to reduce the number of days youth spend in formal out-of-home placements, (c) to increase school attendance, and (d) to empower families with strategies to resolve current and future difficulties.

Specific Objectives

Bearing in mind the outcomes achieved in both the Canadian and U.S.A. studies, the specific aims of Study 2 are to:

- 1) evaluate the effectiveness of MST in reducing youth offending and recidivism;
- 2) evaluate the effectiveness of MST in reducing days in formal out-of-home placements;
- 3) evaluate the effectiveness of MST in increasing school attendance and/or the pursuit of employment related skills or employment;
- 4) evaluate the effectiveness of MST in improving youth psychosocial functioning and family relations;
- 5) and evaluate the responsiveness of MST with different cultural groups.

⁴ Three additional teams developed and funded by the Reducing Youth Offending (RYO) initiative, a partnership between the Department of Corrections and the Child, Youth, and Family Service, are also applying the MST model in a population of severe youth offenders. Due to an embargo on evaluation data until 2006, the researcher was unable to include outcomes facilitated by these teams.

Evaluation Procedures

Design Overview

Considerable efforts were made to conduct a randomised controlled treatment outcome study to examine the effectiveness of MST in comparison to those of usual services working with antisocial youth (e.g., Youth Justice, Police Youth Aid). However, due to a range of funding and organisational factors outside the researcher's control, consent for this proposal could not be obtained. Instead, as a precursor to a controlled outcome study, approval was received to conduct a one-group pre-test post-test design to evaluate the preliminary effectiveness of MST with youth and their families in New Zealand.

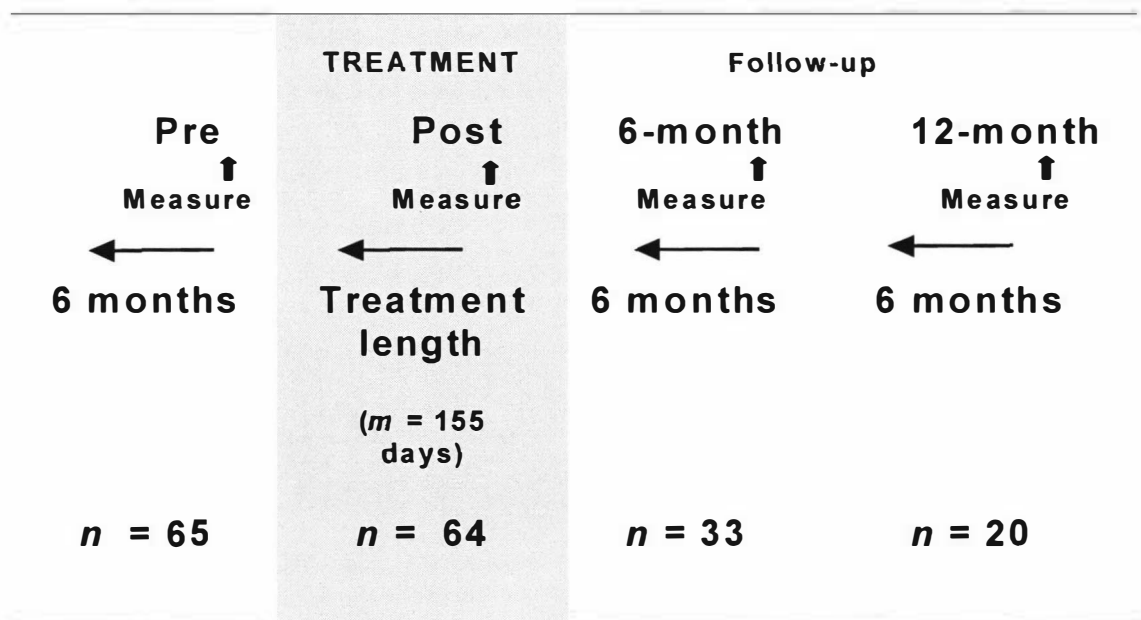


Figure 1. Design Overview

Study Timeline

Data were collected from families, therapists, and supervisors between February 1, 2002 and December 31, 2003. Six and 12-month follow-up data

was collected from families enrolled in the early part of the study⁵ (see Figure 1).

Data Collection

This study broke new ground by establishing a centralised evaluation system for the collection of all ultimate and instrumental outcome data by an independent evaluation coordinator (the researcher). In previous MST studies, measures of adherence, instrumental and some ultimate outcomes (i.e., details of school attendance; days in out-of-home placements) were collected from client families by therapists or supervisors. Details of offending behaviour in these studies were obtained by perusing juvenile justice records. In this study, ultimate outcome data (details of frequency and severity of offending behaviour, days in out-of-home placements, days absent from school) was collected systematically from agencies (schools, judicial, and social welfare agencies) by the researcher at pre- and post-treatment, and at 6- and 12-month follow-up. A range of instrumental measures were also administered to the main caregiver in each family by the researcher to assess change in youth behaviour, parent, and family functioning at various intervals throughout treatment and at follow-up periods (see Table 4).

⁵ Follow-up data for families continues for all participants in Stage 2 of the MST New Zealand evaluation study.

Table 4.

Timetable for Administration of Outcome Evaluation Measures

Assessment Period	Measures
<i>Pre-treatment</i>	
Parent/Caregiver	*MST-BRS, *PSI, *TAM-B, **FFS, **SDQ Cultural responsiveness***
Agencies	Details of offending behaviour, mandated days out-of-home, and school attendance
<i>Post-treatment</i>	
Parent/Caregiver	*MST-BRS, *PSI, *TAM-B, **FFS, **SDQ CSQ-8, Cultural responsiveness***
Agencies	Details of offending behaviour, mandated days out-of-home, and school attendance
<i>Follow-up Periods</i>	
Parent/Caregiver	MST-BRS, PSI
Agencies	Details of offending behaviour, mandated days out-of-home, and school attendance

Note. MST-BRS = Multisystemic Behavioural Rating Scale; PSI = Parental Supervision Index; TAM-B = Therapist Adherence Measure –Behavioural subscale; SDQ = Strengths and Difficulties Questionnaire; FFS = Family, Friends and Self Scale; CSQ-8 = Client Satisfaction Questionnaire.

* Core measures, ** Supplementary measures.

***Cultural responsiveness measure administered where appropriate.

Ethical Procedures

The research was conducted in accordance with the ethical standards for the treatment of human participants as outlined by the New Zealand Psychological Society. The Massey University, Canterbury, Waikato, and Wellington Human Ethics Committees approved the research project. Anonymity of data was maintained for both clients and therapists through the assignment of identification numbers. Information about the research was provided to therapists and supervisors at the commencement of their training in

MST and to families at the earliest stage of assessment in standard information and consent forms (see Appendix C).

Characteristics of Participants

Sixty-eight youth and their families completed an MST programme for serious antisocial behaviour throughout the two years during which this study was conducted. Youth and their families were introduced to the study and offered the opportunity to participate during initial assessment interviews. Sixty-five youth and their families (96%) gave their consent to participate in this study. One youth and his family dropped out of the MST programme, leaving data from 64 youth available for post treatment analyses (2% attrition rate). As outlined earlier, follow-up data were collected from all available families who entered the MST programme prior to Feb 1, 2003.

Youth ranged in age from 8.6 to 17.0 years ($M = 13.83$, $SD = 1.88$), and 71% ($n = 46$) were male. Including parent/caregivers, the size of the youth's family ranged from two to eight ($M = 4.2$, $SD = 1.45$, $mode = 5$). Forty-nine percent of youths were from single-parent homes ($n = 32$) and 28% lived with their biological mother and another adult who was not their biological father ($n = 18$). Six percent of youth lived with foster families ($n = 4$) and 17% ($n = 11$) lived with two biological parents. Sixty-eight percent of youth ($n = 44$) were in the custody of their parents and the remaining 33% ($n = 21$) were in the custody of the Child, Youth, and Family Service (CYFS). The Deprivation Index (Salmond & Crampton, 2002) was used to estimate the average socio-economic status of participants. Sixty-nine percent of participants ($n = 45$) lived in the most deprived areas of New Zealand where household incomes averaged \$17,700. Eighty-three percent ($n = 54$) of the adolescents identified themselves primarily as European New Zealanders, with a further five of these giving Maori as their second ethnicity. Nine percent ($n = 6$) identified their primary ethnicity as Maori with half of these ($n = 3$) giving European New Zealander as their second ethnicity. Three percent were Samoan ($n = 2$); 1.5% ($n = 1$), Tongan; 1.5% ($n = 1$), other European; and 1.5% ($n = 1$), Ethiopian. Mothers were most often represented as primary caregivers (83%, $n = 54$), although the caregiver sample

also included two grandmothers, five fathers, one sibling (older brother), one step-parent, and two foster parents as primary caregivers (See Tables 5 & 6).

Table 5.
Demographic Characteristics of Youth

Demographic Characteristics	<i>n</i>	Total Sample %	<i>M</i>	<i>SD</i>
<i>*Youth Gender</i>				
Female	19	29		
Male	46	71		
<i>*Age</i>			13.85	1.99
<i>*Ethnicity</i>				
Pakeha	54	83		
Maori	6	9		
Samoan	2	3		
Tongan	1	1.50		
Ethiopian	1	1.50		
Other	1	1.50		
<i>Primary Referral Reason</i>				
Verbal/physical aggression	39	60		
Truancy	9	14		
Substance Abuse	5	8		
Running away	2	3		
Suicide/homicide threats	3	4		
Non-compliance	4	6		
Burglary/stealing	2	3		
Sexual assault	1	2		
<i>*History of Involvement with Other Agencies</i>			4.09	0.69

Note. * Denotes variables that were examined as predictors of treatment outcomes

Referral Reasons

Youth were referred to the programme for a range of behavioural and mental health problems. Primary referral reasons included verbal/physical aggression at home, school, or in the community 60% ($n = 39$), truancy 14% ($n = 9$), substance abuse 8% ($n = 5$), running away from home 3% ($n = 2$), suicide/homicide threats 5% ($n = 3$), non-compliance and family conflict 6% ($n = 4$), burglary/stealing 3% ($n = 2$), and sexual assault/sexually inappropriate behaviour 1% ($n = 1$). Based on information provided by the referral agency, 36% ($n = 23$) of the youth had Conduct Disorder as their primary diagnosis; 23% ($n = 15$), ADHD; and 17% ($n = 11$), Oppositional Defiant Disorder. A further 9% ($n = 6$) of youth had a mood disorder; 3% ($n = 2$), an anxiety disorder; 3% ($n = 2$), a learning disorder; 3%, a substance abuse disorder ($n = 2$), and 6% ($n = 4$), were referred without a diagnosis. Multiple problems (i.e., co-morbid conditions) were noted in 51% ($n = 33$) of the referrals. Twenty-nine percent ($n = 19$) had previously received care from seven or more mental health, social, educational, or judicial services. A further 51% ($n = 33$) had previously received care from between five and six agencies. The remaining 20% ($n = 13$) had previously received care from between three and four agencies. Seventy two percent ($n = 47$) of youth had been experiencing difficulties for more than five years; 25% ($n = 16$), for between three and four years; and 3% ($n = 2$), for less than three years.

Table 6.

Family Characteristics

Family Characteristics	<i>n</i>	Total Sample %	<i>M</i>	<i>SD</i>
<i>Family Size</i>	65		4.70	1.50
<i>*Family Composition</i>				
Single-parent	32	49		
Biological mother plus another adult	18	28		
Two biological parents	11	17		
Foster parents	4	6		
<i>Employment Status of Primary Caregiver</i>				
Full-time	17	26		
Part-time	15	23		
Not working	33	51		
<i>*Custody Status</i>				
Parent	44	68		
Child, Youth, and Family Service	21	32		

Note. * Denotes variables that were examined as predictors of treatment outcomes.

Participation Criteria

For inclusion in the MST programme youth were required: (a) to be aged between 8.5 and 18 years, (b) to have manifested externalising behaviour problems or co-morbid externalising/internalising behaviour problems, (c) to be at risk of out-of-home placement, (d) to have severe physical and/or verbal aggression in the home, at school, or in the community, (e) to have a mental health disorder, (f) to have engaged in documented criminal behaviour or been documented as at high risk of offending, and (g) to have a parent or caregiver who was sufficiently motivated to engage in the programme. In addition, youth may also have had (a) serious academic difficulties including truancy, (b) an ongoing association with antisocial peers, and (c) difficulties with substance abuse. Exclusionary criteria were (a) youth for whom a primary caregiver could

not be identified, (b) youth whose sole presenting problem was sexual offending, (c) youth in need of crisis stabilisation because of active suicidal, homicidal, or psychotic behaviour,⁶ (d) youth with a pervasive developmental disorder (e.g., autism), and (e) youth with an IQ < 70. In short, every youth was referred because they posed a significant challenge to existing community-based interventions ($n = 65$, 100%). Some of these were also facing the prospect of an out-of-home placement in custody or a residential setting ($n = 21$, 32.3%). Cases were not screened for treatment amenability or excluded due to poor prognosis.

Referral Pathways

Referrals to MST teams began almost immediately after the teams had completed their introductory training. Thirty-seven percent of youth ($n = 24$) were referred to the programme by CYFS for judicial or care and protection concerns, 23% ($n = 15$) by a Child and Adolescent Mental Health Service (CAMHS), and 35% ($n = 23$) by Police Youth Aid, schools, or medical practitioners. Details of referral agencies were not available for 5% of youth ($n = 3$).

MST Teams

MST teams located in Christchurch (Site 1), Hamilton (Site 2), and Wellington (Site 3) participated in the study and contributed 23, 22, and 20 cases to the study, respectively. Sites 1 and 3 encompassed mainly urban areas and were each staffed by two full-time therapists and a full-time therapist supervisor. Site 2 encompassed urban and rural areas and was staffed by two full-time therapists and a half-time therapist supervisor. MST teams were funded by the Ministry of Health and established to provide treatment to youth with high and complex needs in community settings.

⁶ However, once no longer in need of crisis intervention, these youth were appropriate for consideration for MST.

Site Assessment and Programme Practices

MST Services, U.S.A.⁷ emphasise the need for (a) ongoing quality assurance procedures (e.g., therapist and supervisor adherence protocols) and (b) organisational support for the MST model. Organisations wishing to implement the MST model in New Zealand followed a standardised and in depth accreditation process conducted by MST New Zealand (MST NZ)⁸ site assessment staff. Agencies were then assisted by MST NZ staff to develop the requisite organisational structures and resources to provide adequate support for MST teams. Requisite programme practices included (a) the use of a family preservation model of service delivery, (b) having MST therapists operate in teams of between two and four therapists, (c) the availability of MST Clinical Supervisors at least 50% of the time to conduct weekly team clinical supervision, facilitate weekly MST telephone consultation, and be available for individual clinical supervision for crisis cases, (d) MST caseloads not exceeding six families per therapist with a normal range being four to six families per therapist, (e) the provision of 24 hour/day, seven day/week therapist availability, and (f) provision for MST therapists to take the lead for clinical decision-making in co-operation with other agencies and organisations.

MST Treatment

MST was implemented as detailed in the treatment manual (see Henggeler et al., 1998) and based on the nine MST treatment principles (see Chapter 3). Treatment practices followed the social-ecological model and the family preservation approach to service delivery whereby problem behaviours are considered to (a) develop in response to complex and varied contributing factors linked with the multiple systems in which youth and families are located and (b) require a sustainable and ecologically valid treatment delivery mechanism. Accordingly, MST therapist's worked in the youths' homes at times that were convenient for families. Meetings were also held in community settings including schools, social service agencies, or other settings (e.g., Marae). Services were delivered to the family as a whole (rather than solely to

⁷ MST Institute, 710 J. Dodds Blvd, Suite 200, Mt Pleasant, South Carolina 29464, U.S.A.

⁸ MST New Zealand, Box 2322, Christchurch. www.mstnz.org.nz.

the “identified youth”), and tailored to the individual needs and goals of family members, particularly parents. Interventions were planned in the context of a family’s values, beliefs, and culture.

The MST process entails interrelated steps that connect the ongoing assessment of the “fit” of referral problems with the development and implementation of interventions (Schoenwald, Brown, & Henggeler, 2000) (see Figure 2).

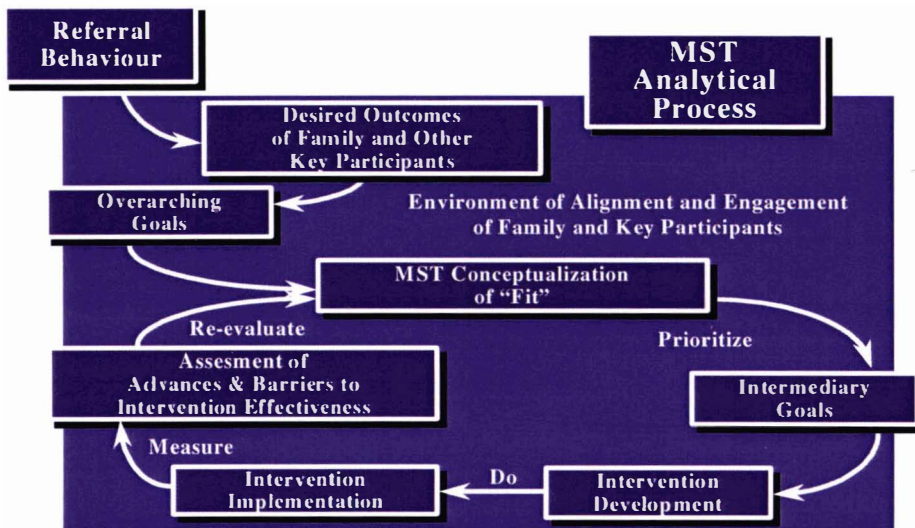


Figure 2. The MST “Do-Loop”⁹

The “Do-Loop” has been conceptualised as an iterative analytical process that guides the hypothetical testing of hunches, beliefs, or theories about (a) the causes and correlates of particular problems in a family, (b) the reasons that improvements may occur, and (c) barriers to change. Throughout the course of treatment, therapists follow the “do-loop” to conceptualise the interactions and developments that occur in each case during a week. These

⁹ From *Multisystemic treatment of antisocial behavior in children and adolescents* (p.47), by S. W. Henggeler, S. K. Schoenwald, C. M. Borduin, M. D. Rowland, & P. B. Cunningham, 1998, New York: Guilford Press. Copyright 1998 by Guilford Press. Reprinted with permission.

steps are summarised on paper prior to each supervisory session and provide the basis for all supervision. A written weekly summary typically includes:

- ⇒ Individualised primary goals of MST for each family;
- ⇒ The intermediary goals (i.e., goals that represent steps towards achieving the overarching goals;
- ⇒ Advances towards achieving the intermediary goals;
- ⇒ Barriers to achieving the as yet unmet intermediary goals;
- ⇒ The fit of advances made with identified barriers (i.e., factors that contribute to successful achievement of the goal, identified barriers to goal attainment);
- ⇒ And new intermediary goals for the upcoming weeks that build upon advances and address observed barriers to progress.

In summary, the MST assessment and intervention process begins with a clear understanding of the reason(s) for referral. The next task is to develop overarching treatment goals (e.g., to improve school attendance by 40%, to reduce the incidence and severity of offending behaviour) that reflect the goals of the family and other key stakeholders in the youth's environment (e.g., teachers, probation officers). Intermediary treatment goals are then developed to guide the treatment process. This step also involves identifying a range of treatment modalities and techniques that may be effective in achieving the goals and tailoring these to the specific strengths and weaknesses of the client system (e.g., marital, parent-youth, family-school). Interventions are then implemented and strategies developed to overcome potential or apparent barriers (e.g., marital problems, parental depression, parental drug use). Case supervision guides the process of assessment, treatment, monitoring, strategising, and fine-tuning interventions.

Therapist Characteristics

Over the course of the study, 14 therapists and five supervisors were trained in MST, including one therapist who later became a supervisor. Two withdrew their consent to participate in Study 2 following their resignation as therapists. Of the remaining 12 therapists and five supervisors, 53% ($n = 9$) had a Bachelor's or BA (Hons) degree; 23% ($n = 4$), a Masters degree; 12% ($n = 2$), had a postgraduate qualification; 12% ($n = 2$) held a recognised professional qualification (e.g., registered nurse, registered social worker). MST therapists had between 1 and 28 years ($M = 12$, $SD = 7.53$, $Mdn = 10$, $mode = 10$) of clinical experience in social work (59%, $n = 10$), psychology (17%, $n = 3$), teaching (6%, $n = 1$), counselling (6%, $n = 1$), occupational therapy, (6%, $n = 1$), and family therapy (6%, $n = 1$). Seventy-one percent ($n = 12$) of MST therapists/supervisors were female, 76% ($n = 13$) were European New Zealanders and 24% ($n = 4$) identified as Other Europeans.

Training and Supervision

All therapists and supervisors began their MST training with an intensive five-day orientation workshop conducted by consultants from MST Services, U.S.A. Their objectives were (a) to familiarise themselves with the scope, correlates, and causes of serious criminal behaviour, (b) develop an understanding of the theoretical and empirical underpinnings of MST, (c) develop an awareness of the empirically supported strategies used in MST treatment, (d) conceptualise cases and develop interventions and strategies in terms of the nine treatment principles, and (e) practice delivering MST interventions. Each therapist received a copy of the MST treatment manual (Henggeler et al., 1998) and was required to pass an MST treatment protocol examination. In addition to the initial training, all therapists and supervisors participated in ongoing quarterly booster training sessions. Topics covered in booster training sessions reflected (a) specific training needs identified by therapists and supervisors, and (b) clinical skills in need of development as identified by quality assurance processes including caregiver responses to the Therapist Adherence Measure (see later section in this chapter on fidelity for full description). Clinical issues covered in booster sessions included family therapy

training, assessment and treatment of substance misuse, peer relationships and sibling conflict, cognitive, affective, behavioural, and systems sequences, relapse prevention, parenting styles and blended family issues, safety and risk assessment, and school related interventions. Other issues such as treatment fidelity and accountability were also covered (see fidelity section).

