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Multisystemic Therapy for Externalizing Youth

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Synopsis

Externalizing problems are multi-determined and related to individual, family, peer, school, and community risk factors. Multisystemic therapy (MST) was originally developed to address these risk factors among youth with serious conduct problems who were at-risk for out-of-home placement. Several decades of research has established MST as an evidence-based intervention for adolescents with serious clinical problems, including serious offending, delinquency, substance abuse, and parental physical abuse and neglect. Further, research points to the importance of maintaining high treatment fidelity through systematic quality assurance procedures to replicate positive clinical outcomes. This paper presents an overview of the clinical procedures and evidence base of MST for externalizing problems as well as two adaptations: MST for Substance Abuse and MST for Child Abuse and Neglect.

Keywords

Multisystemic Therapy; Externalizing Problems; Substance Abuse: Physical Abuse & Neglect; Juvenile Offenders

Multisystemic therapy (MST) is a family- and community-based intervention originally developed for juvenile offenders.[1] It has since been adapted and evaluated for a range of serious externalizing problems, including violent offending and substance abuse. Of note, some adaptations fall beyond the scope of this review, including MST for psychiatric problems, problem sexual behaviors, and chronic health conditions. The aims of the current article are to describe MST's clinical procedures and the substantial support for its effectiveness and provide an overview of two adaptations of MST related to externalizing behaviors.

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Externalizing Behaviors: Nature of the Problem

MST targets the types of serious clinical problems that put adolescents at risk for out-of-home placements, including serious externalizing behaviors. Prospective studies have concluded that externalizing behaviors are multi-determined and have identified specific family (e.g., parental supervision and skills), school (e.g., academic achievement, poor home-school link), peer (e.g., deviant peer associations), and neighborhood (e.g., high crime rates) factors that increase risk for these behaviors.[2, 3] However, prior to MST, interventions for externalizing youth typically focused on one or a few of these risk factors and produced few positive outcomes. Thus, MST was the first treatment for externalizing problems to use this empirical framework to inform intervention.

MST Clinical Procedures

Theoretical underpinnings

MST is based on the theoretical underpinnings of Bronfenbrenner's social ecological framework, which posits that individuals' behaviors are influenced directly and indirectly by the multiple systems in which they are imbedded.[4] Youth are conceptualized as embedded in their family, peer, school, and community systems. In addition, MST recognizes that effects within these systems are reciprocal in nature (e.g., youth are both influenced by their peers and have influence on their peer group). Strategic[5] and structural[6] family therapies also inform MST.

Model of service delivery

MST employs a home-based model, delivering services where problems occur (i.e., homes, schools, and neighborhoods). Such service delivery removes barriers to treatment common to traditional outpatient settings, including transportation problems, lack of childcare, and restricted hours of operation. Further, interacting with families in their homes and communities builds rapport and allows for observation of youth and family behaviors in real-world settings. MST programs include treatment teams, each comprised of three to four Master's-level therapists supervised by a half-time advanced Master's-level or doctoral-level supervisor. Each therapist carries a caseload of four to six families, and treatment duration is four to six months. The MST team is available to families 24 hours per day, 7 days per week through an on-call rotation. This model allows for scheduling appointments at times that are convenient to families, effective crisis management, and high levels of direct service for each family (i.e., an average of 60 hours over the course of treatment).

Principles and analytic process

MST provides a framework through which treatment occurs, employing a set of nine core principles and a structured analytic process. The 9 principles are presented in Table 1 and provide the underlying infrastructure that defines the MST model. Adherence to these principles predicts positive clinical outcomes.

The MST Analytic Process (i.e., the "Do-Loop") is a structured process that therapists follow to help guide clinical decision making. Utilizing the Do-Loop, therapists first gather

information about the referral behavior and desired outcomes from the youth, family, and other key stakeholders (e.g., school personnel, probation officers). Using these multiple perspectives, the therapist and team hypothesize the “fit factors” or the “drivers” of the referral behaviors (i.e., which factors in the individual, family, peer, school, and community maintain these behaviors and which will decrease or prevent them). Next, the therapist works with the family to prioritize drivers and develop interventions to target each prioritized driver. Therapists closely monitor the implementation of each intervention and problem-solve any barriers. Finally, the therapist gathers information from the family and other stakeholders about the effectiveness of each intervention. If unsuccessful, the therapist moves back through the Do-Loop and works with the family to develop new hypotheses about referral behaviors and a new set of interventions to try. Thus, MST follows an iterative process that allows for learning about problem behaviors through treatment successes and failures.

