

## **The Swedish MST Project**

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The purpose of this paper is to summarize and synthesize the findings of the Swedish MST Project based on three published articles and one unpublished manuscript that have evaluated this ambitious project financed by the Swedish National Board of Health and Welfare, Ministry of Health and Social Affairs, and Mobilization against Narcotics. The overriding aim of the project was to evaluate the effectiveness of standard MST (i.e., MST for serious antisocial behavior) versus treatment as usual (TAU; case management in the social welfare system) with conduct disordered youth and their families in the context of a multisite randomized clinical trial. The investigators should be commended for their excellent implementation of challenging research methods in this complex project.

### **Overall Summary**

- Referral sources felt positively toward the project, MST, and evidence-based treatment.
- Participating youth ( $N = 156$ ) had extremely high rates of mental health symptoms on the CBCL (equivalent to counterparts in out-of-home placements) and 38% had been referred for harm to self or others. Likewise, mothers of these youth had high rates of psychiatric symptomatology. Such youth and maternal symptomatology seem more indicative of a psychiatric sample than of a juvenile justice sample.
- At 7 months post referral, youth in both treatment conditions evidenced significant improvement on most of a broad array of outcome measures.
- At 7 months post referral, neither MST nor TAU was more effective than the other on any outcome measure.
- The fidelity of MST treatment and program fidelity was weak. TAM scores were almost 1 standard deviation below the norm.
- Likewise, MST program standards were severely compromised. Average caseloads were only between 20% and 50% of capacity, 43% of MST cases were still receiving treatment at the 7-month follow-up, and 23% required use of an interpreter (e.g., 47% were not Swedish and spoke a language other than Swedish in the home).
- MST and TAU cost comparisons for the first 6 months of treatment indicated greater cost for MST, but this cost differential disappeared when MST caseload limitations were considered.

### **Conclusion**

Future evaluations must endeavor to optimize treatment and program fidelity and ascertain such throughout the study. Low fidelity casts serious doubt on the internal validity (i.e., a treatment for a particular population can not be evaluated unless the population is accessed and the treatment is implemented as intended) of this clinical trial.

## Study Summaries

1. Gustle, L.-H., Hansson, K., Sundell, K., & Andree-Lofholm, C. (2008). Implementation of evidence-based models in social work practice: Practitioners' perspectives on an MST trial in Sweden. *Journal of Child and Adolescent Substance Abuse, 17*, 111-125. (#325 at <muscd.edu/fsrc>)

The investigators examined attitudes toward the Swedish MST project among social workers ( $n = 179$ ) who were potential referral sources to the new MST programs and their immediate supervisors ( $n = 34$ ).

Results were relatively consistent:

- A large majority of respondents felt positive toward the project and had favorable attitudes toward MST, clinical research, and community-family-based services for problem adolescents.
- Consistent with the top-down approach taken in the development of the project, supervisors held more favorable attitudes than the social workers toward MST, clinical research, and community-family-based services.

Conclusion: The key referral sources to the new MST programs generally held favorable attitudes toward MST and the planned research.

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2. Gustle, L.-H., Hansson, K., Sundell, K., Lundh, L.-G., & Lofholm, C. A. (2007). Blueprints in Sweden: Symptom load in Swedish adolescents in studies of Functional Family Therapy (FFT), Multisystemic Therapy (MST), and Multidimensional Treatment Foster Care (MTFC). *Nordic Journal of Psychiatry, 61*, 443-451. (#318 at <muscd.edu/fsrc>)

This article describes the mental health symptomatology of the youth and mothers participating in the MST trial. The investigators compared the symptoms of youth and their mothers who were in MST (this is the same sample that participated in the MST clinical trial discussed subsequently), FFT, and MTFC programs in Sweden as well as youth receiving outpatient and inpatient psychiatric treatment and their mothers. Youth and parent report versions of the CBCL were used to assess youth internalizing, externalizing, and total symptoms; and the SCL-90 was used to assess mothers' symptoms.

Results (see Table 4, page 448 of study) were relatively consistent:

- Youth and mothers in MST and MTFC programs had significantly more symptoms on virtually all measures than counterparts in FFT.
- In almost all comparisons, youth in MST, MTFC, and inpatient psychiatric programs had similar levels of symptomatology. Indeed, as noted by Sundell et al.

- (2008, see next study), CBCL externalizing *T*-scores for youth in the MST (and MTFC) condition were extraordinarily high.
- Mothers of youth in MST (and MTFC) programs evidenced relatively high rates of psychiatric symptomatology: midway between SCL-90 norms for nonclinical and inpatient adult samples, and almost .5 standard deviations higher than mothers of youth receiving inpatient treatment in the present study as well as in the MST alternative to psychiatric hospitalization study (Henggeler, Rowland et al., 1999).
  - Youth in FFT programs had significantly fewer symptoms than inpatient and outpatient psychiatric counterparts in 5 of 6 comparisons and 2 of 6 comparisons, respectively.

Conclusion: Consistent with the intensity of the respective treatments, youth in the more intensive services (i.e., MST, MTFC, and inpatient psychiatric) had greater externalizing and internalizing problems than did counterparts receiving the less intensive treatments (i.e., FFT and outpatient psychiatric). Mothers in MTFC and MST programs had the highest rates of emotional distress. Together, these findings suggest that youth and maternal symptomatology of the MST participants seem more consistent with psychiatric samples than with criminal justice samples.