Case Loads and Supervision

Therapists completed an average of 5.2 ($SD = 7.3$) cases during the study with two therapists completing 12 and 13 cases ($range = 1$ to 13, $Mdn = 6.2$, $mode = 4$). Team supervisors completed an average of three cases each ($range = 2$ to 5, $Mdn = 3.2$, $mode = 2$).¹⁰ MST team supervisors provided approximately two hours of supervision to their team each week. The MST senior clinical consultant (i.e., MST NZ Clinical Director) provided further case supervision by phone to each team for an average of two hours per week. In addition, therapists received an average of one hour per week of individual clinical case supervision. Supervisors received supervision from the senior clinical consultant for a further two to three hours per month.

Treatment Outcomes

Assessment and Measures

The assessment measures were chosen to tap key constructs representing ultimate (i.e., offending behaviour) and instrumental (i.e., individual adjustment, family relations, peer relations) outcomes relevant to the treatment goals of MST and the target population (Rosen & Proctor, 1981).

Ultimate Outcomes

Three types of ultimate outcomes were evaluated including change in the (a) frequency and severity of offending behaviour, (b) attendance at school/vocational training and, (c) days in mandated out-of-home placements.

¹⁰ The additional supervision was provided by the overall MST NZ Clinical Director.

Frequency and Severity of Offending Behaviour

Details of all offending behaviour that occurred in the six months prior to commencing MST treatment were obtained directly from Police Youth Aid or CYFS youth justice officers by the researcher. The date and nature of offence of each contact with a judicial agency (Youth Aid or CYFS) was recorded. In conjunction with the New Zealand Police, the 17-point Seriousness Scale (Hanson, Henggeler, Haefele, & Rodick, 1984) was adapted to correspond to New Zealand judicial offence codes (see Appendix D). Low scores (1 - 4) were characterised by status offences (truancy, missing person, disorderly behaviour); mid range values (5 -10), by crimes such as assault, breaking and entering, and carrying a dangerous weapon; and high scores (11-17), by violent crimes including armed robbery, criminal sexual conduct, and murder. Following the completion of treatment (and at 6- and 12-month follow-up), the same details were collected again from Police Youth Aid or CYFS.

Days in Out-of-Home Placements

Details of all formal out-of-home placements mandated by the court or CYFS that occurred in the six months prior to commencing MST treatment were obtained directly from CYFS case workers by the researcher. Data included details of (a) the number of days the youth spent out-of-home and (b) the type of placement option (i.e., CYFS family home, residential treatment centre, foster care, respite care). Following the completion of treatment (and at 6- and 12-month follow-up), the same details were obtained.

School and Vocational Attendance

Details of attendance at a school, educational training facility, or employment setting in the six months prior to commencing MST treatment were obtained from the relevant organisation by the researcher. An attendance metric was created by dividing the total number of possible half days a student could attend by the number of half days actually attended. A wide range of school, work-skill, or tertiary training options was included in measures of attendance (i.e., primary, intermediate or secondary school, alternative education courses, trade skill courses, tertiary institute courses, apprenticeships, part- or full-time

employment). Following the completion of treatment (and at 6- and 12-month follow-up), the same details were obtained.

Instrumental Outcomes

Several considerations were balanced in the selection and development of instrumental measures. Most importantly, in terms of clinical considerations, assessment procedures aimed to (a) avoid compromising the therapeutic process and (b) minimise stressful demands on parents/caregivers. Accordingly, the measures chosen had high face validity, were brief, easily understood, and able to be administered by phone. In addition, the instruments needed to be reliable, valid, and suitable for evaluating change in the areas relevant to the treatment goals of MST: (a) youth behaviour and adjustment, (b) family relations including discipline and parent-youth relationships, (c) parental monitoring, and (d) peer relations. The measures also needed to be relevant for use with a clinical population in a range of settings.

In an attempt to meet these requirements, assessment of instrumental goals comprised three core measures that were administered to each parent/caregiver: (a) MST Behavioural Rating Scale (MST-BRS), (b) Parental Supervision Index (PSI), and (c) Therapist Adherence Measure – Behaviour Scale (TAM-B). Two additional measures were administered to those families that therapists considered (a) most able to manage the time demands and (b) in which the therapeutic relationship was least likely to be compromised. Finally, given the 6-month time delay between post-treatment and follow-up assessment, only two of the core battery were re-administered at follow-up (MST-BRS, PSI). These measures were those considered to be (a) the least susceptible to time effects and (b) the most able to quantify objectively any changes that occurred within the measurement period.

Individual Adjustment and Behavioural Change

The youth adjustment subscale of the Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) was administered to the primary caregiver in conjunction with the complete TAM (see later section for full description). The

nine-item subscale assesses aspects of youth adjustment including anxiety, depression, aggression, incidence of self-harm, and deviant peer association (see Table 7). Items were rated on a 5-point Likert scale ranging from *never* (1) to *almost always* (5). Internal reliability of the TAM-B in the present study was calculated using Cronbach's alpha. At pre- and post-treatment, the alpha coefficients were found to be 0.70.

Table 7.

Youth Behavioural Subscale of Therapist Adherence Measure

-
1. My child has been sad or depressed during the past month
 2. My child has gotten into fights in the past month
 3. My child has argued with family members in the past month
 4. My child has been anxious or nervous during the past month
 5. My child has been disliked by others in the past month
 6. My child has intentionally harmed self or attempted suicide during the past month
 7. My child has been using drugs or alcohol in the last month
 8. My child has withdrawn from others and preferred to be alone in the past month
 9. My child has hung out with others who get into trouble
-

Note. Ratings for items ranged from *never* (1) to *almost always* (5).

Multisystemic Behavioural Rating Scale

The Multisystemic Behavioural Rating Scale (MST-BRS) was designed specifically to assess targeted areas of MST treatment (see Table 8). Administered to the primary caregiver by phone, the MST-BRS was a brief 11-item measure that surveyed aspects of youth compliance, family communication, and family relations. All items were rated on a 5-point Likert scale ranging from *not at all* (1) to *very much* (5) and summed to create a rating scale total index. This measure was administered at pre- and post-treatment assessment, and at 6- and 12-month follow-up. Cronbach's alphas for the

MST–BRS at pre-treatment, post-treatment, 6- and 12-month follow-up were found to be 0.85, 0.95, 0.96, and 0.87, respectively.

Table 8.

Multisystemic Behavioural Rating Scale

-
1. How well do you feel able to communicate with your young person?
 2. How well do you feel able to get along as a family?
 3. In your opinion how well is your young person able to stay out of trouble?
 4. How well is your young person able to stay at school/work?
 5. How well is your young person able to live at home?
 6. How well is your young person able to get along with his/her peers?
 7. How well is your young person able to function responsibly?
 8. How well is your young person able to get along with and contribute to your family?
 9. How well is your young person able to communicate with you?
 10. How well is your young person able to manage his/her anger?
 11. How would you rate your young person's overall behaviour in the last month?
-

Note. Ratings for items 1-10 ranged from *not able to at all* (1) to *very able to* (5). Ratings for item 11 ranged from *very poor* (1) to *very good* (5).

Parental Monitoring

The two-item Parental Supervision Index (PSI; Jang & Smith, 1997) was adapted for use as a self-report rating of parental monitoring. Originally designed for administration to youth, the items were reworded for use with parents (see Table 9). Ratings for both items were made on a 5-point Likert scale ranging from *never* (1) to *almost always* (5) and summed to create a total score. Cronbach's alphas for the PSI at pre-treatment, post-treatment, 6- and 12-month follow-up were found to be 0.69, 0.86, 0.94, and 0.81, respectively.

Table 9.

Parental Supervision Index

-
1. During the course of a day, how often do you know where your young person is?
 2. During the course of a day, how often do you know who your young person is with?
-

Note. Ratings for items ranged from *never* (1) to *almost always* (5).

✕ *Strengths and Difficulties Questionnaire*

The Strengths and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Bailey, 1998) is a standardised behavioural screening questionnaire that contains a version for the parent/caregivers of 4- to 16-year olds and a youth self-report version for 11- to 16-year olds (Goodman, 1997; Goodman & Scott, 1999). Both versions contain 25 items that are rated on a 3-point Likert scale to indicate how much each attribute applies to the youth. The scale ranges from *not true* (0) to *very true* (2). The items are divided between five scales of five items each, generating scores for conduct problems, inattention-hyperactivity, emotional symptoms, peer problems, and prosocial behaviour; all scales but the last are summed to generate a Total Difficulties score. Published co-efficient alphas for the SDQ subscales range from 0.61 for peer problems to 0.82 for total difficulties. Test re-test reliability for the SDQ was found to be $r = 0.62$ (Goodman, 2001). Instrument validity subscale scores correlate 0.71 or above with the Child Behaviour Check List (Goodman & Scott, 1999). Sample items include: “does your young person think things through before acting?” “does your young person often lie or cheat?” and “does your young person volunteer to help others?” Cronbach’s alphas for the parent version of the Total Difficulties subscale at pre- and post-treatment were found to be 0.77 and 0.81, respectively.

Family, Friends, and Self Scale

The Family, Friends, and Self Scale (FFS; Simpson & McBride, 1992) is an assessment measure designed to assess social relationships and psychological adjustment of youth. Fifty-three items measure eight scales

including three for family relations, two for peer activity, and three for self-esteem and quality of life. The 53 items are divided into three dimensions (family, friends, and self) that reflect the subscales (warmth, control, conflict, peer activity level, trouble, self-esteem, environment, and school satisfaction). The scale ranges from *very untrue* (0) to *very true* (4). Sample items include: “how often do your parents really listen to your problems?” “are there definite rules set in your family?” “how many of your friends know your parents?”, and “how many of your friends do things that may get them into trouble with the law?”. Co-efficient alphas for subscales range from 0.72 to 0.91 (Simpson & McBride, 1992). A parent/caregiver version of the FFS was adapted specifically for this study. This current parent version of the FFS differs little from that of the original youth-rated FFS apart from items being worded in the third person rather than the first person. Cronbach’s alphas for the parent version of the FFS at pre- and post-treatment were found to be 0.84 and 0.81, respectively.

Cultural Responsiveness

In view of the unique cultural makeup of the population in New Zealand, a study goal was to examine whether (a) engagement in treatment and/or (b) treatment outcomes were influenced by the match between therapist and client cultural affiliation. Based on discussions with a cultural advisor, a 3-item self-report measure was developed for administration to the parent/primary caregiver in families where either the parent ($n = 16$) or the youth ($n = 19$) identified as being of a different culture to their therapist (see Table 10). Items were rated on a 5-point Likert scale that ranged from *not at all* (1) to *very much* (5). Cronbach’s alphas for the parent self-report at pre- and post-treatment were found to be 0.72 and 0.86, respectively. Cronbach’s alphas for the parent report on youth at pre- and post-treatment were found to be 0.78 and 0.85, respectively.

Pre-treatment Items

Parent report

1. How difficult do you believe it will be to work with a therapist of a different culture?
2. How well do you believe your cultural needs will be met during MST treatment?
3. How much would you prefer to be working with a therapist of your own cultural background?

Parent report for Youth

1. How difficult do you believe it will be for your young person to work with a therapist of a different culture?
 2. How well do you believe the cultural needs of your young person will be met during MST treatment?
 3. How much do you believe your young person would prefer to be working with a therapist of his or her own cultural background?
-

Post-treatment Items

Parent report

1. How difficult has it been to work with a therapist of a different culture?
2. How well do you believe your cultural needs were met during the MST programme?
3. How much would you have preferred to work with someone of your own cultural background?

Parent report for Youth

1. How difficult do you believe it has been for your young person to work with a therapist of a different culture?
 2. How well do you believe the cultural needs of your young person were met during the MST programme?
 3. How much do you believe your young person would have preferred to work with someone of their own cultural background?
-

Note. Ratings ranged from *not at all* (1) to *very much/very well* (5).

Client Satisfaction

The CSQ-8 (Attkisson & Zwick, 1982) is an eight-item version of the Consumer Satisfaction Questionnaire (Larsen, Attkisson, Hargreaves, & Nguyen, 1979). Originally designed to assess the general level of satisfaction with health and human service programmes, the CSQ-8 provides clients the opportunity to evaluate the programme from which they have received services. The results of a range of studies indicate that the CSQ-8 has high internal consistency with alpha coefficients ranging from 0.87 in a sample of 3,120 clients from a variety of mental health facilities (Nguyen, Attkisson, & Stegner, 1983) to 0.93 in a sample of community mental health centre clients (Attkisson & Zwick, 1982). Construct validity of the CSQ-8 is enhanced by the high correlations ($r = 0.6 - 0.8$) found between it and other satisfaction instruments that use different strategies to measure the same construct (Attkisson & Greenfield, 1999).

The level of satisfaction experienced by families in the MST programme in New Zealand was assessed using an adapted version of the CSQ-8. Four items were modified and an additional item was developed to reflect more precisely family satisfaction with specific elements of the MST programme (i.e., therapist availability, home-based services, treatment planning) (see Table 11). The nine items were rated on a 5-point Likert scale ranging from *very dissatisfied* (1) to *very satisfied* (5). At post-treatment, Cronbach's alpha for the nine items used in this sample was found to be 0.79.

Table 11.

Client Satisfaction with the MST Programme

-
1. Have your goals for the programme been met?
 2. Have the services you've received helped you deal more effectively with your challenges?
 3. How likely are you to recommend the MST programme to others?
 4. During your treatment how helpful was having your therapist visit you at home?
 5. During your treatment how helpful was it having a therapist available?
 6. How well do you feel able to continue putting in place the systems and plans you developed in the MST programme?
 7. How well do you feel able to continue the work you've begun in the MST programme?
 8. Overall, how satisfied do you feel with your family situation at the moment?
 - 9.* Overall, how satisfied do you feel with your contact with MST?
-

Note. Ratings ranged from *not at all* (1) to *very much* (5).

* Additional item added to CSQ-8.

Effect size

To derive information about the magnitude of the change between pre- and post-treatment, comparisons were expressed in terms of a standardised measure of effect size, the *d* index (Cohen, 1977). As introduced in Chapter 4, the *d* index is defined as the difference between the mean change scores of two groups divided by the average or common standard deviation of the groups. This calculation results in a measure of the degree to which the two groups differ in standard deviation units.

Statistical Analyses

All analyses were performed using the SPSS for Windows programme, Standard Version 11.0 (SPSS, 2000). Visual examination of box plots and lists of data points were used to check for normality, linearity, multicollinearity, and outliers. Descriptive statistics were calculated on sample demographics. Repeated measures ANOVA and Chi Square analyses were used to measure

pre- to post- and follow-up treatment effects. A series of correlational analyses were also conducted to examine the associations between variables including client satisfaction.

Chapter Six

Study Two

Results and Discussion

Analysis Overview

A series of ANOVAs and Chi-Square calculations were conducted to explore differences in treatment outcomes in New Zealand in relation to youth age, youth gender, youth ethnicity, family composition (i.e., one or two parent family), employment status of caregiver, youth custody status (i.e., parent or CYFS), treatment length, or history of previous involvement with other agencies. No significant differences were found (all p 's > .05).

Participant Attrition

Between pre- and post-test, and as indicated in Chapter 5, one of the youth was lost from the study because they withdrew from the treatment programme prematurely, leaving $n = 64$ available for analyses. All eligible treatment completers were able to be located for 6- and 12-month follow-up assessments. The low rate of attrition (2%) from the study precluded any analysis of differences between premature treatment completers and treatment completers. The small number of premature treatment completers also suggests that participant attrition had little impact on the interpretation of the findings.

Therapist Attrition

During the project, six of the 14 therapists and two of the five supervisors who trained in and delivered MST treatment, resigned from their respective MST teams (42% attrition).

Treatment Length

The average length of MST treatment was 155 days ($SD = 39.22$) with the range being from 61 to 253 days. Taking out outliers ($n = 4$), the range was 94 to 213 days. The outliers spent 61, 87, 226, and 253 days in treatment, respectively.

Outliers

Box plots identified two, three, two, and one outlier(s) at pre-treatment, post-treatment, 6- and 12-month follow-up, respectively. No significant differences occurred in the results when the outliers were removed so outliers were retained in analyses.

Ultimate Outcomes

Pre-treatment Status

Thirty-five percent ($n = 29$) of the youth had been in contact with the youth justice system in the pre-treatment assessment period (six months prior to commencing MST treatment). Across the whole sample, the average severity rating of pre-treatment incidents was 3.1 out of a total of 17 ($SD = 3.53$). In addition to offending behaviours, 58% ($n = 36$) of the youth had lived in a mandated out-of-home placement during the pre-treatment period. These placements ranged in length from one to 183 days ($M = 33.62$, $SD = 50.96$). The average pre-treatment school attendance was 55% of available days (range 108 to 292 possible half-days, $SD = 35.17$). Forty percent of youth ($n = 27$) had been withdrawn from school during the pre-treatment period; 13% ($n = 9$) of youth had been stood down; 9% ($n = 6$) suspended; and 18% ($n = 12$) excluded from a school.

Pre-treatment, Post-treatment, 6- and 12-Month Follow-up Data

A series of repeated measures analyses (ANOVA) were conducted to compare participants' pre- and post-treatment, 6- and 12-month follow-up scores. Initial analyses (see also Table 12) indicated that where significant improvements were not reported immediately post-treatment (severity of offending behaviour), there was evidence of significant change by 6- and 12-month follow-up. Likewise, analyses also found that in some areas at 6- and/or 12-month follow-up, significant effects at post-treatment were fully maintained. Thus, overall, there was improvement seen across all indicators; and while in some areas, this change was not fully maintained, all indicators changed between pre- and 12-month follow-up. The specific details of each outcome area now follow.

School Attendance

Repeated measures ANOVAs were conducted to evaluate whether school attendance varied significantly between pre-, post-, and follow-up periods. Significant differences in the hypothesised direction were found between pre- and post-treatment ($F(1,63) = 15.21, p < .01$). On average, school attendance increased 14% during treatment. However, these gains were not maintained at 6- ($F(1,32), < 1$) or 12-month follow-up ($F(1,19), < 1$). However, compared to pre-treatment levels, school attendance at 12-month follow-up was improved. Average school attendance ranged from 53% at pre-treatment, 67% at post-treatment, 57% at 6-month follow-up, to 62% at 12-month follow-up.

Days in Formal Out-of-home Placements

Repeated measures ANOVAs were conducted to evaluate whether the number of days spent in out-of-home placements varied significantly between pre-, post-, and follow-up periods. Significant pre- to post-treatment differences in the number of days youth spent in formal out-of-home placements were found ($F(1,63) = 19.08, p < .01$). On average, days spent out-of-home reduced from 38 days pre-treatment to 13 days post-treatment. This gain was not fully maintained at 6-month follow-up where average days out-of-home increased to

20 days ($F(1,32) = .95, p < .10$). At 12-month follow-up, average days out-of-home reduced to 9 days, just less than the post-treatment level ($F(1,19) = 2.11, p < .10$).

Offending Behaviour

Frequency.

Repeated measures ANOVAs were conducted to evaluate whether the frequency of offending behaviour varied significantly between pre- and post-treatment, and follow-up periods. Significant differences were found between pre- and post-treatment ($F(1,63) = 8.17, p < .01$). These significant gains were maintained at 6- ($F(1,32) = 6.66, p < .05$), and 12-month follow-up ($F(1,19) = 8.78, p < .01$). The mean number of offences reduced from 2.12 at pre-treatment, to 1.39 at post-treatment, to 1.15 at 6-month follow-up, to 0.35 at 12-month follow-up.

Severity.

As with the frequency of offending, repeated measures ANOVAs were conducted to evaluate whether the average severity of offending behaviour varied between pre- and post-treatment and follow-up periods. Significant differences in the severity of offending behaviour were not found between pre- and post-treatment ($F(1,63) = 1.95, p < .10$). However, marginally significant differences were found between pre-treatment and 6-month follow-up ($F(1,32) = 3.95, p < .08$), and significant differences occurred between pre-treatment and 12-month follow-up ($F(1,19) = 11.75, p < .01$). The average severity of offending behaviour reduced across intervals from 3.33 to 2.67 (20%) between pre- and post-treatment, from 2.67 to 2.06 (23%) between post-treatment and 6-month follow-up, and from 2.06 to 1.32 (36%) between 6- and 12-month follow-up (see Table 12 for means, standard deviations, and F values).

Summary of Relationships between Ultimate Outcome Indicators

As Table 13 shows, the associations between the ultimate outcome variables varied over the four assessment periods. As expected, frequency and severity of offending behaviour were highly and positively correlated at pre- and

post-treatment, and at 6- and 12-month follow-up. Both frequency and severity of offending also correlated highly and negatively with school attendance at pre- and post-treatment, and at 6-month follow-up. Unexpectedly, apart from moderately strong and positive associations with frequency of offending at pre-treatment and with severity of offending at 6-month follow-up, out-of-home placements only produced small to moderate associations with other outcome variables at all measurement points. It is also worth noting that it is likely that the smaller *n* available for analysis at 12-month follow-up may have precluded enough power to find significant statistical relationships.

Summary of Ultimate Outcomes

Overall, significant improvements in ultimate outcome indicators were found at post-treatment and generally over follow-up periods. Average days spent out-of-home ranged from 38 days to 8 days to 20 days to 9 days at pre-treatment, post-treatment, 6- and 12-month follow-up, respectively. The mean number of offences reduced from 2.12 to 1.39 to 1.15 to 0.35 at pre-treatment, post-treatment, 6- and 12-month follow-up, respectively. The average severity of offending behaviour reduced from 3.33 to 2.67 to 2.06 to 1.32 at pre-treatment, post-treatment, 6- and 12-month follow-up, respectively. School attendance ranged from 53% to 67% to 57% to 62% at pre-treatment, post-treatment, 6- and 12-month follow-up, respectively.

Table 12.