Targets of change and nature of interventions

Family risk factors are often central to the conceptualization of problem behaviors, and improved family functioning has been shown to mediate the effects of MST on externalizing behaviors.[7, 8, 9, 10] Therefore, caregiver monitoring, supervision, family cohesion and support, and provision of consistent rules and consequences are frequent targets of MST. When addressing these factors, MST therapists must be prepared to overcome barriers such as parental mental health problems, substance abuse, and poor parenting skills, all of which may be included in the ongoing conceptualization of problem behaviors.

In addition to family factors, therapists also coach caregivers to target other key risk factors, including association with deviant peers, lack of prosocial activities, and school disengagement. MST therapists empower caregivers to get involved with their child’s peer group and set limits on contact with peers who contribute to externalizing behaviors. Similarly, parents are coached to develop positive relationships with teachers and school administrators, with the goal of promoting home-school communication to facilitate educational success. Finally, individual level factors targeted in MST include, for example, deficits in problem solving skills.

Interventions are based primarily on evidence-based behavioral, cognitive-behavioral, and family systems approaches. For example, therapists are proficient in strategies used in evidence-based family treatment models, including emphasizing familial strengths rather than deficits and reframing negative behaviors and family interactions to produce therapeutic gains. Similarly, MST therapists use well-validated treatments to target individual drivers. For example, as described below, Contingency Management, an evidence-based treatment for substance use, is often employed. Importantly, interventions used to target individual risk factors are done with caregiver involvement to increase the sustainability of change after treatment is completed.

MST quality assurance/quality improvement

A quality assurance and improvement program is used to support fidelity in MST delivery. The emphasis on quality assurance is informed by multiple studies demonstrating the link between treatment fidelity and clinical outcomes in MST trials.[11, 9, 12, 13, 14]

Procedures have been developed to ensure proper training and oversight of MST delivery. First, each member of the MST team completes a five-day orientation to the standard MST model. Team members delivering MST adaptations are required to attend additional trainings on program-specific features. Teams have both on-site group supervision and phone-based consultation with an MST expert as well as quarterly booster trainings. Finally, treatment and supervisory feedback measures are used to continuously monitor fidelity. For examples, the MST Therapist Adherence Measure is conducted monthly by an independent interviewer to gather feedback from parents about therapists' adherence to MST principles, and feedback is provided to the treatment team. Thus, quality assurance is designed to be continuous, allow for provider self-reflection, and prevent provider drift.

Case Vignette #1: MST for Serious Offending

Maria (age 15) was recently arrested for grand theft auto. This was Maria's first legal charge, and she was sentenced to probation and treatment. Her probation officer referred the family to MST. Maria's problem behavior, including skipping class, arguing with teachers, hanging out with delinquent peers, staying out late, and breaking rules at home, started a year prior to the arrest. She had been an honor student but her grades recently plummeted to failing and she had disconnected from positive friends. Maria lives with two aunts and four cousins all below the age of 6. Maria's parents were killed in an auto accident when she was an infant. Her grandmother raised her until she passed away last year from cancer. Because of Maria's grief over losing her grandmother, her aunts did not feel they could establish rules or discipline her. Their primary method of discipline was yelling, but they did not follow through on threats of consequences. They were very angry and told Maria she was a disappointment to her grandmother.

The MST therapist worked with the family to identify fit factors for the problem behaviors. These included no rules at home and no consequences for negative behavior. In fact, when her aunts would yell at Maria over something she did wrong, they would feel bad and buy her expensive clothes and tennis shoes. These deficits in parenting were driven by the grief the family was experiencing over the death of Maria's grandmother. They had little time to prepare for the loss because the diagnosis and illness happened quickly.