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3. Sundell, K., Hansson, K., Lofholm, C. A., Olsson, T., Gustle, L.-H., & Kadesjo, C. (2008). Transportability of multisystemic therapy to Sweden: Short-term results from a randomized trial of conduct-disordered youths. *Journal of Family Psychology*, 22, 550-560. (#330 at <[musc.edu/fsrc](http://musc.edu/fsrc)>)

This is the central manuscript of the Swedish MST project and represents the first of the 17 published (i.e., passing scientific peer review) MST clinical trials to not demonstrate favorable MST effects. The study presents the results of a 4-site, randomized evaluation of the short-term (i.e., 7 months post recruitment) outcomes for MST in comparison with treatment as usual (TAU; case management in the social welfare system) for 156 youth meeting diagnostic criteria for conduct disorder and their families. For almost half the sample, both parents were born outside of Sweden. As noted in Study 2 (Gustle et al., 2007), youth in this study had very high rates of symptomatology – equivalent to that of youth in inpatient psychiatric care and therapeutic foster care. Indeed, at pretreatment youth in the MST condition had average CBCL externalizing *T*-scores of 81.8 (99<sup>th</sup>+ percentile), which is higher than corresponding scores in any intervention study that we know of.

The research protocol was very well implemented (e.g., low research attrition, intent to treat analyses, consideration of treatment fidelity), and a broad range of outcome measures was used to tap youth antisocial behavior, criminal behavior, school attendance, parenting, association with problem peers, and out-of-home placement.

Outcome Results were very consistent:

- Significant and favorable time effects were found for most of the pertinent outcome measures. That is, youth and families in both treatment conditions improved on most measures from pretreatment to 7 months post recruitment.
- Neither MST nor TAU was significantly more effective from pretreatment to 7 months post recruitment on any of the outcome measures.

Treatment and Program Fidelity (i.e., TAM and caseload) findings are pertinent.

- TAM scores were very low - *almost 1 standard deviation below U.S. norms*, or at the 20<sup>th</sup> percentile on average.
- Based on the reports of Olsson (Study 4; 2009), the *MST programs functioned at only about 33% of capacity*. This level is far outside MST program implementation standards and, along with the TAM results, casts considerable doubt regarding the fidelity of the MST programs in this study.
- Similarly, other MST program standards were clearly not met. For example, 43% of MST cases were still receiving treatment 7 months after enrolling in the study, and there were many cases where the therapist might not have been able to speak the same language as the parents (e.g., 47% of families were not Swedish and spoke a language other than Swedish in the home).
- TAM analyses within the MST condition showed that high TAM scores were associated with at least a small favorable effect for decreased arrests, increased school attendance, improved parenting, and improved social skills with peers. These findings are consistent with several studies showing that greater MST treatment fidelity is linked with better outcomes for youth and families.
- On the other hand, higher TAM scores were linked with worse outcomes on most of the CBCL measures. Neither we nor the authors have a viable explanation for these latter findings.

Conclusion: Although the findings clearly do not support the effectiveness of MST in this study, the explanation for this lack of favorable outcomes is uncertain.

- The most ready explanation pertains to the generally low fidelity of MST implementation. TAM scores were very low, caseloads were far below program standards, treatment duration was far above program standards, and there was low representation among MST teams of the cultures and languages of the families served.
- Similarly, several aspects of the sample suggest that the MST adaptation for serious emotional disturbance (Henggeler, Schoenwald, Rowland, & Cunningham, 2002), now known as MST-Psychiatric, might have been a more appropriate intervention for this project than was standard MST. Specifically, (a) youth symptomatology was extremely high and equivalent to that of counterparts receiving inpatient treatment, (b) maternal symptomatology was high, and (c) 38% of youth were referred for harm to self or others.
- An alternative explanation for the absence of MST versus TAU differences might be due to sociocultural contextual differences between the U.S. and Sweden (e.g., service systems in Sweden are less punitive, focus more on rehabilitation, and provide a superior safety net and access to services than counterparts in the U.S.).

- Yet, in neighboring Norway, with many cultural similarities to Sweden, MST was very successful in the clinical trial lead by Ogden and colleagues. The present authors suggested that the relative success of the Norwegian project was related to their national implementation strategy supported by the Norwegian Center for Studies of Conduct Problems & Innovative Practice in comparison with the Swedish strategy of local initiatives.

Although a definitive explanation for the lack of favorable MST treatment effects in this trial is not evident, one point is certain. Future evaluations must endeavor to optimize fidelity of MST treatment and program implementation as well as ascertain such throughout the study. Low fidelity calls into serious question the internal validity (i.e., a treatment can not be evaluated unless it is implemented as intended) of a clinical trial. Thus, particularly in sociopolitical contexts that introduce significant variations in MST program implementation, due diligence is needed among stakeholders collaborating in the development and evaluation of an MST program, including the purveyors of MST (MST Services and its Network Partners). Policies and regulations (e.g., number of hours a therapist may work in a week, frequency and length of government-entitled therapist leave), sociocultural norms for professionals, and cultural differences among substantial proportions of the population served and MST teams are likely to alter program implementation parameters established in randomized trials of standard MST and incorporated into program fidelity standards for MST transport. These differences, in turn, can affect the clinical and cost effectiveness of MST.

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4. Olsson, T. M. (2009). Intervening in youth problem behavior in Sweden: A pragmatic cost analysis of MST from a randomized trial with conduct disordered youth. Unpublished manuscript.

This study compared the cost of services provided to the 156 youth in the MST versus TAU conditions during the first 6 months of treatment.

Results must be considered in light of study limitations.

- MST cost twice that of estimates provided in other studies, but this is attributed to the fact that “MST teams were working at anywhere from 20% to 50% of their full capacity” (page 13).
- MST was more expensive, on average, than TAU, but 17% of TAU youth received no services. “When those participants that did not engage in services during the period under review were excluded from the analyses, no differences were found in total resource costs between groups” (page 15).

Conclusion: The results of the cost analysis are confounded by the serious program implementation limitation of low caseloads in this project.