Means, Standard Deviations, and F values for Ultimate Outcomes at all Measurement Points

Outcome Variables	Treatment Period														
	Pre-treatment			Post-treatment				6-Month F/up				12-Month F/up			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>
Offending															
- Frequency	65	2.12	3.12	64	1.39	2.72	8.17**	33	1.15	2.34	6.66*	20	0.35	.93	8.78**
- Severity	65	3.33	3.48	64	2.67	3.47	1.95	33	2.06	3.34	3.95*	20	0.50	1.32	11.75**
OHP's	65	38	54.86	64	13	29.80	19.08**	33	20	49.21	1.18	20	9	37.75	2.11
School Attendance	65	53%	34.38	64	67%	29.20	15.21**	33	57%	37.41	.04	20	62%	34.34	.34

Note. OHP's = Out-of-home Placements.

School attendance reflects % attendance (possible days attended / actual days attended)

* $p < .05$. ** $p < .01$.

Table 13.

Interrelations and Coefficient alphas for Ultimate Outcome Indicators

Assessment Period	Outcome Variable		
<i>Pre-treatment</i>	1	2	3
1) Offending - Frequency	-		
2) - Severity	.62**	-	
3) Out-of-Home Placements	.22**	.09	-
4) School Attendance	-.32**	-.38**	-.02
<i>Post-treatment</i>			
1) Offending - Frequency	-		
2) - Severity	.64**	-	
3) Out-of-Home Placements	.07	.06	-
4) School Attendance	-.40**	-.21*	-.14
<i>6-Month Follow-up</i>			
1) Offending - Frequency	-		
2) - Severity	.75**	-	
3) Out-of-Home Placements	.26	.55**	-
4) School Attendance	-.49**	-.67**	-.46**
<i>12-Month Follow-up</i>			
1) Offending - Frequency	-		
2) - Severity	.96**	-	
3) Out-of-Home Placements	-.10	-.10	-
4) School Attendance	-.07	-.01	-.08

Note. *n*'s ranged from 20 to 64.

p* < .05. *p* < .01.

Instrumental Dependent Variables

Considerable variation occurred in the number of parent/caregivers who completed the assessment measures (n 's ranged from 17 to 64). Anecdotal evidence from parents suggested that this variation was due to a range of factors including parent/caregiver stress, suspicion regarding the purpose of the assessment, and the limited time parents could make available to complete assessments. Initial attempts were also made to assess youth directly. However, due to a range of difficulties including parent-youth and therapist-youth conflict, and non-compliance on the part of the youth, only six youth completed the SDQ and FFS measures. Given the limited statistical power available from such low numbers, it was decided not to report the results of these measures.

Individual Adjustment and Behavioural Change

Based on parent/caregiver responses to the TAM-B, youth demonstrated decreases in internalising behaviour, aggressive and noncompliant behaviour, and association with deviant peers pre- to post-treatment reflecting a statistical trend ($F(1,52) = 3.70, p < .06$). Based on parent/caregiver responses to the MST-BRS, youth demonstrated a significant decrease in noncompliant and aggressive behaviour, and significant improvements in youth and family communication between pre- and post-treatment ($F(1,55) = 5.34, p < .05$). Significant increases continued at 6-month ($F(1,31) = 7.90, p < .01$), that were maintained at 12-month follow-up ($F(1,15) = 0.31, p > .05$). Similarly with parental monitoring, parent/caregivers reported a significant increase pre- to post-treatment ($F(1,34) = 142.85, p < .01$). Significant increases continued at 6-month ($F(1,31) = 6.42, p < .05$), that were maintained at 12-month follow-up ($F(1,15) = 2.74, p > .05$).

Significant pre- to post-treatment differences were also found for seven of the eight FFS subscales; warmth within the family, parent control, family conflict, peer activity, youth self-esteem, satisfaction with living environment, and satisfaction with the youth's school. Similarly, significant pre- to post-

treatment differences were found for all subscales of the SDQ (see Table 14 for means, standard deviations, and F values for instrumental dependent variables for all measurement periods).

Table 14.

Means, Standard Deviations, and F Values for Instrumental Dependent Variables

Measure	Pre-treatment			Post-treatment				6-Month F/Up				12-Month F/Up			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>
MST-BRS	62	5.02	2.18	56	6.12	2.43	5.34*	32	3.30	0.98	7.90**	16	3.69	0.92	0.31
PSI	37	4.74	1.36	35	6.80	2.69	142.85**	32	3.30	1.30	6.42*	16	3.47	1.36	2.74
TAM – B	64	3.50	0.61	53	3.67	0.62	3.70								
FFS Subscales															
Conflict	23	2.99	0.83	17	1.79	0.78	31.99**								
Control	23	2.21	0.57	17	2.85	0.37	25.61**								
Environment	23	1.70	0.92	17	2.44	0.90	15.87**								
Peer Activity	23	2.33	0.97	17	1.10	0.64	27.26**								
School Satisfaction	23	1.15	0.83	17	2.28	1.15	13.60**								
Self-esteem	23	1.52	0.85	17	2.55	0.68	12.22**								
Trouble	23	1.91	1.35	17	1.53	1.51	1.02								
Warmth	23	2.11	0.83	17	2.98	0.46	19.63**								

SDQ Subscales							
<hr/>							
Conduct Disorder	23	5.70	1.84	18	2.33	1.94	30.11**
Emotional	23	6.35	1.46	18	3.56	2.12	50.61**
Hyperactivity	23	5.30	1.29	18	3.78	1.51	16.45**
Peer Problems	23	4.52	2.08	18	3.33	1.57	5.28**
Prosocial Activities	23	2.70	2.53	18	4.50	1.50	16.60**
Total Difficulties	23	21.87	3.80	18	12.00	5.72	43.22**

Note. Maximum possible scores on measures are as follows: TAM-B = 40; MST-BRS = 55; PSI = 10; FFS = 40; SDQ= 55.

* $p < .05$. ** $p < .01$.

Relationships between Instrumental Outcome Indicators

There were strong and positive associations between pre- to post-treatment change scores on the MST-BRS, PSI, and TAM-B scales, supporting the convergent validity of these scales. There were only small associations between these subscales and FFS and SDQ subscales.

Significant correlations were evident between five of the subscales of the FFS, and between four subscales of the SDQ. Most notably, significant correlations occurred between the total difficulties subscale and 10 of the other subscales. Table 15 shows the interrelations between the different instrumental measures of change in youth behaviour, family relations, and parental monitoring. There were moderate to high associations between responses on 10 of the 14 FFS and SDQ subscales, supporting the convergent validity of these scales. Of note, there were strong and positive associations between conflict and peer activity, youth self-esteem and school satisfaction, parent control and warmth, school satisfaction and warmth, and between youth self-esteem and warmth. Strong and negative associations were noted between parent control and family conflict, parent control and peer activity, family conflict and school satisfaction, conflict and youth self-esteem, warmth and peer activity, and between conflict and warmth. Within the SDQ subscales, strong and positive associations occurred between conduct disorder and hyperactivity, conduct disorder and emotionality, and between conduct disorder and total difficulties. There were also strong and negative associations between conduct disorder and warmth, conduct disorder and parent control, and between conduct disorder and youth self-esteem. Further negative associations were found between school satisfaction and SDQ total difficulties, youth self-esteem and total difficulties, youth self-esteem and emotionality, youth self-esteem and hyperactivity.

Relationships between Instrumental and Ultimate Outcome Indicators

Treatment Effects

See Appendix E for the zero-order correlations between change in instrumental and ultimate outcomes over treatment. Moderate and negative associations occurred between TAM-B and MST-BRS ratings, parental monitoring, and change in days in out-of-home placements. Moderate and negative associations also occurred between behavioural ratings and change in frequency of offending behaviour. Other associations between instrumental and ultimate outcomes were of negligible magnitude.

Correlations between Instrumental Measures of Youth Behaviour Change, Family Relations, and Parental Monitoring

[illegible]

SDQ Subscales

- Conduct disorder	.82**	-.56*	-.19	.69**	-.56*	-.83**	.34	-.75**	-							
- Emotionality	.79**	-.72**	.15	.72**	-.57*	-.81**	.47	-.84**	.74**	-						
- Hyperactivity	.82**	-.53*	-.02	.61**	-.61**	-.81**	.67*	-.74**	.74**	.81**	-					
- Peer problems	-.23	.16	.16	.13	.24	.21	-.08	.14	-.13	.12	.01	-				
- Prosocial	-.91**	.44	.12	-.53*	.69**	.90**	-.39	.73**	-.83**	-.73**	-.80**	.12	-			
- Total difficulties	.80**	-.59*	.01	.76**	-.55*	-.81**	.49	-.79**	.86**	.92**	.88**	.25	-.80**	-		
MST-BRS	.39	-.10	-.28	.28	-.23	-.34	-.08	-.34	.42	.28	.41	-.04	-.39	-.38	-	
PSI	-.23	-.39	-.33	.43	-.18	-.14	-.01	-.24	.36	.31	.41	-.10	-.41	.35	.37**	-
TAM-B	.19	-.16	-.28	.46	-.38	-.13	.12	-.24	.36	.10	.35	.10	-.21	.31	.29*	.34*

Note. *n*'s ranged from 17 to 64.

p* < .05. *p* < .01.

Cultural Responsiveness

Consistent with previous MST outcome research (Borduin et al., 1995), ethnicity was not found to have a significant effect on (a) engagement in treatment or (b) treatment outcomes. Nevertheless, it was important to examine the match between therapist and client cultural affiliation. Sixteen therapists (94%) were European New Zealanders or Other European and 1 therapist in this study was Samoan Maori (6%). In 16 (24%) and 19 cases (29%), therapists and parent/caregivers or therapists and youth were of different cultural backgrounds, respectively. Table 16 shows parent/caregiver responses to individual items.

These results show that at the outset of treatment, 100% ($n = 16$) of parent/caregivers had no or few concerns about working with a therapist of a different cultural background. In relation to their young person working with a therapist of a different cultural background, 73% of caregivers had no concerns ($n = 13$), 18% ($n = 4$) had few concerns, and 9% ($n = 2$) had some concerns. At the outset of treatment, 9% ($n = 2$) of parent/caregivers believed that the cultural needs of their young person would be very well met, 82% ($n = 15$) believed their needs would be met, and 9% believed their young person's cultural needs would not be met at all ($n = 2$).

Table 16.

Cultural Responsiveness

Parent Report	Not at all	A little	Some	Quite a lot	Very much
<i>Pre-treatment - Parent report</i>					
How difficult do you believe it will be to work with a therapist of a different cultural background?	80% (n = 13)	20% (n = 3)	-	-	-
How well do you believe your cultural needs will be met during the MST programme?	-	-	-	60% (n = 10)	40% (n = 6)
How much would you prefer to be working with a therapist from your own cultural background?	100% (n = 16)	-	-	-	-
<i>Post-treatment - Parent report</i>					
How difficult has it been to work with a therapist of a different culture?	67% (n = 11)	18% (n = 3)	15% (n = 2)		
How well do you believe your cultural needs were met during the MST programme?	84% (n = 13)	-	-	16% (n = 3)	-
How much would you have preferred to work with a therapist of your own cultural background?	90% (n = 14)	-	-	10% (n = 2)	-

Note. Responses to items as follows: (1) *not at all*, (2) *a little*, (3) *some*, (4) *quite a lot/well met*, (5) *very much/very well*.

Cultural Responsiveness Ctd.

Parent Report for Youth	Not at all	A little	Some	Quite a lot	Very much
<i>Pre-treatment – Parent report for Youth</i>					
How difficult do you believe it will be for your young person to work with a therapist of a different cultural background?	73% (n = 13)	18% (n = 4)	9% (n = 2)	-	-
How well do you believe the cultural needs of your young person will be met during the MST programme?	9% (n = 2)	9% (n = 2)	-	73% (n = 13)	9% (n = 2)
How much do you believe your young person would prefer to be working with a therapist from their own cultural background?	60% (n = 11)	-	-	30% (n = 6)	10% (n = 2)
<i>Post-treatment – Parent report for Youth</i>					
How difficult do you believe it has been for your young person to work with a therapist of a different culture?	90% (n = 17)	10% (n = 2)			
How well do you believe the cultural needs of your young person were met during the MST programme?	-		-	73% (n = 13)	27% (n = 6)
How much do you believe your young person would have preferred to work with a therapist of their own cultural background?	76% (n = 15)	-	6% (n = 1)	6% (n = 1)	12% (n = 2)

Note. Responses to items as follows: (1) *not at all*, (2) *a little*, (3) *some*, (4) *quite a lot/well met*, (5) *very much/very well*.

At treatment completion, 100% of parent/caregivers believed their young person's ($n = 19$) cultural needs had been well or very well met. Similarly, 85% of parents ($n = 14$) believed their own cultural needs had been quite well or very well met. At treatment completion, 24% ($n = 4$) of parents reported that they believed their young person would have preferred to work with a therapist of the same culture. This is in contrast to the 10% ($n = 2$) of parents who reported that they would have preferred to work with a therapist of a similar cultural background. Of note, anecdotal reports from parents suggested that the primary

concern of most families was to work with a competent therapist regardless of their ethnicity or culture.

Correlates of Client Satisfaction

On average, families reported a high level of satisfaction with the programme although some variability was noted ($M = 34.5$ (out of 45), $SD = 6.77$, $range = 9$ to 45). The relationships between the CSQ and (a) gender, (b) ethnicity, (c) family composition (single or two parent family), (d) caregiver employment status, and (e) treatment outcome were tested using chi-squares. No significant differences were found (all p 's $> .05$).

Table 17 shows the interrelations between CSQ and instrumental outcome measures. Apart from the non-significant association between the CSQ and the TAM-B, other associations demonstrated a magnitude of association suggesting that there is some degree of concurrent validity between these measures.

Table 17.

Correlations between Client Satisfaction and Instrumental Outcomes

Measure	<i>n</i>	1	2	3	4
1) CSQ	64	-			
2) TAM-B	64	.12	-		
3) PSI	37	.55**	.41	-	
4) MST-BRS	62	.61**	.29*	.76**	-

* $p < .05$. ** $p < .01$.*Effect Size*

Effect sizes for measures of ultimate outcomes are as follows: $d = 0.59$ for change in out-of-home placements, $d = 0.46$ for change in school attendance, $d = 0.22$ for change in frequency of offending behaviour, and $d = 0.18$ for change in severity of offending behaviour. The overall effect size for pre- to post-treatment change in combined ultimate outcomes was $d = 0.32$. The effect size for pre- to post-treatment change in instrumental outcomes (i.e., behavioural ratings) was $d = 0.60$. The overall pre- to post-treatment effect size for the New Zealand sample across ultimate and instrumental measures was $d = 0.44$.

Power Analysis

The $d = 0.32$ calculated for change in ultimate outcomes at post-treatment can be categorized as a small to moderate effect (see Cohen, 1988). Based on the sample size for this analysis ($n = 64$), the power to detect this effect size was 0.81. Thus, on average, there was an 81% chance of detecting an effect size in the small to moderate range. In terms of detecting this effect size, power reached the 80% criterion for design sensitivity (Cohen, 1988). Accordingly, the likelihood of making a Type II error is reduced.

The $d = .60$ calculated for change in instrumental outcomes at post-treatment can be categorized as a moderate to large effect (see Cohen, 1988). Based on the sample size for this analysis ($n = 17$), the power to detect this effect size was 0.63. Thus, on average, there was a 63% chance of detecting an effect size in the moderate to large range. In terms of detecting this effect size, power failed to reach the 80% criterion for design sensitivity (Cohen, 1988). Accordingly, as there is an increased likelihood of making a Type II error, results of this analysis should be interpreted with some caution.

Discussion

The primary objective of Study 2 was to evaluate the effectiveness of MST in (a) reducing youth offending and recidivism, (b) reducing days in formal out-of-home placements, (c) increasing school or vocational attendance, and (d) improving youth psychosocial functioning and family relations. An additional objective was to evaluate the responsiveness of MST with different cultural groups.

Across both instrumental and ultimate outcome measures, youth and their families were functioning better and offending less following MST treatment. Overall, parent-youth and family relations were improved, youth were attending school more often, youth were removed from the family less often, and the severity and frequency of offending behaviour was reduced.

More specifically, pre- to post-treatment improvements were reported for school attendance, days out-of-home, and frequency but *not* severity of offending behaviour. However, significant decreases in severity (and frequency) of offending behaviour were found at 6- and 12-month follow-up. Marginally significant differences in days out-of-home were found at 12- but *not* 6-month follow-up. School attendance returned to pre-treatment levels at 6-month follow-up, and then increased again at 12-months follow-up. This less consistent pattern of results may reflect the difficulty parents had sustaining the effort necessary to maintain progress in all outcome areas. Gains in more risk related offending behaviour may have been achieved at the expense of school

attendance and days out-of-home suggesting that parent/caregivers simply prioritised their efforts.

Results suggest that consistent improvements were achieved within the youth's family environment. Parent/caregivers reported significantly improved levels of parental monitoring, family relations, and youth behaviour between pre- and post-treatment. In particular, results show that youth demonstrated significant reductions in noncompliant and aggressive behaviours, internalising behaviours, and association with deviant peers. These gains were generally maintained at 6- and 12-month follow-up.

Consideration must be given to the mixed associations that occurred between change in instrumental and ultimate outcomes over treatment. These results may reflect methodological differences in the measurement of outcomes. Whereas measurement of instrumental outcomes occurred at one point in each measurement interval, measurement of ultimate outcomes was a composite total of all the criterion behaviours that occurred within the assessment period. For example, measurement of pre-treatment data involved a composite total of days out-of-home, school attendance, and number of offences throughout the six months prior to commencing treatment.

Also of interest in this study are the limited associations that occurred between out-of-home placements and other ultimate outcome measures. This anomaly may reflect the contrast between direct measures of behaviour (school attendance, offending behaviour) and measures that reflect a response to a behaviour (i.e., youth are sometimes taken out-of-home in response to provide respite).

A similar incongruity may be reflected in the variation evidenced in school attendance over the assessment periods. Given the average age of the youth at 12-months follow-up ($M = 15.65$ yrs), it is possible that the reduced school attendance evident at 6- and 12-month follow-up is a reflection of the difficulties associated with the transition from school to training programmes or employment. Youth unable to find either a position in a training programme or a

paid position were classified as unemployed or absent from school. In view of the relatively high level of unemployment in the under 20 age bracket generally (12.7% compared with 6.5% and 5.3% in the 20 - 24 yr bracket and 25 - 29 yr bracket, respectively), the fall off in school/vocational attendance may actually be a reflection of the disproportionate difficulty that youth have securing employment or employment related skills training (Statistics New Zealand, 2004).

Despite the variation in outcomes, the level of client satisfaction with MST was consistently high across families. Anecdotal reports from 51 families also indicate that in addition to the home-based nature of the programme, having therapists available at all times relieved considerable stress (see sections on therapist availability in Chapters 8 and 9 for statistical details).

With regard to cultural responsiveness, results suggest that ethnicity was not found to have a significant effect on engagement in treatment or treatment outcomes. In fact, responses suggest that the cultural needs of most parents and youth were well met by therapists. Although at post-treatment, 24% of parents perceived that their youth would have preferred to work with a therapist of their own cultural background, overall reports indicate that regardless of ethnicity, parents were satisfied with the service provided.

Overall, these outcomes suggest that in comparison to more community-evident gains, stronger and more consistent gains were achieved within the youth's immediate family environment. Consistent with the emphasis that MST places on family interventions (Henggeler & Borduin, 1990), these results are also in line with the findings of Study 1. As suggested by Huey et al. (2000), improvements within the family environment appear to be a necessary precursor to changes in other outcome areas (i.e., delinquent peer association, offending behaviour). These results provide further evidence for the notion that the family is central to the process of change. Further, in light of the increasing concerns regarding the effectiveness of residential-based treatment environments (Arnold & Hughes, 1998; Dishion, McCord, & Poulin, 1999; Dishion, Spracklen, Andrews, & Patterson, 1996), these results suggest that

where possible, optimal and sustainable treatment of antisocial youth should occur within the family environment. Importantly, given that youth were doing better at 12-month follow-up on all ultimate indicators, additional support is provided for the family preservation model of service delivery.

Methodological Strengths and Limitations

Strengths

In Study 2, attempts were made to improve on methodological weaknesses in previous MST studies by developing a centralised evaluation system for the independent standardised collection of data from families and associated agencies. In particular, considerable efforts were made to collect outcome data in a systematic manner directly from agencies.

Six and 12-month follow-up data were also collected systematically. On the basis that there can be considerable delays between arrest and conviction in the court system, a longer follow-up period allowed for more accurate collection of recidivism data.

Other design strengths relate to (a) the use of multiple indicators of outcome, (b) the analysis of outcomes achieved by three MST teams, each located in different regions of the country and, (c) the high ecological validity of delivering the treatment in family- and community-based settings. Consequently, the findings of the study are more likely to generalise to a range of similar samples and community settings in New Zealand.

Limitations

The use of a one group pre- to post-treatment design limits discussion of results to quantification and description of the processes and outcomes achieved by the youth and their families during treatment and follow-up. In addition, a number of parent's expressed difficulty completing the assessment measures in the context of persistent competing demands (e.g., domestic responsibilities, work commitments, disruptive and challenging youth

behaviour). These difficulties raise the possibility that those parents who completed the assessment measures may have been less stressed and/or derived more benefit from the MST programme than those parents who did not complete the measures.

The subsequent variation in the number of parent/caregivers who completed assessment measures reduced the likelihood of achieving statistical significance in the analysis of instrumental outcomes. A further difficulty related to the exclusion of youth self-report data due to the low number of completed measures at each measurement point.

Although the issue of ceiling effects is normally only discussed in relation to controlled studies, the comparatively low pre-treatment level of offending behaviour (vs. average pre-treatment severity levels in other MST studies – see Chapter 4) may have limited the degree of change that could have been achieved by youth in this study. Conversely, the inclusion of less severe offenders may also have served to reduce the likelihood of statistical regression occurring (Cook & Campbell, 1979). As well as minimising the likelihood of ceiling effects, inclusion of more severe youth offenders in the target population would have allowed closer evaluation of the efficacy of MST with a more challenging population.