Interventions included: 1) development and implementation of a behavior plan at home; 2) strengthening the home-school link; 3) working with the aunts to ensure Maria met with her probation officer and completed required community service; 4) re-establishing Maria's prior positive peer relationships and breaking the link with negative peers; and, 5) family therapy to address grief reactions. These interventions and resulting family changes allowed Maria to reconnect with positive peers, return to prior levels of functioning at school, and manage her grief. Family therapy was important because it strengthened the bond between Maria and her aunts. No further arrests occurred.

MST Adaptations Related to Externalizing Problems

Standard MST has been adapted to treat youth and families with other serious clinical needs. Two adaptations pertinent to this article are Multisystemic Therapy for Substance Abuse (MST-SA[15]) and Multisystemic Therapy for Child Abuse and Neglect (MST-CAN[16]).

Multisystemic Therapy for Substance Abuse (MST-SA)

Although substantial data supports the effectiveness of standard MST for delinquent youth with substance use problems, MST-SA was designed specifically for agencies that serve youth presenting with substance use as a primary referral behavior. As with delinquent behaviors, multiple risk factors (i.e., individual, family, peer, school, and community) influence adolescent substance use[17], including family factors, such as supervision, discipline strategies, parental support, and parent-child relationship quality.[18, 19, 20] One of the strongest predictors of adolescent substance use is peer substance use.[21, 22] Other factors, including parental substance use, exert indirect influences by limiting parents' ability to supervise youth. MST-SA integrates Contingency Management (CM), an evidence-based substance abuse intervention, to target risk factors specific to substance use.

Primary goals of MST-SA—The MST-SA therapists' goals are to teach caregivers to: a) conduct random screens to detect substance use; b) develop and implement an incentive system that rewards youth for non-substance use and removes incentives when youth use substances; and c) build supportive social networks. MST-SA also teaches both youth and caregivers how to: a) conduct functional analyses to understand substance use triggers; b) address triggers; and c) use effective drug refusal strategies. The model emphasizes long-term change that families can maintain after treatment ends.

Treatment model—MST-SA's treatment model is largely identical to standard MST (including the use of the analytic process and 9 principles). The following components are used to address substance use specifically:

- Analysis of Antecedents, Behaviors, and Consequences (i.e., ABC Assessments or functional analyses) of drug use are conducted for each instance of substance use or non-use.
- Therapists and family members develop Family Drug Management Plans to help the youth avoid substance use.
- Drug Refusal Skills involving extensive role-play with the youth and family.
- Random urine drug screens and breathalyzers are conducted by caregivers (with guidance from therapists) at the frequency required to detect the youth's drug of choice.
- Voucher Systems and Incentives focus on changing the contingencies for substance use (i.e., providing rewards for clean screens and removing incentives for dirty screens). Caregivers take the lead in deciding on rules and incentives.

Case Vignette #2: MST-SA for Substance Use

Marvin (age 17) was arrested for marijuana possession. His presenting problems included: smoking marijuana laced with cocaine daily; selling illicit drugs; fighting at school; and school expulsion. Fit factors included Marvin's favorable attitudes towards drug use; unlimited free time; a neighborhood that lacked prosocial outlets; and a lack of clear rules and consequences for his behaviors at home. Triggers for substance use include boredom and seeing negative peers. Initial interventions included attempts to increase his mother's skills in monitoring him and setting clear rules and consequences for his behavior. His therapist worked with his mother to develop a voucher and incentive system, and his mother began conducting random urine drug screens. Marvin had dirty screens for several weeks and spent some days in detention. Marvin's mother was facing numerous practical needs (lack of money for food, the family's heat and water had been turned off) that got in the way of her following through with the plan. The MST-SA therapist assisted Marvin's mother to obtain assistance from other family members and utilize community supports, including a local food bank. Once the practical needs were addressed, Marvin's mother was able to implement the behavior plan consistently. The MST-SA therapist and Marvin's mother also got Marvin involved in prosocial activities with positive peers and taught Marvin drug refusal skills. Positive clinical outcomes included Marvin having clean drug screens for a year, obtaining a job at a local restaurant, and completing a GED program.

Multisystemic Therapy for Child Abuse and Neglect (MST-CAN)

MST-CAN was adapted for families who are under the guidance of Child Protective Services (CPS) due to recent physical abuse and/or neglect, have a target child between the ages of 6 and 17, and the child is either living with the family or there is a plan to reunite rapidly.