Another area of concern relates to the high level of therapist and supervisor attrition (42%) from this study. This rate of attrition is likely to have impacted negatively on treatment effectiveness and created problems with team stability and continuity. Notwithstanding the low case numbers carried by MST therapists, and that after hours contact time was shared amongst team members, anecdotal reports indicate that many therapists found it taxing to provide intensive support to families outside normal working hours. Another challenge may relate to the extensive travel (400km round trip to the most distant family) required of some therapists to cover large geographical areas. Additional challenges faced by therapists and supervisors may have related to adjusting to the technical aspects of the programme (i.e., preparing for and attending weekly case supervision, working primarily in the homes of families,

lack of understanding of MST amongst professionals and associated agencies, applying the MST treatment principles consistently).

In addition to adjusting to the technical aspects of the model, it is also possible that the high rate of attrition may indicate preliminary organisational and supervision teething problems. Although efforts to streamline services are ongoing, in view of the relatively limited number of therapists available and willing to work in the challenging field of antisocial youth, the utmost care must be taken to ensure staff retention.

Future Directions

An issue that should be considered in relation to therapist retention is the extent to which therapists are required to be available to families in the MST model. Given that after-hours care is a key difference between MST and other treatments of antisocial behaviour in youth, consideration of the costs and benefits related to therapist availability is particularly salient. It is possible that the relatively extensive availability of therapists to families may be instrumental in predicting MST treatment outcomes. Another area related to engagement in MST yet to be investigated is the level of youth and family motivation to change.

Greater understanding of specific mechanisms of change including therapist availability is required to enable community-based agencies to apply targeted and cost effective treatment approaches such as MST. Examination of which specific components of treatment were associated with the most positive outcomes is now needed. Although investigators have begun to identify important moderators (e.g., treatment fidelity, Henggeler et al., 1997) and mediators (e.g., improved peer relations; Huey et al., 2000; family engagement; Schaeffer 2000) of MST outcomes, evaluation of the mechanisms and processes that MST employs to facilitate change in youth and their families would provide further useful information. It is likely that a range of variables have potential to predict treatment outcomes. The following chapter introduces an examination of potential outcome predictors by reviewing variables that have been found to predict outcomes in the treatment of children and youth thus far.

Chapter Seven

Study Three

Predictors of MST Outcomes in New Zealand

How, why, and for whom particular psychotherapies work has been the focus of research for more than fifty years (Lambert, Shapiro, & Bergin, 1986; Luborsky, Singer, & Luborsky, 1975; Smith, Glass, & Miller, 1980). Largely in response to Eysenck's (1952) challenge, early outcome research focused almost exclusively on establishing whether or not psychotherapy was more effective than no treatment. Reviewers have since reached the general consensus that psychotherapy is efficacious (Lambert et al., 1986; Smith et al., 1980; Wampold, 2000). Indeed, the mega-analysis of 302 meta-analyses conducted by Lipsey and Wilson (1993) found that the "psychological, educational, and behavioural treatments studied by meta-analysts generally have positive effects" ($r = .46$) (p. 1198).

Despite the widely acknowledged effectiveness of psychotherapy, few significant differences between treatment modalities have been found (i.e., the "dodo bird verdict" that "all have won and all must have prizes" still stands) (Luborsky et al., 1975; Stiles, Shapiro, & Elliott, 1986; Wampold, 2001; Wampold, Mondin, Moody, Stich, Benson, & Ahn, 1997). The focus of debate has since shifted to the examination of whether the beneficial effects of psychotherapy are due to (a) the specific ingredients of a treatment approach, (b) the factors common across therapies, or (c) other factors including client and therapist characteristics (Ogrodniczuk & Piper, 2003).

Of the many variables considered to contribute to the effectiveness of psychotherapy, most therapy factors can be classified into two broad groups:

specific or common factors of therapy (Lambert & Bergin, 1994). Specific factors refer to elements or techniques that are part of a treatment model (e.g., maladaptive thoughts in cognitive oriented therapies). Common or “non-specific” factors refer to elements that are operable in any mode of therapy (e.g., therapeutic relationship).

This search for active ingredients has become increasingly relevant in recent times following the emergence of managed care and the trend toward brief intervention models. In order to optimise treatment efficiency, researchers and clinicians are increasingly interested in identifying factors that contribute to clients entering, participating in, and benefiting from treatment (Steenbarger, 1994). The requirements of managed care have highlighted a number of clinical issues including (a) establishing the number of sessions needed for improvement, (b) examining the degree of variation in treatment effects that is due to clinician training and other therapist characteristics (e.g., Wampold, 2000), (c) developing more client-focused outcome research, and (d) the ongoing search for empirically supported treatments (Chambless, Sanderson, Shoham, Bennett-Johnson, Pope, Crits-Cristoph et al., 1996; Chambless & Hollon, 1998).

As part of the trend to optimise treatment effectiveness, there has been a move to examine more specific aspects of treatment outcomes related to the intricate nature of the relationship between client, therapist, and treatment variables (Lambert & Ogles, 2004). This shift is reflected in the increasingly widespread attempts to evaluate the practical importance of therapeutic change (Jacobson, Roberts, Berns, & McGlinchey, 1999; Kazdin, 1999; Kendall & Sheldrick, 2000). Interest has now extended from the post-treatment status of participants to how well treatment gains are maintained long term. Studies are now also beginning to examine the individual variables that may influence the long-term maintenance of treatment gains (Ilardi, Craighead, & Evans, 1997).

Most recently, there has been a shift from exploring client, therapist, or treatment techniques in isolation to a focus on the interaction between client and therapist characteristics and the subsequent influence of these

relationships on treatment effectiveness (Clarkin & Levy, 2004). Known as aptitude-by-treatment (or therapist) interaction (ATI), this challenge appears particularly salient to the treatment of antisocial youth as it focuses on all the diverse and complex factors known to influence the development and course of the behaviour (see Chapter 1 for a more complete review of the correlates of antisocial behaviour). Indeed, reviewers have suggested that the personal characteristics and qualities of the client across disorders accounts for the largest proportion of variation (40%) in treatment outcomes (Lambert, 1992). Despite the growing interest in client, therapist, and ATI predictors of treatment outcome with children and adolescents (Kazdin & Kendall, 1998; Weisz, Huey, & Weersing, 1998), few variables have received scrutiny in the child and youth treatment outcome literature. Even more limited are reviews of predictors of outcome with antisocial youth. Of those studies available for review, most have examined predictors of treatment outcome in the evaluation of cognitive-behavioural therapy (CBT). Following is a general review of predictor variables across a range of disorders, including conduct disorder, and populations beginning with individual predictors, then family variables, and therapeutic relational variables. This is followed by a review of variables related specifically to MST treatment of conduct disorder and externalising behaviour in youth.

Individual Predictors

Demographic variables

Three meta-analyses (Durlak et al., 1991; Dush, Hirt, & Schroeder, 1989; Weisz, Weiss, Han, Granger, & Morton, 1995) have all suggested that more positive treatment outcomes are achieved with older children (i.e., age 12 years and older) regardless of disorder. Conversely, in their comparison of multidimensional treatment foster care (MTFC) and group care in the treatment of conduct disorder, Chamberlain and Reid (1998) found that age at first offence or at referral did not account for any significant variance in outcomes. In relation to gender, two meta-analyses (Weisz, Weiss, Alicke, & Klotz, 1987; Weisz et al., 1995) found that across disorders, boys do not appear to respond as well to CBT interventions as girls do. As for ethnicity, treatment findings in various

contexts appears to indicate less effectiveness for African-American or foreign-born youths (Kazdin, Mazurick, & Bass, 1993; Kazdin, Stolar, & Marciano, 1995; Santisteban, Szapocznik, Perez-Vidal, Kurtines, Murray, & LaPerriere, 1996).

Expectancies

Client expectancies regarding the benefits of treatment outcome have been shown to be a consistent predictor of change for a range of clinical disorders in adults (Abouguendia, Joyce, Piper, & Ogrodniczuk, 2004). Indeed, Lambert's early review (1986) of influences on treatment outcome found that expectancy variables accounted for approximately 14% of the variation in treatment outcomes for adults. In a study examining outcome expectancies for potential treatment interventions (Waas & Anderson, 1991), children and adolescents rated potential interventions based on acceptability, potential side effects, and expected outcomes. Results showed that negative evaluations increased with age, with adolescents the most negative for both acceptability and outcome expectancy. More recently, the role of expectancies in substance abuse treatment with youth has been examined (Trudeau, Lillehoj, Spoth, & Redmond, 2003). Overall, the findings indicate that rather than directly influencing current substance using practices, future changes in substance use behaviour appear to be motivated by high expectancies of negative consequences (Myers, McCarthy, MacPherson, & Brown, 2003).

Active Involvement

Active involvement is defined as the child's willingness to participate in therapy activities as well as the child's willingness to self-disclose, ask questions, and engage with the therapeutic material (Braswell, Kendall, Braith, Carey, & Vye, 1985). As with expectancies, child involvement in treatment has been found to be significantly related to outcomes. For example, child involvement in a community-based study that examined a diverse range of clients and a variety of treatment modalities was found to account for 20% of variance in outcomes (Gorin, 1993). Similarly, in a study of behavioural interventions for impulsivity in children, child involvement accounted for approximately 16% of the variance in treatment improvement (Braswell et al.,

1985). More recently, child involvement measured near the midpoint of treatment and based on the level of active participation observed in a therapeutic session was found to be associated with beneficial outcomes (Chu & Kendall, 2004).

Pre-treatment Severity and Academic Deficits

In an evaluation of a child- and family-focused group intervention for reducing anxiety problems in children, pre-treatment symptom severity was the only predictor of the chronicity of anxiety symptomatology in children at two-year follow-up (Dadds, Holland, Laurens, Mullins, Barrett, & Spence, 1999). Similarly, reviews also suggest that treatment is less effective for youth with more severe symptoms (Kazdin et al., 1993; 1995; Santisteban et al., 1996). Specifically in relation to CBT, Kazdin and Crowley (1997) found that poorer treatment outcomes occurred in youth with higher levels of pre-treatment symptom severity. Academic problems (i.e., low levels of reading achievement, poor concentration and retention) (Kazdin & Crowley, 1997) and lower academic achievement/lower IQ (Kazdin et al., 1993; 1995) have also been found to be related to poorer treatment outcomes. In addition, when interventions focused on altering cognitive distortions, neurodevelopmental deficits have also been found to compromise the outcomes of CBT oriented programmes (Fago, 2003).

Family Predictor Variables

In contrast to studies of individual factors, a wider range of family variables has been examined as predictors of treatment outcomes and, in particular, for disruptive behaviour problems.

Family Status

The evidence relating to the influence of family status is mixed. For example, Kazdin and Crowley (1997) found that several parent, family, and contextual factors including level of family income and family benefit status moderated CBT outcomes for children and youth. However, three studies of

children and adolescents found single-parent status to be related to poorer treatment outcomes (Kazdin et al., 1993; 1995; Webster-Stratton, 1996), and three did not (Dumas & Wahler, 1983; Kazdin, 1995; Santisteban et al., 1996). Further, a meta-analysis of 26 other studies examining behavioural parent training (BPT) with younger children ($M = 6.1$ years of age) referred for conduct problems concluded that single-parent status had no effect on treatment outcomes (Serketich & Dumas, 1996).

Parenting Practices

In contrast to family status, evidence that parenting practice predicts treatment outcome is more conclusive. Kazdin and Crowley (1997) found that CBT outcomes for aggressive children and youth were negatively moderated by several parent, family, and contextual factors including adverse parenting practices (e.g., use of harsh and inconsistent punishment, poor parental monitoring). Similarly, Eddy and Chamberlain (2000) found that the effectiveness of MTFC was significantly influenced by family management skills and reduced association with deviant peers. Parenting characterised by firm limit setting, the application of consistent and appropriate consequences for behaviour, close supervision of where and whom the youth was with including limitation of contact with deviant peers, and positive interactions between the youth and the caretaker(s), all had a significant influence on response to treatment.

Parental Adjustment

Many aspects of parental adjustment have been identified as moderators of family/multimodal outcomes with children and adolescents. For example, there is a substantial literature showing the co-occurrence of maternal depression and child conduct problems (Frick, Lahey, Loeber, Stouthamer-Loeber, Christ, & Hanson, 1992; Kazdin, 1990; Murray, Sinclair, Cooper, Ducournau, Turner, & Stein, 1999; Webster-Stratton, 1996; Williams et al., 1990). Parental substance abuse (Frick et al., 1992; Mandel, 1997) and marital dissatisfaction (Webster-Stratton, 1996) have also been found to predict poor child behaviour outcomes and treatment dropout. In another study of children

referred for individual CBT for behaviour problems, a composite index combining measures of (a) maternal psychopathology, (b) socio-economic deprivation, (c) level of maternal social support, and (d) family size (labelled "family psychosocial risk") accounted for 25% of the variance in outcome (Routh, Hill, Steele, Elliott, & Dewey, 1995). Parental stress has been found to play a key role in the cycle of parenting antisocial children (Patterson, 1988). Indeed, parent stress has been found to be interrelated with depression and absence of social support in families of children with conduct problems (Patterson & Forgatch, 1990). The level of parental stress at the beginning of treatment has also been found to influence participation in treatment and outcomes (e.g., attendance, dropping out prematurely, child progress) (Kazdin & Mazurick, 1994; Kazdin & Wassell, 1999). In their 2003 study aimed at reducing parent stress, Kazdin and Whitley introduced a parent problem-solving (PPS) component to parent management training (PMT). This component aimed to train parents to (a) identify alternative solutions to stressful problems, (b) develop coping strategies, and (c) use available resources (e.g., friends, activities) to participate in life in helpful ways. Although all children and their families received problem-solving skills training (PSST) and all parents received PMT, significant differences between the groups were found with greater therapeutic change and reduced barriers to treatment participation evident in the PPS/PMT group.

Parent training which focused on strengthening parent competence (e.g., developing positive discipline strategies and effective parenting skills) and fostering parent involvement in children's preschool activities was found to positively influence outcomes in a group of younger children in the Head Start project ($M = 4.8$ years of age) (Webster-Stratton, 1998). Youth in families who received training were observed to exhibit significantly fewer conduct problems, less non-compliance, less negative affect, and more positive affect compared to children in a no-treatment control group.

Premature Termination

In addition to the individual and family variables that have been found to relate to treatment outcome, understanding the barriers that impede or facilitate

participation in treatment for antisocial youth and their families has been a focus in recent years (Kazdin et al., 1993; Kazdin, Holland, & Crowley, 1997). Predictors of premature termination from treatment for antisocial behaviour in youth include socio-economic disadvantage, minority group status, high levels of stress and family dysfunction, and single parent families (Armbruster & Kazdin, 1994; Richmond, 1992; Schaeffer, 2000). Other barriers to treatment participation include perceived obstacles associated with getting to treatment, perceptions that treatment is not very relevant, and a poor therapist-client relationship (Kazdin et al., 1997; see also Kazdin & Whitley, 2003).

Therapeutic Relationships

Approximately 20 years ago, the relationship between client and therapist was conceptualised as an alliance, a common relationship variable across all forms of therapy (Bordin, 1979). Research with adults has consistently found that a strong alliance is related to positive therapy outcomes across a variety of treatment populations, therapeutic modalities, and different perspectives on the alliance (Horvath & Symonds, 1991; Martin, Graskie, & Davis, 2000). Although the alliance has received little attention in research related to child and adolescent psychotherapy, more recently the therapeutic relationship has been recognized to play a critical role in child and adolescent therapy (Shirk & Karver, 2003; Southam-Gerow & Kendall, 1996). Indeed, 1100 child therapy practitioners surveyed by Kazdin, Siegel, and Bass (1990) considered the therapeutic relationship to be the most important factor in influencing change with children and youth.

Despite the apparent clinical importance of the therapeutic alliance, Shirk and Karver (2003) found only modest associations between therapeutic relationship variables and treatment outcomes in a heterogeneous sample of children and adolescents receiving a range of treatments in their meta-analytic review of 23 studies. This modest association was moderated by one substantive factor, type of client problem. Analyses with externalising children achieved stronger associations than those done with internalising children suggesting that forming a therapeutic relationship may be more challenging and

more critical for outcome among youth with externalising problems. These results are consistent with other research showing that treatment engagement and alliance formation can be difficult with externalising children (Henggeler et al., 1998).

The challenge of establishing relationships with youth must be considered in the context of the young person's entry to treatment. Children and youth do not generally recognize or acknowledge the existence of behavioural problems, nor do they refer themselves for treatment. As a consequence of being directed to enter a treatment programme by the court, social services, and/or a mental health agency, youth are often at odds with their parents and perhaps, at least initially, the therapist. Resulting hostility can impede the subsequent development of a therapeutic relationship (Shirk & Karver, 2003). It is also not uncommon for the parents of these youth to be relatively difficult to engage (e.g., Henggeler et al., 1996; 1998).

Resistance to Engage in Treatment

In fact, high initial resistance by parents (as measured by observational ratings of parent statements during the first two sessions) predicted dropout in a study of conduct-disordered pre-adolescents ($M = 9.2$ years of age) whose parents received behavioural parent training (BPT) (Chamberlain, Patterson, Reid, Kavanagh, & Forgatch, 1984). In addition, therapists rated outcomes as more successful when parent resistance was observed to decrease from pre- to post-treatment. Moreover, other researchers (Santisteban et al., 1996; Szapocnik, Kurtines, Santisteban, & Rio, 1990) have shown that deliberate efforts to reduce family resistance and increase family engagement in family therapy are related to more positive outcomes among drug-abusing adolescents.

Family–Therapist Relations

Support for the importance of therapist-family member alliances is provided by a study of the relationship between alliance and retention in family therapy with delinquent adolescents (Robbins, Turner, Alexander, & Perez,

2003). Raters in this study categorised alliances between therapist and parent, therapist and youth, and parent and youth on the basis of each alliance member's ability to relate openly and honestly, identify with the method and goals of therapy, acknowledge and disclose problems, and work collaboratively with others in the alliance. The extent to which discrepancies were observed in these aspects of the relationship determined whether alliances were rated as *balanced* or *unbalanced*. At the family level, *unbalanced* alliances between family members and therapist predicted dropout. Further, in two-parent families, *unbalanced* alliances between father, adolescent, and therapist were significantly higher in dropout families. Given that the unbalanced alliances between mother and youth did not account for significant differences these results suggest that (a) the pre-treatment level of conflict and negativity between father and youth may have been greater and (b) therapists may have inadvertently validated the father's negativity about the youth without adequately responding to the youth's needs or concerns (Robbins et al., 2003).

In summary, a diverse range of variables have been found to predict outcomes with a range of problems including conduct disorder and externalising behaviour in children and adolescents. The following section reviews variables directly related to MST treatment of antisocial youth.

Predictors of Outcome in MST

As an extension to more straightforward outcome studies, recent MST outcome studies have focused on examining the complex change processes that MST employs to facilitate change in youth and their families (Huey et al., 2000). Preliminary MST research has begun to identify moderators (e.g., youth demographics, Borduin et al., 1995; Henggeler et al., 1997; family status and family adversity, Schaeffer, 2000; study conditions and target population, Curtis et al., 2004; treatment fidelity and adherence, Henggeler et al., 1992; 1997) and mediators (e.g., improved family relations, Mann et al., 1990; improved peer relations, Huey et al., 2000; family engagement, Schaeffer, 2000) of treatment outcomes.

With respect to youth, preliminary results indicated that the effectiveness of MST did not appear to be moderated by a number of demographic factors (e.g., age, race, SES, gender, youth verbal ability) or arrest (e.g., severity of pre-treatment crimes) characteristics (Borduin et al., 1995). However, more recently, Schaeffer (2000) found that girls in single-parent families showed less improvement on several instrumental outcome criteria compared to girls from two-parent families and boys more generally. Specifically, adolescent girls in single-parent families showed less improvement in symptomatology and smaller decreases in peer aggression than did boys in single-parent families or girls in two-parent families. With regard to family adversity, higher levels of adversity (based on psychiatric history, maternal drug/alcohol use, and number of children in the home) in this study were associated with dropping out of MST programmes.

With respect to treatment adherence, recent evidence indicates that therapist's adherence to the MST model predicts outcomes for youth (Henggeler et al., 2002; Huey et al., 2000; Schaeffer, 2000; Schoenwald et al., 2000). In relation to therapist training, the results of Study 1 (Curtis et al., 2004) found that studies in which conditions were more controlled and where graduate students were more closely supervised, achieved significantly better treatment outcomes (see Chapter 4). In the same review, target population was not found to account for differences in outcomes, suggesting that MST appears to be a promising approach for populations other than violent and chronic juvenile offenders (i.e., psychiatrically disturbed youth, substance-abusing juvenile offenders) (Curtis et al., 2004).

Studies examining the role of family and peer relations have consistently found that improvement in family relations (i.e., increased cohesion and general family functioning, improved parent-youth relations) predicts decreases in individual problems (i.e., symptoms, delinquent behaviour), including delinquent peer affiliation (Huey et al., 2000; Mann et al., 1990).

General Summary: Predictors of Outcome with Children and Youth

This review provides evidence that a variety of factors predict therapeutic outcomes across a range of disorders and treatment approaches. Several conclusions that apply to many child and adolescent problems are warranted. First, although child and youth characteristics including male gender, academic problems, and pre-treatment symptom severity seem to predict poorer outcomes, active involvement and expectancies predict improved outcomes. Second, family adversity involving socio-economic stressors and poor parenting practices (including low levels of monitoring and inconsistent approaches to discipline) appear to be risk factors for both dropout and poorer outcome in treatment. Third, it is likely that the effects of family adversity are compounded by parental adjustment as reflected in marital conflict, parental psychopathology, and life stress.

Predictors of Outcome with Conduct Disorder and Externalising Behaviour

Preliminary conclusions that relate specifically to conduct disorder and externalising behaviour are also justified. First, lack of engagement or resistance to treatment appear to be more pronounced in youth and families with externalising behaviour. Second, parental supervision and lack of association with deviant peer association appear to predict improved treatment outcomes. Finally, it seems likely that the degree of alliance developed between parent, adolescent, and therapist may predict treatment dropout.

Overall, this review demonstrates the progress made in the past decade toward understanding the complex mechanisms and predictors of outcome in the treatment of youth disorders. The disproportionate usage of resources by youth with conduct disorder and severe externalising behaviour (Kazdin, 2000; Smith, 1996; Rutter, Giller, & Hagel, 1998) is reflected in the numerous attempts reviewed thus far to identify variables specifically relevant to the effective treatment of this complex phenomena.

Future Directions in the Search for Predictors of MST Outcomes

Several themes emerge from this review and inform Study 3. Explorations of predictors of treatment outcome with antisocial youth to date have largely concentrated on the examination of relatively stable and invariant demographic or psychosocial variables (e.g., gender, age, SES, ethnicity, family adversity). The literature also reveals a more recent and growing awareness of the dynamic nature of the relationships between the key players in therapy (therapists, parents, and children/youth) including client resistance and engagement (Santisteban et al., 1996; Szapocnik et al., 1990), family relations (Mann et al., 1990), therapeutic alliance (Robbins et al., 2000), and therapist training and adherence (Henggeler et al., 1997; Huey, 2000). Consequently, there is a developing understanding of the role that individual variables, as well as relational issues contribute to the process of change that occurs within treatment.

Even so, more attempts to understand why some youth and families are successful while others fail in their attempts to change their behaviour are necessary. Future examinations of potential predictors must now (a) expand on the understanding of variables already known to influence outcomes with antisocial youth and their families (i.e., engagement, therapist adherence), (b) explore the role of motivation and associated constructs that are closely linked to behavioural change (i.e., readiness to change, decisional balance), and (c) examine relevant therapist process variables that may influence the trajectory of the youth and their participation in treatment (therapist availability). The next section reviews the following variables hypothesised to predict outcomes in the treatment of antisocial youth: motivation, decisional balance, engagement, therapist availability, and therapist adherence.

Motivation

Research has demonstrated that individuals who are motivated to change maladaptive behaviours typically have a degree of insight into their

problems, are interested in making beneficial change, understand that treatment involves commitment and energy, and are willing to make sacrifices to achieve gains (Rosenbaum & Horowitz, 1983). In contrast, youth who engage in antisocial behaviours are more likely than adults to enter treatment as a result of external requirements (e.g., fulfilling court order), be less motivated to change (Hird, Williams, & Markham, 1997), and less likely to achieve favourable treatment outcomes compared to other childhood disorders (Melnick, De-Leon, Hawke, Jainchill, & Kressel, 1997).

Although many parents attempt to change the behaviour of their young person, there is limited research with respect to parent and adolescent motivation to change adolescent behavioural problems. In one of two studies identified in this area, Phares and Danforth (1994) found that adolescents were significantly less likely to want to change their behaviour than their parents or teachers. In relation to the distress caused by challenging behaviour, adolescents reported the least amount of distress in contrast to parents who reported the highest amount of distress about all types of their adolescents' behaviour. This discrepancy is also evident in Duhig and Phares (2003) examination of adolescent and parent motivation to change internalising and externalising behaviours. Results showed that mothers and fathers wanted an average of 85.7% and 84.5% of adolescents' internalising behaviour, and 82.4% and 81.5% of adolescents' externalising behaviours changed, respectively. This is in contrast to their adolescents, who indicated that they wanted to change only 66.4% and 52.2% of their internalising and externalising behaviours, respectively. These findings suggest that parents are significantly more motivated to change the challenging behaviour of their young person than the young person is to change their own behaviour.

Therapists are also aware of the importance of youth motivation to change in treatment of behavioural problems. However, again, only a limited amount of work has been done to investigate this area. Hemphill and Howell (2000) suggest that an important task facing the therapist is to identify those adolescents who acknowledge their difficulties and are seriously contemplating making changes in their behaviour.

The transtheoretical model.

The transtheoretical model may provide a framework for understanding youth and parent motivation to change. This model conceptualises psychological and behaviour change in adults as a series of distinct stages (McConaughy, Prochaska, & Velicer, 1983). This model suggests that individuals engaging in new behaviours move through a series of changes believed to be common to individuals both in and out of treatment. The most common conceptualisation of the transtheoretical model includes four stages of change (SOC) that represent "specific constellations of attitudes, intentions, and/or behaviours that are relevant to an individual's status in the process of change" (Prochaska & DiClemente, 1992, p.185). More successful outcomes are expected from those further along the continuum in the action-oriented stage of change. From this perspective, clients in the precontemplation stage are typically characterised by a lack of recognition that a problem exists. In the contemplation stage, individuals begin to recognise they have a problem and may be considering various solutions. Clients in the action stage are thought to be actively working to bring about change. Clients in the maintenance stage are characterised by a concern with maintaining changes and preventing relapse (McConaughy, DiClemente, Prochaska, & Velicer, 1989).

The *stage effect* predicts that the stage at which individuals enter a treatment programme directly influences the amount of successful action that occurs during and following treatment (Prochaska, DiClemente, & Norcross, 1992). For example, a study of smokers found that those who entered the programme in the precontemplation stage showed the least amount of effective action (as measured by abstinence each month) during the 6-month study. By comparison, those who entered the programme in the action stage were the most successful at each assessment point. Overall, the *stage effect* predicts that the more progress individuals make through the stages of change in the first month, the more they increase their likelihood of achieving and maintaining effective behaviour change over time.

Conceptualisation of parent and youth motivation to change within the transtheoretical model would suggest that as reported earlier in relation to

motivation, parents and youth are likely to be at different stages of change at the outset of treatment. In fact, given the more severe target population of MST, it is likely that discrepancies in motivation to change would be even more apparent. Indeed, parents and youth may well be polarised in their motivation to change with parents more likely to be in the action/maintenance stages of the continuum compared to their youth who may be more often in the precontemplative/contemplative stages at the outset of treatment.

Decisional balance.

Decisional balance is a construct often associated with the transtheoretical model that should also be considered when investigating the processes involved in behavioural change. First conceptualised as a conflict model (Janis & Mann, 1977), this construct assumes that when considering a behaviour change, individuals enter the pros and cons of making the change into a decisional “balance sheet” where comparative gains and losses are weighed up (Prochaska, Velicer, Rossi, Goldstein, Marcus, Rakowski et al., 1994). Prochaska and DiClemente (1992) found the balance between pros and cons to vary depending on the individuals’ stage of change. For example, in the precontemplation stage, individuals tend to judge the pros of the problem behaviour to outweigh the cons. The opposite is likely to occur in the action and maintenance stages where the cons of the problematic behaviour have typically been found to outweigh the pros (Velicer, DiClemente, Prochaska, & Brandenburg, 1985).

In regard to parents and youth, it is likely that parents see more benefits to changing problematic behaviours than their youth. However, when faced with engaging in a relatively intensive treatment programme, the benefits (pros) of changing behaviour may not outweigh the costs (cons) of the sustained effort required. In addition to consideration of readiness to change, concurrent examination of decisional balance may provide useful information about the processes associated with movement through the stages of the transtheoretical model. For example, health research in exercise behaviour has found that movement through the stages of change was accompanied by corresponding

changes in decisional balance variables (Marcus, Eaton, Rossi, & Harlow, 1994). Participants in the precontemplative or contemplative stages who were considering exercising perceived more costs of adopting the behaviour than benefits, and for those in the action and maintenance stages, the benefits outweighed the costs.

It is likely that together, the transtheoretical and decisional balance models may provide a useful framework for (a) assessing the pre-treatment motivation levels of youth and parent/caregivers and (b) developing an understanding of the decision making processes that parent/caregivers apply when evaluating their participation in MST.

If this proves to be the case, accurate pre-treatment assessment of parent and youth readiness to change could allow for more optimal treatment planning. For example, action-oriented therapeutic interventions might be more effective for individuals in the action stage of change, whereas cognitive-behavioural, motivational interviewing (MI; Miller & Rollick, 2002), or solution-focused techniques which increase awareness of both strengths and problems might be more useful for individuals and families in the precontemplative or contemplative stages. In a time-limited treatment programme such as MST, implementation of the most appropriate intervention at the optimum stage of treatment could improve outcomes.

Engagement

Linked directly to the idea of motivation to change, attempts to reduce the barriers to community-based treatment participation increasingly emphasise the importance of engagement in treatment (Cunningham & Henggeler, 1999; Henggeler & Borduin, 1992; Szapocznik et al., 1988; Joe, Simpson, & Broome, 1999; Broome, Joe, & Simpson, 2001). That is, motivated families are thought to be potentially more engaged families. Engagement may be conceptualised in several ways: either as a statement of “the relationship between the therapist and the family and/or other key participants” (Cunningham & Henggeler, 1999, p. 267), as a way of describing the degree to which clients actively participate in the treatment process, or as the number of therapy sessions attended (Joe,

Simpson, & Broome, 1999). Further, Broome et al. (2001) consider that a more engaged person or family is one “who bonds with the therapist, endorses treatment goals, and participates in treatment to a higher degree” (p. 609).

Engagement with families is a primary goal of MST; an objective that is supported by research indicating that engaging youth and their families in treatment is predictive of positive outcomes (Griffith, Knight, Joe, & Simpson, 1998; Santisteban et al., 1996; Schaeffer, 2000). MST therapists learn that treatment “cannot progress unless key family members are engaged and actively participating in the treatment process” (Schoenwald et al., 2000, p. 23). As first discussed in the previous section, Schaeffer (2000) used supervisor case records completed during the course of MST treatment to assess family-therapist engagement. On this basis, engagement in MST was found to be related to positive instrumental outcomes, decreased adolescent symptomatology, in addition to serving as a mediator of the effects of family adversity on treatment dropout. Given the pivotal role that engagement is assumed to play in the therapist-family relationship, further investigation of the role that engagement appears to play in treatment outcome is warranted.

Therapist Availability

A related, but commonly overlooked influence on the degree to which families engage in treatment concerns the extent to which therapists are available to their clients. Saul Rosenzweig suggested the following in his seminal article (1936): “there are certain unrecognised factors in any therapeutic situation, factors that may be even more important than those being purposely employed” (p.142). The degree to which a therapist is available to their client may be one of these as yet largely “unrecognised factors” in therapeutic treatment approaches. An extensive body of literature suggests that a range of therapist variables (e.g., the use of a manual, difference in therapist-client ethnicity, therapist interpersonal style, therapist directiveness) have been found to influence treatment outcomes (Lambert & Bergin, 1994; Luborsky, McLellan, Diguier, Woody, & Seligman, 1997). And yet, apart from featuring as a consideration in the treatment of Borderline Personality Disorder (Gunderson,

1994), there is surprisingly little knowledge about how (or if) therapist availability influences treatment effectiveness.

Consideration of therapist availability as a predictor of outcome in MST is particularly salient given that it is a key difference between MST and other treatments of antisocial behaviour in youth. It is also likely that the development of engagement between therapists and their families is assisted by the degree to which therapists are available to families (e.g., in the early stages of treatment therapists may visit families seven to eight times per week) (Cunningham & Henggeler, 1999). Even so, the nature and extent of therapist availability has not yet featured in the empirical studies of MST conducted to date.

In the context of overcoming barriers to participation in treatment discussed earlier, it is likely that flexible and frequent contacts with therapists contribute to overcoming the practical obstacles associated with attending treatment (e.g., transport, work schedules) (Kazdin et al., 1997). Certainly, evidence gathered from emergency services indicates that families have the most need for crisis support between 6 p.m. and 11 p.m. (Smart, Pollard, & Walpole, 1999). It seems probable that therapists who fulfil that need by (a) offering flexible meeting times, (b) meeting with families in their own homes, and (c) offering 24 hour crisis support, will have a greater chance of engaging effectively with families.

Therapist Adherence to MST

As a mechanism for monitoring the effectiveness of treatment practices, the study of treatment fidelity and therapist competence has become a focus in more recent outcome research (Moncher & Prinz, 1991; Startup & Shapiro, 1993). Treatment fidelity comprises two related issues: adherence (or fidelity) and differentiation (Moncher & Prinz, 1991). Adherence refers to the extent to which a treatment protocol has been implemented as planned with the core task being to establish whether or not the therapy occurred as intended (Hogue, Liddle, & Rowe, 1996). Differentiation refers to the degree to which the

treatment implemented differs from other therapies (see Shaw & Dobson, 1988).

Fidelity measures allow conclusions to be made about whether the treatment itself is effective or not based on whether treatment has been adequately administered (Startup & Shapiro, 1993). In relation to external validity, a major advantage of measuring treatment adherence allows for studies to be replicated and compared across multiple settings. Thus, fidelity measures serve as a useful mechanism for guiding the dissemination from laboratory to clinical settings and between different clinical settings (Waltz, Addis, Koerner, & Jacobson, 1993). However, specific measurement of the degree to which therapists adhere to specific therapies is a facet of treatment that continues to be relatively rarely evaluated.

MST goes some way to addressing this gap in the literature by monitoring the clinical practices of therapists and supervisors as a matter of usual practice. The Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) has been developed to assess the treatment fidelity of MST therapists to the model. This measure is closely linked to the MST treatment principles and reflects the conceptualisation of the theoretical foundations underlying MST (i.e., social ecological theory; Bronfenbrenner, 1979), the multi-determined nature of behaviour problems (Elliott et al., 1985), and select family systems (Haley, 1976; Minuchin, 1974).

Adherence to the principles of MST has been a focus of some more recent MST outcome studies and with different adolescent populations (Henggeler et al., 1997; Henggeler, Pickrel et al., 1999; Henggeler, Rowland et al., 1999). Earlier results indicated that although the Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) had limited predictive validity, its use can ensure “fidelity to the MST treatment protocol in the absence of direct involvement of the MST developers” (Schoenwald et al., 2000, p. 98). More recent evidence indicates that therapist’s adherence to the MST model has been shown to more strongly predict outcomes for youth (Henggeler et al., 2002; Huey et al., 2000; Schoenwald et al., 2000). More specifically, two studies

(Huey et al., 2000; Schoenwald et al., 2000) have also demonstrated associations between caregiver-reported TAM ratings and short-term instrumental outcomes such as improved family functioning (Henggeler et al., 2002). Thus, empirical support is emerging for an association between treatment adherence and treatment outcomes in MST studies conducted in the U.S.A. It is now important to establish whether therapist adherence assessed with the TAM is related to treatment outcomes achieved in New Zealand.

Hypotheses

This section presents hypotheses that pertain to predictors of MST treatment outcomes to be examined in Study 3. These hypotheses are derived from the literature summarised thus far and are consistent with the empirical foundations of the MST model.

- 1) Based on the work of Hemphill and Howell (2000), Melnick et al. (1997), and Joe et al. (1998), it was expected that higher levels of parent and youth motivation to change (as measured with the Stage of Change model), would be correlated with treatment outcomes. Based on the work of Duhig and Phares (2003), it was also expected that pre-treatment differences in motivation levels between parents and youth would be evident. In addition, it was expected that parent motivation to change would mediate youth motivation to change.
- 2) In the areas of exercise and addictive behaviours (Marcus et al., 1994; Prochaska et al., 1994), decisional balance has been found to be related to the individual's current stage of change. Individuals in the action and maintenance stages of change were found to be more likely to consider the pros to outweigh the cons and vice versa. In this study, it was expected that parent decision-making processes would be related to youth stage of change. Parents who perceived their youth to be motivated to change their behaviour would also be more likely to perceive higher benefits in comparison to parents of less motivated youth who were more likely to perceive the costs of behaviour change to outweigh the benefits.

- 3) Schaeffer (2000) found that (a) engagement at various stages of MST is related to positive outcomes and (b) that engagement can mediate family adversity. When concentrated efforts were made to engage families in treatment, MST was found to be effective with families, even those experiencing high levels of stressors. It was expected that these findings, engagement related to outcome and mediating adversity, would be replicated in Study 3.
- 4) On the basis that MST therapists have relatively more contact with families (face-to-face and phone contacts) compared to other treatment programmes for antisocial youth, it was expected that therapist availability would be positively related to ultimate post-treatment and follow-up outcomes.
- 5) Based on the findings of Henggeler et al. (2002), Huey et al. (2000), and Schoenwald et al. (2000), therapist adherence to the model (i.e., fidelity) was predicted to influence ultimate treatment outcomes in New Zealand.

The methods and procedures related to the examination of these hypothesised predictor variables are next outlined in Chapter 8.

Chapter Eight

Study Three

Evaluation Procedures

As reviewed in Chapter 7, Study 3 aims to examine selected variables hypothesised to influence MST treatment outcomes. The following section outlines the assessment procedures used to evaluate these variables.

Data Collection

In order to minimise the demands on families, measures of predictor variables were administered in conjunction with the data collected for Study 2 (See Table 18 for details of measure administration).

Table 18.

Timetable for Administration of Measures for Study 3

Assessment Period	Measures
<i>Pre-treatment</i>	
Parent/Caregiver	Stage of Change Scale (SOCS) – Parent self-report and parent-report on youth versions, Decisional Balance Scale, Initial Engagement Measure
<i>Weekly</i>	
Therapist	Therapist phone and face-to-face contacts with families and associated agencies
<i>Monthly</i>	
Parent/Caregiver	Stage of Change Scale (SOCS) – Parent self-report and parent-report on youth versions, Therapist Adherence Measure (TAM)
<i>Post-treatment</i>	
Parent/Caregiver	Stage of Change Scale (SOCS) – Parent self-report and parent-report on youth versions, Therapist Adherence Measure (TAM)

Motivational Variables

Transtheoretical Model and Stage of Change Scale

Stage of change was assessed with a modified version of the University of Rhode Island Change Assessment (URICA; DiClemente & Hughes, 1990), a self-report measure designed to assess four theoretical stages through which individuals progress in changing substance use behaviour: precontemplation, contemplation, action, and maintenance (McConaughy et al., 1983). Consistent with its original development, the measure was modified for the purposes of the current study (i.e., to incorporate challenging behaviours). The URICA has demonstrated solid psychometric properties (McConaughy, DiClemente, Prochaska, & Velicer, 1989; McConaughy et al., 1983) and

reliability estimates of the four subscales are moderately strong in alcohol, opiate, cocaine, and nicotine dependent participants (*range* = 0.68 - 0.85; Abellanas & McLellan, 1993; Carbonari & DiClemente, 2000).

Two 12-item versions of the scale were used here: (a) a parent self-report of stage of change and (b) a parent-report of youth stage of change. At pre- and post-treatment and monthly throughout treatment, parent/caregivers were asked to rate statements that described how they felt as they approached problems. Parents were also asked to report how much they believed their young person would rate similar statements (see Table 19). A five-point Likert scale was used to rate each item ranging from *strongly disagree* (1) to *strongly agree* (5). A total score (possible *range* = 3 - 15) is calculated for each of the subscales. Categorisation into a stage is based on the highest subscale score. A factor analysis (using varimax rotation) was performed on each questionnaire. Although five factors were obtained for the parent scale, 10 of the 12 items were distributed across four factors. These four main factors were subsequently used for analysis. The four main factors were interpreted as precontemplative (three items, eigenvalue = 3.25), contemplative (two items, eigenvalue = 2.19), action (two items, eigenvalue = 1.80), and maintenance (three items, eigenvalue = 1.30) (see Appendix F for details of the factor analysis). Cronbach's alphas for parent precontemplative items were 0.62, 0.81, 0.82, 0.79, and 0.74 for months one to five, respectively. Cronbach's alphas for parent contemplative items were 0.83, 0.66, 0.54, 0.72, and 0.71 for months one to five, respectively. Cronbach's alphas for parent action items were 0.74, 0.76, 0.71, 0.91, and 0.78 for months one to five, respectively. Cronbach's alphas for parent maintenance were 0.77, 0.67, 0.77, 0.82, and 0.74 for months one to five, respectively.

In the factor analysis of the youth scale, 11 of the 12 items were distributed across three factors. These three factors were used in subsequent analyses. The three main factors were interpreted as precontemplative (three items, eigenvalue = 3.37), contemplative (three items, eigenvalue = 3.35), and action/maintenance (five items, eigenvalue = 2.31) (see Appendix G for details of the factor analysis). For youth precontemplative items, Cronbach's alphas were 0.85, 0.75, 0.91, 0.90, and 0.76 for months one to five, respectively.

Cronbach's alphas for youth contemplative items were 0.81, 0.75, 0.95, 0.83, and 0.80 for months one to five, respectively. Cronbach's alphas for youth action/maintenance items were 0.83, 0.91, 0.92, 0.89, and 0.84 for months one to five, respectively.

Table 19.

Parent and Youth Stage of Change Scales

Parent self-report version	Parent report for youth
<p><i>Precontemplative Items</i></p> <p>I don't believe that our family has a problem (what's the problem?) I/we may be part of the problem but we don't really think we are Our family doesn't have any problems that need changing</p>	<p><i>Precontemplative Items</i></p> <p>I don't believe that I have a problem (what's the problem?) I may be part of the problem but I don't really think I am I don't have any problems that need changing</p>
<p><i>Contemplative Items</i></p> <p>I/we would like more ideas on how to solve our problems It might be worthwhile to work on our problems</p>	<p><i>Contemplative Items</i></p> <p>I think I do have some problems that I should work on I would like more ideas on how to solve my problems It might be worthwhile to work on my problems</p>
<p><i>Action Items</i></p> <p>Our family is working hard to change our situation Our family is actively working on our problems</p>	<p><i>Action/Maintenance Items</i></p> <p>I am working hard to change my situation I am actively working on my problems</p>
<p><i>Maintenance Items</i></p> <p>I/we are trying to maintain the progress we have made I/we are here to prevent a relapse of our problems It worries us that we might slip back on problems we have already changed</p>	<p>At times my problems are difficult but I am working on them</p> <p>I am trying to maintain the progress I have made I am here to prevent my problems returning</p>

Note. Ratings ranged from *strongly disagree* (1) to *strongly agree* (5).