Physical abuse and neglect are related to the development of behavioral and mental health problems such as aggression, anxiety, depression, posttraumatic stress disorder, and self-harm.[23, 24, 25] Risk for out-of-home placement and re-abuse among such children is high. Similar to externalizing behaviors, risk factors for abuse and neglect exist across several systems[26] and include: parental mental health or substance use problems[27]; family conflict and interpersonal violence[28]; developmental delays or behavioral problems[29]; and lack of social support and low use of community resources.[30] As in MST, MST-CAN addresses risk factors for abuse or neglect across multiple systems.

Primary goals—MST-CAN aims to prevent out-of-home placements, assure safety, prevent re-abuse and neglect, reduce mental health difficulties, and increase social supports. CPS caseworkers have the difficult task of coordinating care between multiple providers (e.g., substance use and mental health treatment providers, psychiatrists, parenting classes), monitoring families' progress, and keeping children safe. This job is complicated by high caseloads of families that can be challenging to engage. MST-CAN greatly simplifies the caseworker's task by providing all services, maintaining ongoing communication with CPS, and monitoring safety. In fact, MST-CAN is heavily endorsed by CPS staff specifically related to increased collaboration and positive changes in families' views of CPS.[31]

Treatment model—MST-CAN's service provision characteristics are similar to standard MST, with the addition of a part-time psychiatrist and a bachelor's-level crisis case worker. Treatment focuses primarily on the adults in the family, but addresses problems among children when necessary, with an average of five people treated per family. Though interventions are individualized, the model contains research-supported approaches for problems common across families. Components completed with all families include:

- Intensive safety planning, including ecological safety assessments, early in treatment with the clinical team and sometimes with CPS (weekly safety assessments for the first month and as needed after that).
- A clarification process in which the parent addresses cognitions about the abuse/neglect, accepts full responsibility, and reads an apology letter during a family meeting.[32]

Treatment strategies used as-needed include:

- Functional analysis for physical abuse or ongoing family conflict to understand sequences of events that lead to aggression. Interventions target triggers for aggression to de-escalate children or parents.
- Cognitive-behavioral treatment for anger management when required by the child or parent.[33]
- Behavioral family treatment for communication difficulties and problem solving.[34]
- Prolonged Exposure therapy[35] for parents with posttraumatic stress disorder.
- Reinforcement-based therapy[36] for adults for whom substance abuse puts child safety at risk.[37]

Case Vignette #3: MST-CAN for Childhood Neglect

Jamilla (age 13) and her family were referred by CPS following a substantiated report of neglect. Jamilla missed 50 schooldays last year and 25 this year so far. When she did attend, she appeared disheveled and often slept in class. Jamilla lives with Ms. Ward, her mother, and two siblings ages 4 and 5. She must often care for her siblings due to Ms. Ward's substance use (alcohol and cocaine). Ms. Ward's mother and siblings currently use drugs and are not available to help. Jamilla's father was imprisoned 2 years ago on drug-related charges and has a 15-year sentence. His family is drug-free and available to help, but Ms. Ward is hesitant, as she feels they are judgmental towards her. Interactions between Jamilla and her mother are characterized by arguing and name calling. CPS would like Ms. Ward to stop using drugs and alcohol and monitor her children and Jamilla to attend school 100% of the time.

The target behavior identified by the MST team, CPS, and Jamila's mother was her school nonattendance. The drivers or fit factors included individual (inability to get up in the morning and get ready; depression; anger); parent (drug and alcohol use; low monitoring and supervision; posttraumatic stress disorder from a history of sexual abuse as well as physical abuse from her boyfriend who left the home 6 months ago; low parenting skills),

school (low connection with school; weak parent-school link), and family (conflicted interactions; poor communication and problem solving skills).