Decisional Balance

A six-item decisional balance measure was developed to assess pros and cons associated with engaging in the MST programme. The measure was adapted from an abbreviated version of the decisional balance scale used to measure decision-making processes in regard to smoking cigarettes (Velicer et al., 1985), and used to describe caregiver decisions associated with participating in the MST programme and making change (see Table 20). Two subscales containing either three “pro” or three “con” items were adapted to measure the benefits/costs associated with attempting to modify challenging behaviours (Velicer et al., 1985). A decisional balance index was calculated by subtracting the sum of the con scale from the sum of the pro scale. Parent/caregivers were asked to indicate, on a five-point Likert scale ranging from *not important at all* (1) to *very important* (5), how important each statement featured in their decision to enter the MST programme. A separate factor analysis was carried out for each scale. Each of the items loaded onto two separate factors (pro factor = three items, eigenvalue = 1.91) (con factor = three items, eigenvalue = 1.20) (see Appendix H for details of the factor analysis). Cronbach’s alphas were found to be 0.70 and 0.46 for the pro and con subscales, respectively.

Table 20.

Decisional Balance Scale

Pro Subscale Items

1. Our family will be happier if we do something about our situation
2. Making changes will help our family to stay together
3. Managing (*youth's name*) differently now will make life easier in the long run

Con Subscale Items

1. I/we feel uncomfortable needing help to manage my/our family
2. Its easier to put up with things the way they are than try and change them
3. By focusing on (*youth's name*), everyone else in the family will struggle

Note. Ratings ranged from *not important at all* (1) to *very important* (5).

Therapist Variables

Engagement

As reviewed earlier, it was expected that families who were less engaged in MST at the beginning of treatment would (a) be less likely to achieve beneficial treatment outcomes and (b) more likely to drop out of treatment prematurely. MST therapists currently receive feedback regarding their adherence to the MST model at three-monthly intervals. Considering the substantial emphasis placed on the need to engage families in treatment, and given a lack of engagement-oriented items in the TAM, it seemed important to establish a more specific measure of initial engagement. Based on MST theory and practice (Henggeler et al., 1998), a five-item measure of initial engagement was developed to a) assess whether engagement early in treatment would influence outcome and (b) provide therapists with specific feedback regarding the level of engagement achieved with individual families. Items were rated on a five-point Likert scale ranging from *not comfortable/not confident* (1) to *very comfortable/very confident* (5). The initial Cronbach's alpha for the engagement items was found to be 0.60. In an attempt to increase the reliability of the measure to a more acceptable level, individual items were screened and three

items were removed based on item-total correlations (see Table 21). Subsequent Cronbach's alpha for the two remaining items increased to 0.78.

Table 21.
Initial Engagement Measure

-
- *1. How comfortable do you feel with your therapist?
 - 2. How hopeful are you that this programme will help you to improve your family situation?
 - *3. How helpful is it knowing that a MST therapist is available to you at all times?
 - 4. How confident do you feel that (*therapist's name*) and the MST programme are going to help your family make the changes you hope for?
 - *5. Has the work you've begun with (*therapist's name*) been helpful?
-

Note. Ratings ranged from *not at all* (1) to *very much* (5).

*Items removed.

Therapist Availability

Therapists kept a weekly log of all phone and face-to-face contacts with families and other agencies (e.g., CYFS, schools, Youth Aid) involved with the family. Contacts were further separated into those that occurred within normal working hours (between 8 a.m. and 5.30 p.m.) and those that occurred outside normal working hours (between 5.30 p.m. and 8 a.m. and during weekends). Details of therapist contacts with families and associated agencies were collected for 58 families. Details of contacts with the remaining six families were not available due to documentation errors.

Therapist Adherence

The Therapist Adherence Measure (TAM; Henggeler & Borduin, 1992) was developed to assess the treatment fidelity of MST therapists to the model. This instrument was originally developed to test the hypothesis that fidelity to

the MST model would predict quality of treatment outcome (Henggeler & Borduin, 1992). The 26-item measure was developed by expert consensus to reflect the treatment principles and assess family and therapist behaviours specific to the implementation of MST. The original validation of the TAM yielded six sub-scale factor scores: overall adherence, non-productive settings, therapist/family problem-solving effort, therapist attempts to change interaction, lack of direction, and family-therapist consensus (Henggeler & Borduin, 1992). To date, some support has been found for an association between TAM scores and treatment outcomes (Henggeler et al., 1997; Henggeler, Pickrel et al., 1999; Huey et al., 2000; Schoenwald et al., 2000).

As part of the standard MST quality assurance process, a TAM was administered to the primary caregiver between two and three weeks after the commencement of treatment and every month throughout the programme ($n = 253$ TAMS, $M = 4.6$ TAMS per family). Two hundred and forty seven TAMS were administered by phone. Six TAMS were sent out by mail because parents did not have access to a telephone. Administration time per TAM was approximately 10 minutes. In all cases, TAMS were administered independently of the therapist. When rating TAM items, caregivers were asked to make reference to the previous two or three sessions with their therapist. Responses to the TAM were entered onto a secure internet database system. Monthly administration of the TAM provided data regarding the trend of adherence ratings across families and stage of treatment. Cronbach's alphas were found to be 0.78, 0.90, 0.80, 0.86, and 0.85, for months one to five, respectively.

Statistical Analyses

Repeated measures ANOVA, Chi Square analyses, and t-tests were used to explore differences between variables. A series of correlational analyses were also conducted to examine the associations between variables.

Chapter Nine

Study Three

Results and Discussion

Analysis Overview

A series of ANOVAs and Chi Square analyses were conducted to explore differences in (a) youth and parent stage of change and (b) decisional balance in relation to youth age, youth gender, youth ethnicity, family composition (i.e., one or two parent family), employment status of caregiver, treatment length, history of previous involvement with other agencies, and youth custody status. T-tests were also used to explore relationships between parent and youth stage of change, and decisional balance. A range of bivariate correlations between predictor variables and ultimate treatment outcomes were examined. As discussed in Chapter 5, variations in *n* were observed as not all participants completed all of the assessment measures administered. Nevertheless, the mediational and regression analyses exceed the ratio of five cases per independent variable as suggested by Tabachnick and Fidell (1989).

Motivational and Decision Making Correlates of Behaviour Change

Frequency counts were used to classify youth and parent/caregivers into a stage of change for each month of treatment. Table 22 presents the means and percentages for parents and youth per stage during treatment. Analysis of variance (ANOVA) found there were significant differences in relation to youth

gender across stage of change. A Scheffe test revealed that at months two and three, significantly more females were in the action/maintenance stage compared to males ($F(1,22) = 3.37, p < .05$). ANOVA also found significant differences in relation to family composition across stage of change. A Scheffe test revealed that at months two and three, youth living in families with two adults (either two biological parents or one biological parent and a partner) were more often in the action/maintenance stage compared to youth living in single-parent families ($F(1,22) = 5.27, p < .05$). No other significant differences were found among parents or youth across stage of change, in relation to age, ethnicity, family size, employment status of caregiver, treatment length, history of previous involvement with other agencies, and youth custody status (p 's $> .05$).

Table 22.

Parent and Youth Stage of Change per Month during Treatment

	Pre- treatment	Month 2	Month 3	Month 4	Post- treatment
	<i>n / %</i>	<i>n / %</i>	<i>n / %</i>	<i>n / %</i>	<i>n / %</i>
<i>Precontemplative</i>					
- Parent	-	-	1 (3.7)	-	-
- Youth	13 (54.2)	10 (41.7)	9 (33.3)	7 (30.4)	6 (37.5)
<i>Contemplative</i>					
- Parent	7 (28.0)	7 (29.2)	4 (14.8)	3 (13.0)	3 (18.8)
- Youth	10 (41.7)	8 (33.3)	7 (25.9)	4 (17.4)	1 (6.3)
<i>Action or Action/Maintenance</i>					
- Parent	17 (68.0)	17 (70.8)	18 (66.7)	15 (65.2)	11 (68.8)
- Youth	1 (4.2)	6 (25.0)	11 (40.7)	12 (52.0)	9 (56.0)
<i>Maintenance</i>					
- Parent	1 (4.0)	-	4 (14.8)	5 (21.7)	2 (12.5)

As predicted, differences in stage of change between youth and parents were evident at pre-treatment ($t(23) = -6.49, p < .01$), at month two ($t(23) = -4.53, p < .01$), at month three ($t(22) = -3.79, p < .01$), and at month four ($t(23) = -3.01, p < .01$). Differences between parent and youth stage of change remained up to but not including month five ($t(15) = -2.03, p < 1$). T-tests found that considerable differences occurred between pre- and post-treatment in the numbers of youth in precontemplative ($t(15) = 9.34, p < .001$), contemplative ($t(15) = 11.82, p < .001$), and action/maintenance ($t(15) = 7.97, p < .001$) stages of change (see Figure 3). In contrast, no differences were found for parents and stage of change between pre- and post-treatment (p 's $> .05$). As expected, youth progression through the stages was in contrast to the majority of parents (81%) who remained in the action or maintenance stages throughout treatment.

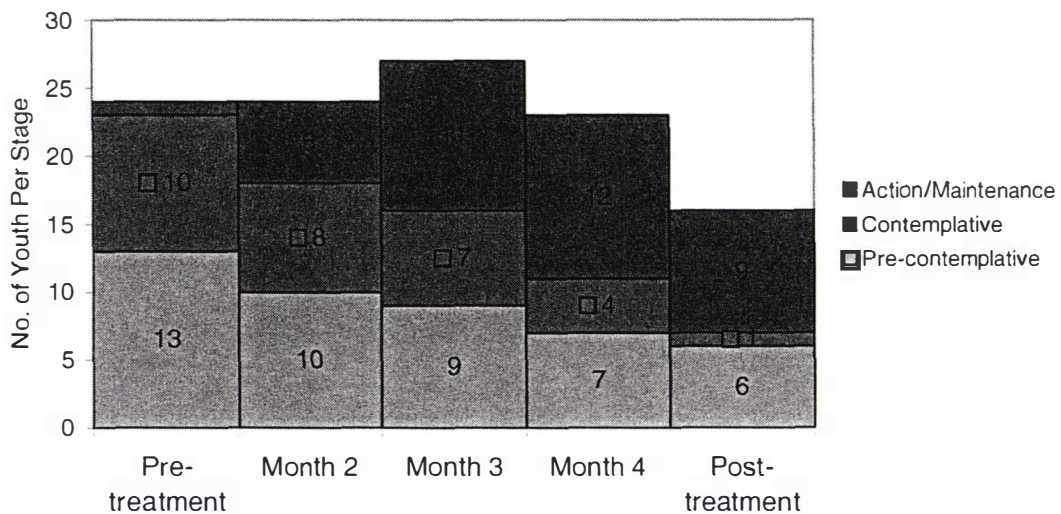


Figure 3. Youth Stage of Change during Treatment

Stage of Change and Treatment Outcomes

The results of bivariate correlations confirm in part the hypothesis that parent and youth motivation to change (i.e., conceptualised as stage of change or readiness to change) would be related to ultimate treatment outcomes. Significant associations were found between parent stage of change and

change in school attendance and severity of offending, and between youth stage of change and change in the frequency and severity of offending behaviour, and change in school attendance at post-treatment (see Table 23). No significant associations were found between parent or youth stage of change and change in the number of out-of-home placements.

Table 23.
Zero-Order Correlations between Youth and Parent Stage of Change, and Ultimate Outcome Variables

Predictor Variables	Change in Ultimate Outcome Variables				
	<i>n</i>	Frequency of offending	Severity of offending	Days Out-of-home	School attendance
Youth SOC	16	-.32*	-.35*	-.07	.31*
Parent SOC	16	-.05	-.33*	-.12	.42*

**p* < .05. ** *p* < .01.

Mediational Effects of Parent Motivation

Based on the correlations with treatment outcomes, it is possible that parent and youth stage of change made separate contributions to change in outcome variables. Table 24 presents the results of the regression analyses for change in outcome indicators. The values presented are semi-partial correlations between each predictor variable and the corresponding dependent variable while controlling for the other predictor variable. Both predictors make separate and significant contributions to predicting change in treatment. Parent and youth stage of change together accounted for a total of 25% of change in severity of offending. Parent stage of change alone accounted for 25% of change in school attendance. Thus, the results indicate that parent and youth stage of change each make contributions to treatment outcomes.

Table 24.

Semi-partial Correlations from Regressions of Ultimate Outcome Change on Predictor Variables

Predictor Variables	Change in Ultimate Outcome Indicators				
	<i>n</i>	Frequency of offending	Severity of offending	Days Out-of-home	School Attendance
Youth SOC	16	-1.54	-1.97*	.21	1.40
Parent SOC	16	-.56	-1.86*	.49	2.02*
Multiple R ²		.11	.25	.02	.25

**p* < .05. ** *p* < .01.

As reviewed in Chapter 7, it was expected that parent motivation to change could mediate youth motivation to change. Figure 4 shows that the specific effects of youth stage of change could be either contingent on (a) parent stage of change (mediational path A to B), or (b) directly related to treatment outcomes (path C). There would be evidence for the assertion that youth stage of change was contingent on parent stage of change (path A to B) if the relationship between youth stage of change and change in outcomes (path C) was reduced with the introduction of parent stage of change into the model (Baron & Kenny, 1986).

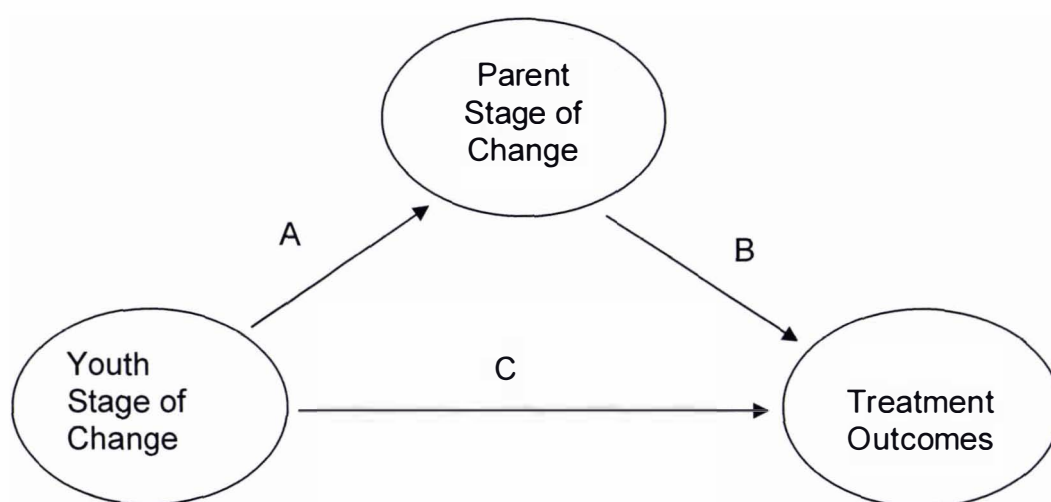


Figure 4. Model of Mediational Process of Change

The results for this path analysis can be derived by directly comparing the relationship between parent and youth stage of change and treatment outcomes in Tables 23 and 24. If the relationship between youth stage of change and treatment outcome is reduced when stage of change is included in the model (i.e., zero-order correlations in Table 23) compared to when parent stage of change is statistically controlled (i.e., semi-partial correlations in Table 24), then there is evidence for the hypothesis that youth stage of change could be contingent on parent stage of change (i.e., parent motivation) (mediational path A to B).

The results show that youth stage of change produced strong associations with frequency of offending ($r = -1.54$), severity of offending ($r = -1.97$), days out-of-home ($r = .21$), and school attendance ($r = 1.40$) when parent stage of change was controlled. However, when parent stage of change was included in the model, youth stage of change produced much smaller associations with frequency of offending ($r = -.32$), severity of offending ($r = -.35$), days out-of-home ($r = -.07$), and school attendance ($r = .31$). These results support the mediational model and the hypothesis that youth motivation to change is contingent on parent motivation to change.

Decisional Balance and Youth Stage of Change

Analysis of variance (ANOVA) and Chi Square analyses found there were no significant differences among parents across decisional balance in relation to age, gender, ethnicity, family size, family composition, employment status of caregiver, treatment length, history of previous involvement with other agencies, and youth custody status (p 's > .05).

Figure 5 presents a pictorial view of the pro and con scales in relation to youth stage of change at pre-treatment. As predicted, mean differences as determined by the decisional balance index by youth stage of change were also highly significant ($F(1,23) = 12.73, p < .01$). All stages were significantly different from other stages with those in the precontemplative stage scoring lowest ($M = 4.99, SD = .3.07$) and those in the action/maintenance stage scoring highest on the decisional index ($M = 7.37, SD = 2.62$). Parents of youth in the action stage of change appeared to perceive more benefits and fewer costs of behaviour change than parents of youth in the precontemplative or contemplative stages of change.

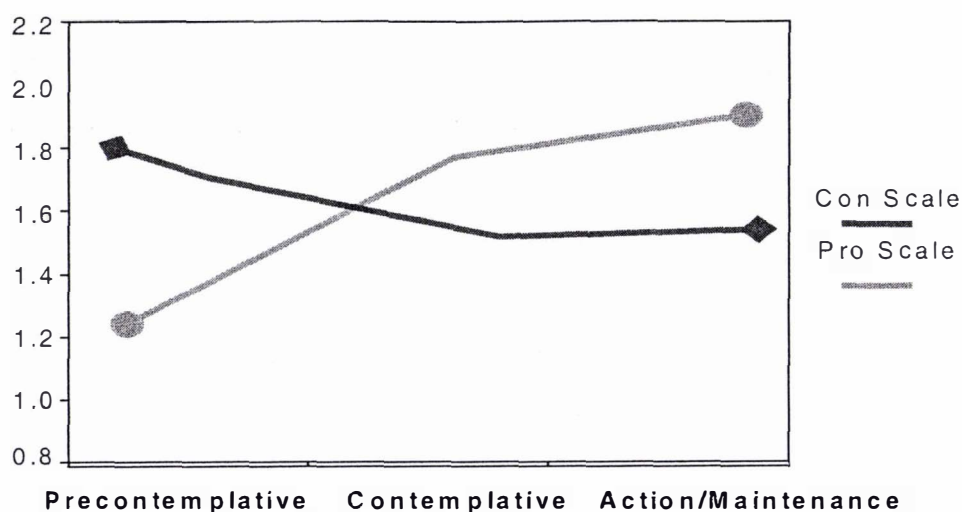


Figure 5. Means of the Parent Pro and Con Scales in Relation to Youth Stage of Change at Pre-treatment

The crossover between the index of pros and cons occurred between the precontemplative and contemplation stages, which is consistent with earlier research examining this construct in the area of exercise adoption (Markus, Rakowski, & Rossi, 1992; Prochaska et al., 1994). This result suggests that progressing from precontemplation or contemplation to the action stage of change involves a decrease in the cons and an increase in the pros of behaviour change.

Given the significant associations found between the decisional balance index and youth stage of change, it was expected that pros (benefits) would increase, and cons (costs) of modifying behaviour would decrease, further along the youth stage of change continuum. However, one-way analysis of variance (ANOVA) only revealed mean significant differences on the pro scale by youth stage of change ($F(1,24) = 2.82, p < .05$). This result suggests that pro scores were significantly lower for parents of youth in precontemplative ($M = 3.47, SD = 1.9$) or contemplative stages of change ($M = 4.70, SD = 2.52$) compared to parents of youth in the action/maintenance stage of change ($M =$

7.85, $SD = 2.75$). On the basis that mean differences on the cons scale by stage of change were not significant ($p > .10$), it appears that appraisal of cons may be relatively stable in contrast to the more variable appraisal of pros across the stages of change and across participants.

Stage of Change and Engagement

One-way analysis of variance (ANOVA) revealed that at pre-treatment the engagement scale differentiated between families at the precontemplative and action stages of change ($F(1,19) = 4.33, p < .05$). A clear pattern emerged, with engagement increasing from precontemplation to action. At pre-treatment, parents in the precontemplation stage ($M = 1.47, SD = .42$) had significantly lower scores on engagement than did parents in the action stage of change ($M = 4.21, SD = .52$). These results suggest that the extent to which families are motivated to change influences the degree to which engagement develops between family and therapist early in treatment. In families where parents are less motivated to participate in treatment, the level of engagement that develops between family and therapist appears to be lower.

Therapist Predictors of Treatment Outcome

Engagement and Treatment Outcomes

Analysis of variance (ANOVA) and Chi Square analyses found there were no significant differences among parents across level of engagement in relation to age, gender, ethnicity, family size, family composition, employment status of caregiver, treatment length, history of previous involvement with other agencies, and youth custody status (p 's $> .05$).

A goal of this research was to examine whether early engagement in MST would influence treatment outcomes. Associations between mean engagement ratings and change in treatment outcomes were examined and perhaps because 92% ($n = 58$) of families reported a high level of engagement with their therapist, results showed that early engagement was not significantly related to ultimate outcomes at post-treatment (p 's $> .05$).

Therapist Availability

On average, each week, therapists had approximately four (total of 152 mins) phone or face-to-face contacts with families within hours (between 8 a.m. and 5.30 p.m.) and approximately one (total of 32 mins) phone or face-to-face contact with families after hours (between 5.30 p.m. and 8 a.m. and during weekends). Therapists also had approximately three to four (total of 58 mins) phone or face-to-face contacts with agencies associated with each family (school, Youth Aid, CYFS) within hours each week and a further out-of-hours contact every three weeks (total of 8.5 mins). Over the course of treatment, therapists had an average total of approximately 107 contacts (in and out-of-working hours) with each family involving a total of approximately 65 hours. Therapists also had an average of approximately 102 contacts (in and out-of-working hours) with agencies associated with each family involving a total of approximately 25 hours (see Table 25).

Table 25.

Therapist Contacts with Family and Associated Agencies

	In hours (between 8 a.m. and 5.30 p.m. weekdays)	Out-of-Hours (between 5.30 p.m. and 8 a.m. and weekends)
<i>Average Weekly Contacts</i>		
<i>Family</i>		
No. Face-to-face contacts (total time)	1.8 (2.2 hrs)	0.37 (27 mins)
No. Phone contacts (total time)	2.1 (20 mins)	0.65 (5 mins)
<i>Associated agencies</i>		
No. Face-to-face contacts (total time)	1.1 (32 mins)	0.70 (1.5 mins)
No. Phone contacts (total time)	2.4 (26 mins)	0.38 (7 mins)
<i>Total Contacts During Treatment</i>		
<i>Family</i>		
No. Face-to-face contacts (total time)	38.5 (46.0 hrs)	8.1 (9.9 hrs)
No. Phone contacts (total time)	46.0 (7.3 hrs)	14.3 (1.9 hrs)
<i>Associated agencies</i>		
No. Face-to-face contacts (total time)	24.8 (11.9 hrs)	14.7 (33 mins)
No. Phone contacts (total time)	54.0 (9.6 hrs)	8.4 (2.7 hrs)
<i>Overall Combined Contacts with Family and Others</i>		
No. Face-to-face contacts (total time)	63.3 (57.9 hrs)	22.8 (10.2 hrs)
No. Phone contacts (total time)	100.0 (16.9 hrs)	22.7 (4.6 hrs)

Therapist Availability and Treatment Outcomes

A range of unexpected associations occurred between therapist contacts and ultimate outcomes at post-treatment, 6- and 12-month follow-up (see Table 26). Surprisingly, moderate and positive correlations occurred between therapist contacts and change in frequency and severity of offending behaviour at post-treatment. In addition, significant associations were not found in terms of change in school attendance or out-of-home placements at post-treatment.

Despite a weekly average of six hours direct (with families) and indirect contact (through associated agencies) with families, these results suggest that therapist availability did not positively influence treatment outcomes at post-treatment. Therapists varied in the amount of time they were available to families. Significant differences were found between therapists and in hour's contacts with families ($t(1,58) = 1.81, p < .01$) and between therapists and the total number of contacts with families ($t(1,58) = 2.52, p < .01$). Marginally significant differences were also found between therapists and combined out-of-hour's contacts ($t(1,58) = 1.81, p < .10$). Despite the relatively high average frequency of contacts that occurred between therapist and family, these contacts may not always have been beneficial. Indeed, the results show that therapists had up to three times more in hours contacts with those cases in which minimal change was recorded on all outcome indicators ($n = 12$).

Table 26.

Interrelations between Therapist Contacts and Change in Ultimate Treatment Outcomes

	1	2	3
	In hours	Out-of-Hours	Total Contacts
<i>Therapist Contacts</i>			
1. In Hours Contacts	-		
2. Out-of-Hours Contacts	.62**	-	
3. Total Contacts	.97**	.80**	-
<i>Post-treatment</i>			
Offending			
• Frequency	.25*	.17	.24*
• Severity	.22	.28*	.26*
Days Out-of-Home	.06	.07	.07
School Attendance	.03	.11	.05
<i>6-Month Follow-up</i>			
Offending			
• Frequency	-.21	-.48**	-.33*
• Severity	-.29	-.32*	-.32*
Days Out-of-Home	.07	.11	.09
School Attendance	.36*	.38*	.40*
<i>12-Month Follow-up</i>			
Offending			
• Frequency	-.47*	-.38*	-.45*
• Severity	-.46*	-.32	-.42*
Days Out-of-Home	.04	-.01	.02
School Attendance	.33	.33	.34

* $p < .05$. ** $p < .01$. n 's ranged from 19 to 64

The relationship between therapist contacts during treatment and the maintenance of treatment gains at 6- and 12-month follow-up were also examined. Moderate and positive significant associations were found between in hours, out-of-hours, total contacts, and change in school attendance at 6- but not 12-month follow-up. Opposite the pattern seen at post-treatment, significant and negative associations were also found between in hours, out-of-hours, total contacts, and change in offending behaviour at 6- and 12-month follow-up. Surprisingly, no significant associations were found between therapist contacts and out-of-home placements at any measurement point.

Therapist Adherence

An average of 22 TAMs per therapist (*range* = 3 to 52) were collected during the study. No significant differences were found between responses and youth gender, ethnicity, age, family composition, parent employment status, treatment length, history of previous involvement with other agencies, or custody status (p 's > .05). Mean monthly TAM scores ranged from 4.0 (SD = .44) at month one to 4.09 (SD = .49) at month five. Significant differences were found between average TAM scores obtained in month one and (a) month three (t (62) = -4.83, p < .01), (b) month four (t (50) = -3.79, p < .01), and (c) month five (t (34) = -2.43, p < .05). The comparatively low TAM scores recorded at month one may reflect (a) a developing relationship with the therapist and (b) families developing an understanding of the treatment process (see Figure 6).

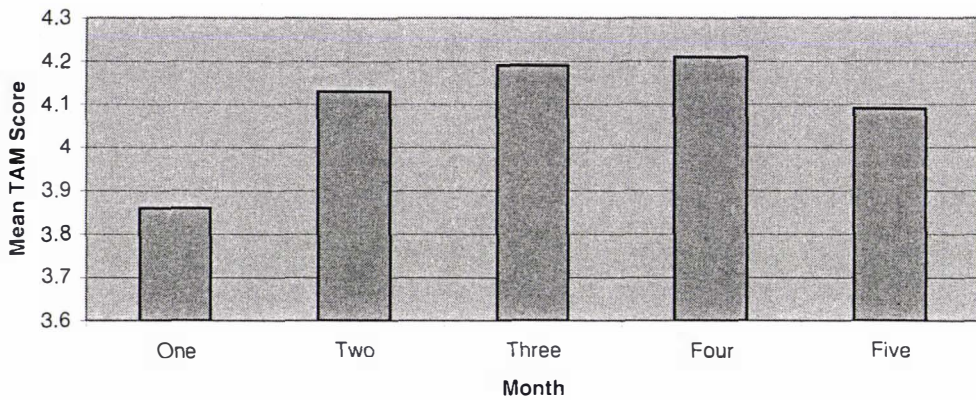


Figure 6. Therapist Adherence and Ultimate Treatment Outcomes

A goal of this research was to examine whether therapist adherence would predict treatment outcomes in New Zealand. No significant associations were found between monthly therapist adherence and change in ultimate treatment outcomes at any measurement point. Further, no significant associations were found between individual TAM subscales and treatment outcomes¹⁰ (p 's $>.05$). As expected, TAM scores increased throughout treatment, and yet no significant associations between adherence and outcomes were recorded.

Discussion

The primary objective of Study 3 was to examine the ability of (a) parent and youth motivation to change, (b) decisional balance, (c) early engagement in treatment, (d) therapist availability, and (e) therapist adherence to predict treatment outcomes.

¹⁰ Based on the results of recent research showing support for a single score based on 15 of the TAM items (Schoenwald, Sheidow, Letourneau, & Liao, under review), additional analyses were conducted taking the same approach; however, no significant associations were found.

Motivational Variables

Stage of Change and Decisional Balance

In relation to both parent and youth motivational status, and decisional balance, the results confirm the hypotheses that (a) pre-treatment differences in motivation to change would be evident between parent and youth, (b) youth and parent motivation would be related to treatment outcomes, (c) the balance between pros and cons would be related to youth stage of change, and (d) parent motivation would mediate the influence of youth motivation in achieving treatment outcomes.

With regard to motivational status, the results suggest that at the outset of treatment, 72% of parents reported that they were ready to actively engage in behaviour change compared to 4% of youth. However, by treatment completion, 56% of youth were reported to be in the action/maintenance stage of change. This significant progression through the stages of change indicates that over the course of treatment youth became increasingly motivated to modify their behaviour. In relation to treatment outcomes, parent readiness to change at post-treatment was found to be related to improvements in school attendance and decreased severity of offending behaviour. In addition to improvements in school attendance and decreased frequency of offending behaviour, youth readiness to change at post-treatment was also found to be related to reduced severity of offending behaviour. The significant associations found between motivation and outcomes in this study are consistent with those achieved with a diverse range of behaviours including smoking cessation, weight control, exercise adoption, and the use of sunscreen (Marcus et al., 1994; Prochaska, 1994).

In relation to gender, the results suggest that compared to males, females were more often in the action/maintenance stage of change at mid-treatment. Given that no significant differences were found between gender and stage of change at pre-treatment, this finding may indicate that females may shift through the motivational stages more quickly than males. Moreover, given

that significant differences between gender and stage of change at post-treatment were not found, it may be that motivation takes longer to develop in males and that more rapid shifts can be expected to occur later in treatment.

Of particular interest is the role that parents appear to take in guiding their youth to modify their behaviour. More specifically, youth living in families with two adults were more often in the action/maintenance stage compared to youth living in single-parent families. Although all parents appear to have a role in modifying the behaviour of their youth, it may be that two adults are better able to motivate the youth than a single parent. Consistent with the stage effect (Prochaska et al., 1992), results of the mediational analysis suggest that parent motivation may serve as a mediator of youth motivation and that with the support of parent/caregivers, youth can progress through stages of change relatively quickly. Indeed, the results suggest that parents played an integral role in guiding their young person to achieve more desirable outcomes. Anecdotal reports from parents support this view and suggest that clinically significant change occurred in many families as youth shifted from denying that problems existed to a position of accepting some responsibility for, and attempting to change their behaviour.

Along with the assessment of motivational levels, in regard to decisional balance, parent appraisal of the pros and cons associated with behaviour change revealed additional information. The decisional balance of parents was found to be significantly related to youth stage of change, with pros (benefits) increasing, and cons (costs) decreasing from youth precontemplation to action/maintenance. Parent perceptions that behaviour change could enhance their family situation and improve family relations (pros) appear to be positively related to their youth's readiness to change. Conversely, negative perceptions regarding the costs of engaging in MST (cons) appeared to be negatively related to their youth's readiness to change. Further, parents in the action stage of change appeared to perceive higher benefits than those in the precontemplative or contemplative stages of change. The crossover between pros and cons occurred between the precontemplative and contemplation stages. Consistent with previous research, this finding suggests that parents

consider the pros of changing behaviour to outweigh the cons before they begin to take action to modify their behaviour (Prochaska et al., 1994). In families where the pros were more compelling, the benefits of engaging in treatment appear to have outweighed the cons.

These results provide encouraging results for extending the transtheoretical model of behaviour change to the area of antisocial behaviour in youth. Preliminary evidence is provided for the assertion that the transtheoretical and decisional balance models may provide a useful framework for (a) assessing the pre-treatment motivation levels of youth and parent/caregivers, (b) developing an understanding of the factors that parent/caregivers consider when evaluating their participation in MST, and (c) understanding the progress of youth and their parent/caregivers as they shift from contemplating behaviour change to actively engaging in and maintaining change. Indeed, understanding parent and youth beliefs about behaviour change may predict the degree of acceptance or reluctance associated with therapist attempts to facilitate behaviour change. Specific information regarding parent beliefs about change would allow for a systematic approach to be taken to addressing pros and cons thus facilitating steady progress from precontemplation to action and maintenance of behaviour change. In a time-limited programme such as MST, assessment of these motivational constructs could contribute to improved treatment outcomes by guiding the selection and implementation of the most appropriate intervention at the optimum time in treatment.

Therapist Variables

Engagement

The hypothesis related to the predictive ability of early engagement was not supported. No significant associations were found between level of engagement measured early in treatment and treatment outcomes. In contrast to Schaeffer's (2000) findings that engagement was related to improved instrumental outcomes, these results suggest that engagement measured early

in treatment was not a predictor of treatment outcome. This may well have been because of limited variability owing to most families reporting a high level of engagement with the therapist. However, of notable interest is that in families where parents were less motivated to enter the treatment programme, the reported level of engagement between family and therapist was lower. This association provides preliminary evidence to suggest that early assessment of parent motivational status may serve as a predictor of the degree to which engagement develops between family and therapist in treatment.

Therapist Availability

Contrary to expectations, the hypothesis related to the availability of therapists was not fully supported. In fact, a range of associations occurred between therapist contacts and treatment outcomes at post-treatment and follow-up intervals. As expected, positive associations were found between therapist contacts and change in school attendance at post-treatment. However, in contrast to expectations, significant and positive associations were also found between therapist contacts and change in frequency and severity of offending behaviour at post-treatment. In relation to offending behaviour, the results changed at 6- and 12-month follow-up.

By considering these results in the context of the psychotherapy effectiveness literature, and in particular the concepts of potency and dose-response (Bowers & Clum, 1988), it is possible that optimum effects of MST were achieved in Study 2 with smaller doses of relatively intense therapeutic work thus providing tentative support for the time-limited nature of MST. It appears that beyond the treatment threshold, additional therapist contacts may even be contraindicated. Indeed, it seems possible that during the relatively intensive MST treatment period, families may even have been overwhelmed by the extent of the contact they had with their therapist. Anecdotal reports from fulltime working parent/caregivers suggest that frequent contact with their therapist during evening times may have been counterproductive at times.

However, given the significant improvements in behavioural outcome indicators for youth reported at post-treatment and follow-up periods, it may be

that in relation to therapist contacts, there was a “sleeper effect” (i.e., the effects of therapist contact were delayed; Kendall, 1991; Weiss, Catron, & Harris, 2000). That is, significant associations were found between therapist contacts and change in ultimate outcomes at 6- and 12-month follow-up. These results suggest that it may not be until several weeks or months later that parents become increasingly confident and competent in the implementation of the strategies and skills developed during treatment that the full benefits of the intensive treatment are realised.

Potential difficulties associated with maintaining a therapeutic therapist-client relationship within an intensive home-based programme are highlighted by these results. As discussed earlier in regard to engagement, the establishment and maintenance of a therapeutic relationship between therapist and family is of paramount importance in MST. It is possible that therapists had difficulty at times maintaining professional boundaries with families due to the (a) complex nature of the families including parental psychopathology in some cases, (b) the relatively high level of parental availability due to unemployment (51%) and, (c) the challenging behaviours of the youth.

Despite the mixed outcomes, this examination of therapist contacts provides important data for increasing understanding of the extent of contacts that occur between therapist, family, and associated agencies. These results also provide potentially useful information regarding the extent to which therapists can expect to have contact with families both in- and out-of-hours in community-based settings. However, given the mixed nature of the findings, more research in this aspect of treatment is necessary first.

Therapist Adherence

The hypothesis related to therapist adherence was not supported. The results of this study indicate that in New Zealand, adherence ratings were not significantly related to treatment outcomes. Although TAM scores increased throughout treatment no significant associations between adherence and outcomes were recorded. These findings are not consistent with those of recent studies of MST in which therapist adherence to the principles of MST were

found to predict outcomes for youth (Henggeler et al., 2002; Huey et al., 2000; Schoenwald et al., 2000). It is possible that the failure of the present investigation to replicate these earlier findings was due to methodological differences between the studies. Therapist adherence data discussed in previous MST research (e.g., Henggeler et al., 1997; Henggeler, Pickrel et al., 1999, Huey et al., 2000) was collected directly from families by their therapist or supervisor. In contrast, in this study, adherence data was collected directly from the primary caregiver in each family by the researcher independently of the therapist or supervisor. This major difference in TAM administration may have influenced the nature of the data collected. It is also possible that data collected independent of therapist involvement may be more accurate than data collected by therapists directly involved with families. Research is underway to refine and increase the predictive validity of the TAM in community settings (Schoenwald, Sheidow, Letourneau, & Liao, 2004). The results of the current study suggest that ongoing research is needed to explore the predictive utility of the adherence measure when administered independently in community settings.

Limitations and Future Directions

In Study 3, attempts were made to improve on specific methodological weaknesses in previous MST studies. In particular, reduced demand characteristics are likely to be reflected in the adherence ratings reported by parents. It is possible that the measures adapted for the measurement of stage of change, decisional balance, and engagement were insufficiently sensitive. Future researchers may benefit from designing domain-specific measures of motivational status, decisional balance, and level of engagement.

As in Study 2, parents expressed concerns regarding the completion of assessment measures. As a consequence, considerable variation occurred in the number of completed assessment measures. This raises the possibility that measures were completed by parents who were less stressed and/or derived more benefit from the MST programme than those parents who did not complete the measures. Furthermore, the variation in the number of parent/caregivers who completed assessment measures reduced the likelihood

of achieving statistical significance in some analyses. Future research should aim to include larger numbers of respondents, including youth.

Research is now needed to explore the factors associated with motivation to change, decisional balance, engagement, therapist availability, and therapist adherence. This study found that differences in gender and family composition were related to youth stage of change. It is possible that other demographic and family characteristics also influence client by therapist interactions including the employment status of the parent/caregiver and parental psychopathology. Closer examination of issues related to availability and related issues (e.g., maintenance of professional boundaries in an intensive home-based approach) would assist therapists to optimise their contact time with families.

Further, given that adherence ratings generally increased during treatment, these results also suggest that adherence may be related to therapist competence rather than how closely MST treatment principles were adhered to during treatment. The advent of manualised treatment models has seen interest grow in the assessment of therapist competence in relation to clinical practice (Kazantzis, 2003). However, the specific measurement of therapist competence is a facet of treatment that is still relatively rarely evaluated. Research is now needed to explore the relationship between therapist adherence and therapist competence in MST.

In summary, the present study aimed to conduct a preliminary investigation of the predictive ability of a range of variables theoretically and practically linked to MST treatment outcomes. The results support the assertion that the application of both the transtheoretical and decisional balance models could make important contributions to MST. In addition to the current practice of linking the “fit” of referral problems with appropriate interventions, assessment of both parent and youth readiness to change may allow for an even more individualised approach to treatment planning thus optimising treatment outcomes. Overall, these results highlight a central role for parents in motivating their young person to engage in behaviour modification.

Chapter Ten

Review and Conclusions

The purpose of the present studies was to examine (a) the overall effectiveness of MST achieved in previous outcome studies, (b) the effectiveness of MST with antisocial youth in New Zealand, and (c) a range of variables and their ability to predict MST treatment effectiveness.

Study 1 adopted meta-analytic strategies to evaluate the overall effectiveness of MST in comparison to other treatment approaches or usual services in the treatment of antisocial behaviour in youth. The meta-analysis integrated the results from seven primary and four secondary MST outcome studies involving 708 participants. Study 2 used a one-group pre- to post-treatment design to evaluate the efficacy of MST in New Zealand with 65 antisocial youth and their families. Study 3 examined data collected from participants in Study 2 to explore a range of variables hypothesised to predict the effectiveness of MST in New Zealand. All studies involved a diverse group of antisocial youth who were referred to an MST programme for a range of behavioural difficulties including chronic and violent offending, truancy, substance abuse, and those requiring hospitalisation for psychiatric problems (i.e., suicidal ideation, homicidal ideation, and psychosis).

Key Findings

Results of the meta-analysis conducted in Study 1 indicate that across different presenting problems and samples, the average effect of MST was $d = 0.55$; across both instrumental and ultimate outcome measures, youth and their families treated with MST were functioning better and offending less than 70%

of their counterparts who received alternative treatment or services (Curtis et al., 2004).

Results from the evaluation of MST in New Zealand conducted in Study 2 show that significant pre- to post-treatment improvements occurred in many of the instrumental and ultimate indicators of treatment outcomes. Gains were either maintained at or evident by the 6- and 12-month follow-up intervals. These results are consistent with previous MST outcome studies (i.e., Borduin et al., 1990; 1995; Henggeler et al., 1991; 1992; 1993; 1997) demonstrating the effectiveness of MST in improving key aspects of individual and family functioning across a range of disorders and populations. Further, no significant differences in treatment outcomes were found in relation to youth age, youth gender, youth ethnicity, family composition (i.e., one or two parent family), treatment length, history of previous involvement with other agencies, or custody status.

Of the treatment predictors examined in Study 3, results showed that parent and youth stages of change at post-treatment were found to be significantly related to improvements in ultimate outcomes (i.e., increased school attendance and decreased frequency and severity of offending behaviour). With regard to decisional balance, parent perceptions of youth motivation and the perception that behaviour change could enhance their family situation and improve family relations (pros) were positively related to their youth's readiness to change. Findings related to therapist availability indicate evidence for a possible sleeper effect in that the full benefits of therapist contacts during treatment were not evident until follow-up. No significant associations were found between adherence ratings and treatment outcomes.

Given that the findings of each study have already been discussed in detail in previous chapters, the following discussion considers the overall outcomes and clinical implications for the continued development and implementation of MST in New Zealand.

Common Themes and Integrated Study Outcomes

The central role of the family in achieving instrumental and ultimate outcome goals is emphasised in the results of each study. Study 1 results show that larger effects were achieved on measures of family relations ($d = 0.57$) than on measures of individual adjustment ($d = 0.27$), or peer relations ($d = 0.11$). In Study 2, a larger effect size ($d = .60$) and more consistent improvements were achieved within the youth's family and immediate environment compared to youth outcomes evident in community settings ($d = .32$). In Study 3, the role that parent/caregivers played in motivating their young person to engage in behaviour change and achieve beneficial treatment outcomes was emphasised.

Bearing in mind the methodological differences in the measurement of instrumental and ultimate outcomes discussed in Chapter 6, the results suggest that unless improvements take place within the family, changes in behaviour appear to be less likely to occur and be maintained in other settings. In light of the consistent improvements that occurred within the immediate family environment during treatment and at follow-up, it may be that change within the family context serves to mediate change in more community-related outcome indicators (i.e., offending behaviour, school attendance). Indeed, the family may be conceptualised as a conduit through which change in other settings can occur. Further, these results are also consistent with the emphasis that MST places on family interventions (Henggeler & Borduin, 1990) and provides support for previous studies in terms of instrumental change processes in MST (Borduin et al., 1995; Henggeler et al., 1997). Taken together, these findings highlight the importance of the family in facilitating and supporting the maintenance of positive outcomes for youth

Clinical and Organisational Implications

The following clinical implications become apparent as a result of these outcomes. First, the results of Study 1 indicate that as an empirically established treatment for violent and chronic juvenile offenders, MST appears to be worthy of wider implementation and ongoing evaluation. The overarching

objective of MST (i.e., empowering parents to facilitate pragmatic changes in the youth's and family's natural environments) appears to be effective with the antisocial youth population.

Second, and in line with the results of Study 1, the outcomes reported in Study 2 suggest that as a potentially efficacious family- and community-based treatment of antisocial behaviour in youth in New Zealand, MST appears to be worthy of wider implementation and continued evaluation in this country. In addition, ongoing evaluation of treatment outcomes is necessary to inform the structural and policy changes that will likely be needed to facilitate widespread implementation of MST.