Based on the assessment of fit factors, the primary drivers of Jamilla's truancy are her mother's weak parenting skills, conflicted interactions between mother and daughter, and weak home-school link. Research-supported interventions were applied to these drivers. Specifically, Ms. Ward's parenting skills were low primarily due to her anxiety (PTSD) and substance use. To address these critical problems, Prolonged Exposure therapy was used to treat PTSD and Reinforcement-based therapy was used to treat substance abuse. To improve the home-school link, the therapist worked with Ms. Ward and the school to involve Jamilla in school activities and to provide tutoring to help her catch up. Jamilla and her mother's low communication and problem solving skills prevented them from prioritizing school and developing strategies for attendance. A behavioral family intervention to teach and coach communication and problem solving skills was used. Finally, family therapy was conducted to reconnect Ms. Ward and her children with the father's family, which improved social supports and reduced family stress.

Empirical Support for MST and its Adaptations

Table 2 summarizes studies evaluating the efficacy and effectiveness of MST, MST-SA, and MST-CAN. For the sake of space, studies solely focusing on mechanisms of action, implementation, or other MST adaptations are not discussed. Additional information on these topics can be found at http://mstservices.com/outcomestudies.pdf

Standard MST

MST is one of only three programs for the treatment of delinquency that meets the rigorous Blueprints standards for model programs,[38] which include well-specified treatment protocols, high quality evaluations demonstrating reduced offending for at least 12 months post-intervention, and readiness for transport to community settings. In sum, there have been 18 studies of MST for serious juvenile offenders, including 11 randomized trials, 4 independent studies, 2 international studies and 1 trial with ultra-long follow-up.[39] There have also been 8 studies with adolescents who have serious conduct problems (but not justice system involvement), including 4 randomized trials, 7 independent evaluations, and 5 international studies. Among serious juvenile offenders across studies, the median reduction in re-arrest rates and out-of-home placements has been 42% and 54%, respectively. In addition, multiple studies have shown improved family functioning, decreased substance use and mental health problems, and high client satisfaction. These effects are lasting, as demonstrated by a 22-year follow-up study showing that youth who received MST during adolescence had fewer felony arrests (violent and non-violent), days incarcerated, divorces, and paternity or child support suits in adulthood.[40]

MST-SA

An early study found that MST was superior to usual community services on improvements in substance use, school attendance, and out-of-home placement.[41, 9] The group receiving MST continued to show superior results in terms of marijuana abstinence and engagement in

violent crime four years later.[42] In a more recent clinical trial, integrating CM (referred to as MST-SA) enhanced the effectiveness of standard MST in treating adolescent substance abuse.[15] Thus, there is substantial evidence that MST-SA is effective and superior to standard MST for substance abusing adolescents.

MST-CAN

There have been 15 years of research on MST-CAN, including two randomized clinical trials (RCTs). The first RCT randomized 43 families with indicated abuse or neglect to either standard MST or Behavioral Parent Training.[43] MST showed more favorable effects on family problems, parent-child relations, and key parenting behaviors than did group-based parent training. The second RCT randomized 86 families who had indicated physical abuse to either MST-CAN or Enhanced Outpatient Therapy (EOT), which consisted of a parenting group plus extra efforts to engage the family in treatment.[44] At 16 months post-baseline, MST-CAN was more effective than EOT in reducing internalizing problems, out-of-home placements, and (for those who were placed) changes in placement. Caregivers also had greater improvements in 1) psychiatric distress; 2) parenting associated with maltreatment; 3) use of non-violent discipline, and 4) social support compared to parents receiving EOT. Fewer MST-CAN youth experienced re-abuse, but base rates were low, and the difference was not statistically significant. These trials established MST-CAN as an evidence-based intervention. A related model, MST-Building Stronger Families (MST-BSF), was developed for families experiencing physical abuse and neglect plus serious parental substance misuse. Preliminary findings with MST-BSF are promising,[45] and an RCT is currently underway.

Summary and Conclusions

Given the multi-determined nature of adolescent externalizing behaviors, effective interventions must target risk factors at the individual, family, school, and community levels. MST was designed specifically for this purpose and has been shown through decades of research to be effective for serious clinical problems that put adolescents at risk for out-of-home placement, including juvenile offending, serious externalizing behaviors, substance abuse, and parental physical abuse and neglect. Further, recent research has focused on mechanisms for effective transportability and implementation of MST to community settings. MST researchers have demonstrated the importance of high treatment fidelity and pioneered a quality assurance system that allows for replication of positive outcomes in community settings through ongoing supervision and support from MST experts. Despite these significant advances, only 5% of serious juvenile offenders receive an evidence-based treatment in the U.S.,[46] indicating that an ongoing challenge for the field is to develop strategies for expanding access to effective treatments for these high-risk populations.

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Acronyms

MST	Multisystemic therapy
MST-SA	Multisystemic Therapy for Substance Abuse
MST-CAN	Multisystemic Therapy for Child Abuse and Neglect
CM	Contingency Management
ABC	Antecedents, Behaviors, and Consequences Assessments
CPS	Child Protective Services
PTSD	Post-traumatic stress disorder
RCTs	randomized clinical trials
EOT	Enhanced Outpatient Therapy
MST-BSF	MST-Building Stronger Families

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Key Points

- Externalizing problems are multi-determined and related to individual, family, peer, school, and community risk factors
- Multisystemic therapy (MST) is an evidence-based treatment for adolescents with serious clinical problems who are at-risk for out-of-home placement
- MST targets the multiple determinants of externalizing problems using a home- and community-based intervention model to decrease barriers to service access
- Adaptations of MST have been shown to be effective for problems related to externalizing behaviors, including substance use and parental physical abuse and neglect
- Treatment fidelity has been linked to positive outcomes across MST delinquency studies, highlighting the importance of quality assurance through ongoing supervision and support

Table 1

MST Nine Core Principles

Principle 1: Finding the fit
The primary purpose of assessment is to understand the “fit” between the identified problems and their broader systemic context.
Principle 2: Focusing on positives and strengths
Therapeutic contacts should emphasize the positive and should use systemic strengths as levers for change.
Principle 3: Increasing responsibility
Interventions should be designed to promote responsible behavior and decrease irresponsible behavior among family members.
Principle 4: Present focused, action oriented and well-defined
Interventions should be present-focused and action-oriented, targeting specific and well-defined problems.
Principle 5: Targeting sequences
Interventions should target sequences of behavior within or between multiple systems that maintain the identified problems.
Principle 6: Developmentally appropriate
Interventions should be developmentally appropriate and fit the developmental needs of the youth.
Principle 7: Continuous effort
Interventions should be designed to require daily or weekly effort by family members.
Principle 8: Evaluation and accountability
Intervention efficacy is evaluated continuously from multiple perspectives with providers assuming accountability for overcoming barriers to successful outcomes.
Principle 9: Generalization
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.

Table 2

Summary of MST Outcome Studies

Study	Sample	Design	Findings	Provider/Setting	MST Type
Henggeler et al., 1986[47]	Delinquents (N=80)	Quasi-experimental; post-treatment evaluations; compared to diversion services	Improved family relations; decreased behavioral problems and association with deviant peers	Graduate students/University	Standard
Henggeler et al., 1992[48]; Henggeler et al., 1993[49]	Violent and chronic juvenile offenders (N=84)	RCT; 59 week and 2.4 year follow-up; compared to usual community services	At 59 week follow-up: improved family relations; decreased recidivism and out-of-home placement At 2.4 year follow-up: decreased recidivism	Community therapists/ Community provider	Standard
Borduin et al., 1995[50]; Schaeffer & Borduin, 2005[51]; Sawyer & Borduin, 2011[40]	Violent and chronic juvenile offenders (N=176)	RCT; 4 year, 13.7 year, and 21.9 year follow-ups; compared to individual counseling	At 4 year follow-up: improved family relations, decreased parental psychiatric problems, youth behavior problems, and recidivism At 13.7 year follow-up: decreased re-arrests and days incarcerated At 21.9 year follow-up: decreased felony arrests and days in adult confinement	Graduate students/University	Standard
Henggeler et al., 1997[11]	Violent and chronic juvenile offenders (N=155)	RCT; 1.7 years follow-up; compared to juvenile probation services	Decreased psychiatric symptoms, incarceration, recidivism; treatment adherence was related to recidivism outcomes	Community therapists/ Community providers (2 sites)	Standard
Ogden & Halliday-Boykins, 2004[52]; Ogden & Hagen, 2006[53]	Norwegian youth with serious antisocial behavior (N=100)	RCT; 6- and 24-month post-recruitment follow-ups; compared to usual child welfare services	At 6-month follow-up: Decreased externalizing and internalizing symptoms, out-of-home placements, increased social competence, consumer satisfaction At 24-month follow-up: decreased internalizing symptoms and out-of-home placements	Community therapists/ Community providers	Standard
Timmons-Mitchell et al., 2006[54]	Juvenile offenders (felons) at imminent risk of placement (N=93)	RCT; 18-month post-treatment follow-up; compared to usual community services	Improved youth functioning and school functioning, decreased substance use problems and re-arrests	Community therapists/ Community provider	Standard
Sundell et al., 2008[55]	Swedish youth with conduct disorder (N=156)	RCT; 7-month post-recruitment; compared to usual child welfare services	No outcomes favoring either treatment condition; low treatment fidelity	Community therapists/ Community provider – 4 sites	Standard