Third, it appears that the motivational concepts examined in Study 3 may provide a useful framework to assess (a) youth and parent readiness to change and (b) the decisional balance of parent/caregivers. As well as guiding therapist, parent, and youth understanding of the specific tasks and processes associated with individual behavioural change, information related to parent and youth motivational status could increase treatment effectiveness by matching and implementing specific interventions in a timely manner. With respect to decisional balance, study findings indicate that consideration of pros has more of an influence on outcomes. Parents who are encouraged to focus on the benefits of behaviour modification and its correlates may be more able to withstand the stressors associated with initiating and sustaining behaviour change.

Fourth, despite the mixed outcomes associated with therapist availability, this examination provides preliminary data for increasing understanding of the frequency and type of contacts that occur between therapist, family, and associated agencies. On the basis that the optimum effects of therapist contacts may not be realised until follow-up, both the quantity and quality of contacts that occur between therapists and families during treatment should be emphasised in the future. In addition, the challenges associated with maintaining professional therapeutic relationships with complex and challenging families within an intensive home-based treatment should also be emphasised in

supervision. However, given the findings, more research here is clearly required.

Fifth, in relation to therapist adherence, fidelity ratings were not significantly related to ultimate treatment outcomes in the New Zealand study. Given that these results were not consistent with the findings of previous studies (Henggeler et al., 2002; Huey et al., 2000; Schoenwald et al., 2000), research is needed to continue exploring the predictive utility of the adherence measure when administered independently in community settings. Further, given that adherence ratings generally increased during treatment, research is now needed to explore the relationship between therapist adherence and therapist competence in MST.

Sixth, in light of the relatively high level of therapist and supervisor attrition (42%) evident in Study 2, there is little doubt that attempts to optimise staff retention are vital. In line with other MST studies, the results suggest that some agencies, therapists, and supervisors may have found it difficult to adjust to the paradigm shift associated with working in the MST model (Schoenwald & Hoagwood, 2001). Such a shift requires corresponding changes in organisational, clinical, and performance procedures including a review of staff selection and retention procedures, and the adoption of more flexible working conditions to support what is clearly very challenging work.

Finally, policy makers and agency providers are urged to commit the resources necessary to support the implementation of MST in New Zealand. In addition to the increased organisational and administrative support required to adopt a new treatment model, remuneration levels must reflect the increased level of commitment and accountability required of MST staff.

Suggestions for Future Research

The results of the present studies are encouraging, particularly for those challenged by the complex and far reaching effects of antisocial behaviour in youth. Subsequent to the evaluation of MST conducted in Study 2, a

randomised controlled study is now required to explore the effectiveness of MST in comparison to usual services and/or other treatment approaches available in New Zealand. Important goals of such a study would be the ongoing evaluation of the predictive validity of the TAM as well as an exploration of the links between supervisor and therapist adherence to the MST principles and treatment outcomes.

Further exploration of the role of motivational constructs in the assessment and treatment of antisocial youth is warranted by the results of Study 3. Indeed, direct assessment of youth motivation to change and decision-making processes would provide valuable information regarding the issues that youth consider as they contemplate change.

Future research should also continue seeking to identify the mechanisms that are responsible for the long-term effectiveness of MST with antisocial youth. This goal would be supported by the collection of a wider range of assessment data including teacher and probation officer reports, and youth self-report data. Further, in light of the difficulties associated with the collection of youth self-report measures in Study 2, future research should explore other means of collecting data directly from youth.

Researchers of MST effectiveness should also broaden their assessment of instrumental outcomes in each of the systems pertinent to the goals of MST. Although a common goal of MST is to increase youth involvement with prosocial peers, the assessment of change in peer affiliations has been limited to parent-report measures of association with deviant peers. Measures that directly assess involvement with prosocial peers would be informative in future studies. Similarly, assessment of relevant cognitive processes such as attributional style or bias would be a valuable addition to the assessment of individual behaviour problems and psychiatric symptoms. Broader assessment of other areas that are frequent targets of MST interventions might include measures of performance in school (e.g., grades, achievement levels), and participation in extracurricular activities (e.g., sports teams, church groups, recreation centre activities).

In addition to end-point assessments of MST interventions, perusal of therapist allegiance to MST may yield valuable information. Allegiance has recently been identified as a potential determinant of treatment outcomes in clinical trials (Wampold, 2001). In fact, it is likely that treatment effects due to allegiance counts for more of the variance in outcome than does the particular type of treatment (Wampold, 2001). The degree of therapist allegiance may be a variable worthy of interest in future investigations of treatment outcome predictors and other variables associated with staff retention.

Finally, in terms of financial implications, data supports MST as a cost effective programme, given the associated savings in residential placements and long-term criminal justice costs (Washington State Institute, 2001). Research in New Zealand needs to document whether similar cost benefits can be replicated here.

Conclusions

The findings of the current research highlight the benefits of focusing therapeutic efforts on the family system in order to bring about meaningful and sustainable change within the individual, family, and wider community.

Useful insights were provided by the exploration of motivational constructs in the treatment of antisocial youth. In particular, the ability of parents to encourage their young person appears to serve as a motivational force for positive outcomes. Overall, this examination provides important data for increasing understanding of the complex interplay between parent and youth readiness to change, and for developing an understanding of the factors that parent/caregivers consider when evaluating their participation in MST.

Taken together, these findings add to the growing body of evidence that supports MST as an effective treatment for antisocial behaviour in youth. In New Zealand, the results here suggest that MST can be efficacious in facilitating and maintaining significant therapeutic outcomes in young people and their families. Further, the high levels of parent-reported satisfaction indicate that families themselves quite clearly experienced significant benefits from their involvement with MST. Indeed, MST appears to represent a potentially valuable addition to existing health, judicial, and social services in New Zealand. MST appears to have the potential to improve the current negative trajectories of many antisocial youth. In a broader context, implementation of this model would be entirely consistent with the identified needs and goals of community-based services now recommended for adolescents in New Zealand (Brown, 2000; Mental Health Commission, 1998). Significant efforts will be needed to ensure that support for the ongoing dissemination of the treatment model continues, while concurrently taking into account the social, cultural, and ethnic factors that are unique to this country.

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Appendices

Appendix A

Antisocial Behaviours in Youth in New Zealand: Prevalence, interventions and promising new directions.

Article published in New Zealand Journal of Psychology, 2002.

Appendix B

Multisystemic Treatment: A Meta-Analysis of Outcome Studies.

Article published in Journal of Family Psychology, 2004.

Appendix C

Information and Consent Forms

The Effectiveness of MST in New Zealand Information Sheet for Parents/Caregivers/Whanau

You are invited to take part in a study to find out how effective Multisystemic Therapy (MST) is in New Zealand. You can choose whether or not to take part, and can take as long as you wish to decide.

What is the study about?

The aim of the study is to find out whether or not MST is helping young people to stay out of trouble at home, at school, and in their community. We hope to find out whether the programme is helpful for your young person and family.

Who is being asked to take part?

About seventy families from Hamilton, Wellington and Christchurch are taking part in a MST programme throughout 2002 and 2003. We are inviting all these families to take part in this study. By getting information from as many different people as possible we will have a better chance of finding out whether or not MST is an effective treatment programme for youth behaviour problems.

What would I have to do?

When you began the MST programme your MST therapist talked to you about collecting information from yourself and other organisations (e.g., school, Child, Youth and Family worker, Youth Aid) about how your young person is doing at home, and whether or not they have missed any days at school, been placed in out-of-home care, or committed any offences. You have also been asked to answer some questions each month about how your MST therapist is doing. With your permission we would like to use this information to help us answer questions about whether MST is working or not. In addition to asking about your experience of MST at the beginning and end of the programme we would like to ask you some questions about your family and your young person's behaviour. Nici Curtis, a student researcher would ring you at home and ask you these questions over the phone, a process that should take about 20 minutes altogether.

What will happen to the information?

At the end of the research process, a report will be written. Your name will not be used in any research publication and no one will ever be able to tell that you or your family took part in MST. If you would like a summary of the results of the research, these can be sent to you at the end of the study. The research findings may also be presented at conferences and published in professional journals so that others can learn from our findings.

Will there be any benefits or risks from taking part in this study?

There are no expected risks from participating in this study, except for a small amount of time and energy on your part to help us answer some of the questions mentioned above. There may be some benefit in having the opportunity to discuss your experience of the MST programme with the researcher.

What can participants expect?

Your participation in this research is voluntary; it is your choice. If you choose not to take part, you will continue to receive MST treatment. You have the right to an interpreter and/or support person to ensure that you fully understand all relevant procedures and requests. You do not have to answer any questions that you do not want to. You can also ask any questions about the study at any time.

If you choose to take part in this study, your information will be kept completely confidential (private) except where you or anyone else in your family is considered to be at risk of harming themselves or someone else. In these circumstances, you will be notified (when possible) before anyone else is informed. Your information will be kept securely for at least 10 years and then either returned to you or destroyed as you wish.

Where can I get further information?

This research project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/96. If you have any concerns about the conduct of this research, please contact Professor Sylvia V. Rumball, Chair, Massey University Regional Human Ethics Committee: Palmerston North, telephone 06-350-5249, email S.V.Rumball@massey.ac.nz. If you have any questions about the study in general, please feel free to contact Nici Curtis or Dr. Kevin Ronan at Freephone: 0508 742 2663 or at their addresses as provided below.

Nici Curtis
PhD student
School of Psychology
Massey University

Kevin Ronan
Associate Professor
School of Psychology
Massey University

The Effectiveness of MST in New Zealand

Consent Form for Parents/Caregivers/Whanau

Request for Interpreter

English	I wish to have an interpreter	Yes	No
Maori	E hiahia ana ahau ki tetahi kaiwhakamaori/kaiwhaka pakeha korero	Ae	Kao
Samoan	Oute mana'o ia iai se fa'amatala upu	loe	Leai
Tongan	Oku ou fiema'u ha fakatonulea	Ae	Ikai
Cook Island	Ka inangaro au i tetai tangata uri reo	Ae	Kare
Niuean	Fia manako au ke fakaaoga e taha tagata fakahokohoko kupu	E	Nakai

I have read and understand the information sheet / the information sheet has been explained to me. All of my questions have been answered to my satisfaction. I also understand that:

- Taking part in this study is voluntary.
- My consent is necessary to participate in MST research.
- I may ask further questions at any time.
- I have the right to withdraw from the research at any time.
- I may refuse to answer any particular questions with no penalty or loss of MST treatment services.
- Everything I share will remain confidential except in the situations noted in the Information Sheet.
- My name will not be used in any reports without my permission.

I agree to an approved auditor appointed by the ethics committee reviewing my records to make sure that this project has been carried out properly Yes / No

I wish to receive a summary of the results of the study Yes / No

I agree to take part in this study on the effectiveness of MST as explained in the Information Sheet. Yes / No

Name of Youth.....

Name.....Mother/father/guardian/caregiver

Signature.....Date.....

Name.....Mother/father/guardian

Project explained by.....Project role.....

Signature.....Date.....

If I have any other questions, I can call Nici Curtis or Kevin Ronan at Free phone 0508 742 2663

The effectiveness of MST in New Zealand

Information Sheet for Youth/Rangatahi

You are invited to take part in a study to find out whether or not Multisystemic Therapy (MST) is working for families and young people in New Zealand. You can choose whether or not to take part, and can take as long as you wish to decide.

What is the study about?

The aim of the study is to find out whether MST can help young people stay out of trouble and manage their lives better at home, at school, and in their community. We hope to find out whether the programme is helpful for you and your family.

Who is being asked to take part?

About seventy young people and their families from Hamilton, Wellington, and Christchurch are taking part in a MST programme over the next year. We are inviting all these young people and their families to take part in this study. By getting information from as many different people as possible we will have a better chance of finding out whether or not MST is working.

What would I have to do?

When you began the MST programme your therapist talked to you about collecting information from your parents/caregiver and other organisations (e.g., Child, Youth and Family worker, Youth Aid) about how you are doing at home, and whether or not you have missed any days at school, been placed in out-of-home care, or committed any offences. If you agree we would like to use the information that has already been collected about your progress to help us answer questions about MST.

What will happen to the information?

So that others can learn from our findings, a report will be written at the end of the study. Your name and your family members' names will not be used in that report and no one will ever be able to tell that you or your family were involved in an MST study. You can receive a summary of the study findings by asking your MST therapist.

Will there be any benefits or risks from taking part in this study?

There are no expected risks from participating in this study.

What can participants expect?

Taking part in this research is your choice. If you choose not to take part in the study you can still be in the MST programme. If you choose to take part in the study at the beginning, you can stop being in the study later and still be in the MST programme. You can ask questions at any time and you can say that you don't want to answer a question or that you don't want some things written down. You are able to have help from an interpreter and/or someone who will make sure that you fully understand what is happening in the MST programme.

If you choose to take part in this study, it is important to know that all the information you provide in this study will be kept private, except if you (or anyone else in your family) were at risk of hurting themselves or of being hurt by someone else. In either of these situations, you and your family would be told (when possible) before anyone else was informed. Your information will be kept safely for 10 years after the end of the study and then returned to you or destroyed as you wish.

Where can I get further information?

This research project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/96. If you have any concerns about the conduct of this research, please contact Professor Sylvia V. Rumball, Chair, Massey University Regional Human Ethics Committee: Palmerston North, telephone 06-350-5249, email S.V.Rumball@massey.ac.nz. If you have any questions about the study in general, please feel free to contact Nici Curtis or Dr. Kevin Ronan at Free phone: 0508 742 2663 or at their addresses as provided below.

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The effectiveness of MST in New Zealand Consent Form for Youth/Rangatahi

Request for Interpreter

English	I wish to have an interpreter	Yes	No
Maori	E hiahia ana ahau ki tetahi kaiwhakamaori/kaiwhaka pakeha korero	Ae	Kao
Samoa	Oute mana'o ia iai se fa'amatala upu	Io	Leai
Tongan	Oku ou fiema'u ha fakatonulea	Ae	Ikai
Cook Island	Ka inangaro au i tetai tangata uri reo	Ae	Kare
Niuean	Fia manako au ke fakaaoga e taha tagata fakahokohoko kupu	E	Nakai

I have read and understand the information sheet / the information sheet has been explained to me. All of my questions have been answered, and I know that I can ask more questions any time that I want.

I also know that:

- Taking part in this study is my choice.
- I can stop taking part in research related to MST any time I want to.
- If I don't want to answer some questions that's okay.
- If I don't want to give permission to give information about myself, I can still take part in the MST programme.
- Everything I say will be kept private except in the situations noted in the Information sheet.
- My name will not be used in any research reports without my permission.

I wish to receive a summary of the results of the study Yes / No
 I agree to an approved auditor appointed by the ethics committee reviewing my records to make sure that this project has been carried out properly Yes / No
 I agree to participate in this research on the effectiveness of MST as explained in the Information Sheet Yes / No

Name.....Youth
 Signature.....Date.....
 Project explained by.....Project role

Signature.....Date.....

If I have any other questions, I can call Nici Curtis or Kevin Ronan at
 Free phone 0508 742 2663

Appendix D

Severity Index Rating Scale

(Developed in conjunction with the New Zealand Police)

1

IT = Habitual Absenteeism/Truancy

2

D100 = Reckless driving

D300 = Speeding (driving at a dangerous speed)

L100 = No driver's license (drivers licence offences)

3

1J - BC (breaking curfew)

1J - OPC (out of parental control)

3530 = Disorderly behaviour

3540 = Making obscene phone calls (language offences)

4

1J - 3900 - AA (alcohol abuse/breaking age limit)

3940 = Public drunkenness (minors purchasing/consuming alcohol)

5

1J - 2M (runaway)

2200 = Sexual affronts (indecent performance)

3400 = Gaming

6

3150 = Possession/procurement of controlled substances (not cannabis)

3260 = Consume/smoke/use cannabis

7

1J - 1730 - TB (threatening behaviour)

2910 = Soliciting/prostitution

4320 = Shoplifting (no drugs)

4410 = Possession/concealing/receiving stolen goods (no drugs)

4500 = Forging/fraud

4550 = Credit by fraud

6100 = Trespass offences

7130 = Runaway from institution/violation of probation

8

1J - 1610 - AP (assault on Police)

1J - 1640 - AF (assault on family member)

1J - 5120 - WD (wilful damage)

5120 = Vandalism (wilful property damage)

1640 = Common assault/battery

1750 = Carrying dangerous weapon

3230 = Sell/give/supply cannabis

3270 = Cultivation of cannabis

3510 = Obstructing/hindering/resisting police action

4130 = Breaking/entering (burglary offences)

4373 = property theft under \$500

5110 = Arson

5220 = Possession of firebomb (miscellaneous endangering)

9

4210 = Burglarising/theft of auto

8100 = Driving under the influence of alcohol/drugs

10

3130 = Sell/give/supply controlled drugs (not cannabis)

11

4310 = Theft of drugs

4370 = General thefts over \$5,000

12

4100 = Burglary (drugs, other property, associated offences)

13

1320 = Unarmed robbery, strong arm robbery

14

1400 = Grievous assaults (wounding/injuring with intent)

1510 = Aggravated assault, assault/weapon

15

1310 = Armed robbery

16

2600 = Criminal sexual conduct in 1st, 2nd, or 3rd, degree (sexual attacks)

17

1100 = Murder/attempted murder/manslaughter

Appendix E

Correlations between Measures of Youth Behaviour Change, Family Relations, Parental Monitoring, and Ultimate outcomes

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FFS subscales																				
- conflict	-																			
- control	-.48*	-																		
- environment	-.06	-.25	-																	
- parent familiarity	-.66*	.27	.11	-																
- peer activity	-.53*	-.80**	.29	-.56*	-															
- school satisfaction	-.80**	.32	-.03	.42	-.39	-														
- self-esteem	-.95**	.43	.10	.59*	-.45	.74**	-													
- trouble	.41	-.42	-.08	-.03	.24	-.48	-.45	-												
- warmth	-.84**	.75**	-.03	.46	-.69**	.69**	.82**	-.53	-											
SDQ Subscales																				
- conduct disorder	.82**	-.56*	-.19	-.59*	.69*	-.56*	-.83**	.34	-.75**	-										
- emotionality	.79**	-.72**	.15	-.62*	.72*	-.57*	-.81**	.47	-.84**	.74**	-									
- hyperactivity	.82**	-.53*	-.02	-.67*	.61*	-.61**	-.81**	.67*	-.74**	.74**	.81**	-								
- peer problems	-.23	.16	.16	.09	.13	.24	.21	-.08	.14	-.13	.12	.01	-							

SDQ Subscales ctd																					
- prosocial	-.91**	.44	.12	.52	-.53*	.69**	.90**	-.39	.73**	-.83**	-.73**	-.80**	.12	-							
-Total Difficulties	.80**	-.60*	.01	-.65*	.76**	-.55*	-.81**	.49	-.79**	.86**	.92**	.88**	.25	-.80**	-						
Instrumental Outcomes																					
MBRS	.39	-.10	-.28	-.63*	.28	-.23	-.35	-.08	-.34	.42	.28	.41	-.04	-.39	.38	-					
PSI	.23	-.39	-.33	-.22	.43	-.18	-.14	-.01	-.24	.36	.31	.41	-.10	-.41	.35	.37**	-				
TAM-B	.19	-.16	-.28	-.35	.46	-.38	-.13	.12	-.24	.36	.10	.35	.10	-.21	.31	.29*	.34*	-			
Ultimate Outcomes																					
Days OHP	-.12	.37	.37	.25	-.42	.13	.09	-.44	.34	-.24	.12	-.22	.17	.11	-.08	-.33*	-.27*	-.31*	-		
Offending -frequency	.08	.22	.02	.40	-.42	.10	-.08	-.30	.10	-.07	.13	-.16	-.07	-.06	-.05	.09	-.23	-.30*	.08	-	
-severity	-.08	.29	.01	.21	-.29	.08	.04	-.59*	.23	.01	.02	-.28	-.09	-.60	-.09	.10	-.08	-.15	.10	.56**	
School attendance	.11	-.34	-.15	-.31	.38	-.24	-.04	.10	-.23	.04	-.10	.01	-.12	.01	-.05	-.18	.18	.19	.04	-.34**	-.20

Appendix F

Factor analysis of Stage of Change Measure (Parent version)

Rotated Component Matrix

	Stage of Change			
	Pre-contemplative	Contemplative	Action	Maintenance
I don't believe we have a problem	.86			
We don't have any problems that need changing	.90			
We may be part of the problem but we don't really think we are	.73			
It might be worthwhile to work on our problems		.73		
I wish I had more ideas on how to solve our family problems		.78		
Our family is working hard to change our situation			.45	
We are actively working on our problems			.92	
We are trying to maintain the progress we have made				.86
It worries me that we might slip back on our problems				.51
We are here to prevent a relapse of our problems				.60

Appendix G

Factor analysis of Stage of Change Measure (Youth version)

Rotated Component Matrix

	Stages of Change		
	Pre- contemplative	Contemplative	Action/ Maintenance
I don't believe I have a problem	.92		
I don't have any problems that need changing	.73		
I may be part of the problem but I don't really think I am	.88		
I think I do have some problems that I should work on		.56	
It might be worthwhile to work on my problems		.43	
I wish I had more ideas on how to solve my problems		.50	
I am working hard to change my situation			.90
I am actively working on my problems			.82
At times my problems are difficult but I am working on them			.69
I am trying to maintain the progress I have made			.73
It worries me that I might slip back on my problems			.32
I'm here to prevent a relapse of our problems			.20

Appendix H

Factor Analysis of Decisional Balance Scale

Principal Component Analysis – Decisional Balance – Pro Factor

<i>Pro Items</i>	
Our family will be happier if we do something about our situation	.57
Making changes will help our family stay together	.91
Managing <i>youth's name</i> differently now will make things easier in the long run	.87

Principal Component Analysis – Decisional Balance – Con Factor

<i>Con Items</i>	
I/We feel uncomfortable needing help to manage our family	.71
By focusing on <i>youth's name</i> , everyone else in the family might miss out	.55
Its easier to put up with things the way they are	.63