Study	Sample	Design	Findings	Provider/Setting	MST Type
Glisson et al., 2010[56]	Juvenile offenders (N=615)	RCT; 18-month post-recruitment follow-up; compared to usual services	Decreased out-of-home placements	Community therapists/ Community provider	Standard
Butler et al., 2011[8]	British juvenile offenders (N=108)	RCT; 18-month post-recruitment follow-up; compared to a tailored range of extensive and multi-component evidence-based interventions	Reduced offenses and placements, self- and parent-reported delinquency, psychopathic symptoms; improved parenting	Community therapists/ Community provider	Standard
Asscher et al., 2013[7]	Dutch youth with severe and violent antisocial behavior	RCT; 6 month post-recruitment follow-up; compared to usual services	Decreased antisocial behavior; increased parental sense of competence, positive discipline, and relationship quality; increased youth association with positive peers	Community therapists/ Community provider	Standard
Henggeler et al., 2006[15]	Substance abusing and dependent juvenile offenders in Drug Court (N=161)	RCT; 12-month post-recruitment follow-up; compared four conditions: Family Court with Usual Services, Drug Court with Usual Services, Drug Court with Standard MST, Drug Court with MST and	MST enhanced substance use outcomes for alcohol and marijuana	Community therapists/ University	MST-Substance Abuse
Weiss et al., 2013[57]	Adolescents with serious conduct problems in self-contained classrooms (N=164)	RCT; 18 month and 2.5 year post-recruitment follow-up; compared to usual services	Reduced externalizing problems but not arrests; decreased school absences; improved parenting and parental mental health symptoms	Community therapists/ University	Standard
Henggeler et al., 1999[9]; Brown et al., 1996[41]; Henggeler et al., 2002[42]	Substance - abusing and dependent delinquents (N=118)	RCT; 6-month, and 11-month, and 4-year post-recruitment follow-up; compared to usual community services	At 6 months post-recruitment: Increased attendance in regular school settings At 11 months post-recruitment: Decreased drug use, out-of-home placement, criminal arrests (non-significant); treatment adherence was related to decreased drug use and other outcomes At 4 year follow-up: Decreased violent crime; increased marijuana abstinence	Community therapists/ University	MST-Substance Abuse
Brunk et al., 1987[43]	Maltreating families (N=33)	RCT; post-treatment evaluations; compared to behavioral parent training	Improved parent-child interactions	Graduate students/University	MST-Child Abuse and Neglect

Study	Sample	Design	Findings	Provider/Setting	MST Type
Swenson et al., 2010[16]	Maltreating families (N=86)	RCT; 16-month post recruitment follow-up; compared to group-based parent training and enhanced outpatient treatment	Decreased symptoms for youth and caregiver; improved parenting behaviors and social support; decreased out-of-home placements	Community therapists/ Community provider	MST-Child Abuse and Neglect
Schaeffer et al., 2013[45]	Co-occurring parental substance abuse and child maltreatment (N=43)	Single group pre-post and quasi-experimental designs; post-treatment follow-up for single group design and 24-month post-referral follow-up for quasi-experimental design; compared to comprehensive community treatment	Post-treatment: reduced substance abuse and depression among mothers; improved parenting; decreased anxiety among youth. 24-month post-referral follow-up: decreased maltreatment and time youth spent in out-of-home placement	Community therapists/ Community provider	MST-Building Stronger Families Adaptation