An Independent Evaluation of Multisystemic Therapy (MST)

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An Independent Evaluation of MST

Today's talk will cover:

- **Review of MST Clinical Program**
- **Review of MST Research Findings**
- **Purpose of Independent Evaluations**
- **VU NIMH-Funded Random Clinical Study**
- **Discussion**

MST Clinical Program

- **MST was developed to address major limitations in serving Juvenile Offenders**
- **MST is based on Social-Ecological theory**
  - Behavior is multi-determined and best understood in the naturally occurring context
- **MST focuses on changing the known determinants of youth anti-social behavior**
  - Including characteristics of the individual youth, family, peer relations, school functioning, and family-neighborhood interactions

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MST Clinical Program (cont)

- **MST is Home-Based Service Model**
  - Provided in Families' Natural Environment
  - Hours and Times Convenient to the Family
- **Intensive/Comprehensive**
- **Low Caseloads**
  - 4-5 families; 3-5 months per family
- **Frequency, Duration and Intensity Varies**

MST Clinical Program (cont)

- **MST Typically Delivered by Masters Level Therapist**
  - Directly provides most MH services, coordinates others
- **Family Engagement is Key**
- **Treatment Fidelity**
  - Weekly Group Supervision by Advanced MST Clinician
  - Weekly Consultation from MST Expert

MST Principles

1. Understand Fit Between Identified Problems and Broader Systems
2. Emphasize the Positive, Use Systemic Strengths
3. Interventions Designed to Promote Responsible Behavior Among Family Members
4. Interventions are Present-Focused and Action-Oriented, Targeting Well-Defined Problems
5. Interventions Target Sequences of Behavior Within and Between Multiple Systems

MST Principles (cont)

6. Interventions are Developmentally Appropriate
7. Interventions are Designed to Require Daily or Weekly Effort by Family Members
8. Intervention Effectiveness is Evaluated Continuously with Providers Assuming Accountability for Overcoming Barriers to Successful Outcomes
9. Interventions are Designed to Promote Treatment Generalization and Long-term Maintenance of Therapeutic Change by Empowering Care-Givers


Select MST Research Findings

Independent Evaluation of MST

Replication of Findings are Critical to Accepting Treatments as Evidenced-based

> If we do MST just like the developer does MST, then we should get the same results

> *Investigator Allegiance* can effect outcomes at the Clinical and Data Analytic Levels

> Robust, Multiple Measure Support

Investigator Allegiance

Clinical
Research
MST Intervention
Outcomes
Analyses
Results
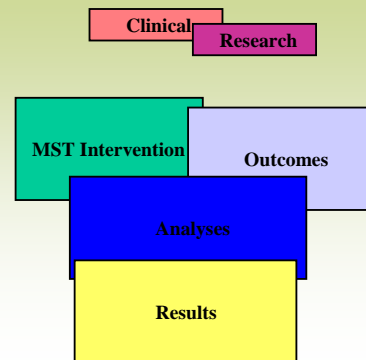
VU MST Project

Clinical   **Research**

MST Intervention

Outcomes

Analyses

Results

VU MST Project

- **NIMH-Funded Clinical Trial** (R01 MH5827)
- **Replicate MST findings targeting severely conduct disordered youth**
- **Coordinated with the MST developers**
  > Initial Training
  > Ongoing Supervision & Consultation
  > Booster training
  > Treatment Fidelity Ratings
  > Clinician recruitment and selection

VU MST Project

- **Established the MST Clinical team**
  - 3 MST Clinicians; 1 MST Supervisor
  - Caseload: 4 families per clinician
  - Duration of Tx: Up to 6 months
- **Subject Recruitment**
  - 7th – 11th Grade MIP Classrooms
  - Random Assignment

Participant Demographics

	(n = 164)	(n = 80)	(n = 84)
Adol Age (yrs)	14.6 (1.35)	14.5 (1.39)	14.6 (1.32)
Adol Sex (% males)	82.9	82.5	83.3
Adol Race (%)			
African American	59.1	62.5	56
Caucasian	39.6	35	44

Participant Demographics

	(n = 164)	(n = 80)	(n = 84)
Parent Education (%)	(n=164)	(n=80)	(n=84)
6th to 11th Grade	29.3	37.5	21.4
GED / High Sch Grad	32.3	28.8	35.7
Some college	24.4	26.3	22.6
College Graduate	9.8	5	14.3
MEDIAN	HS Grad	HS Grad	HS Grad

Participant Demographics

	Total Sample (n = 164)	Control Group (n = 80)	TX Group (n = 84)
Annual household income (%)	(n=153)	(n=74)	(n=79)
Less than $5,000	9.2	14.9	3.8
$5,000 to $9,999	13.1	10.8	15.2
$10,000 to $14,999	16.3	14.9	17.7
$15,000 to $19,999	13.1	12.2	13.9
$20,000 to $29,999	13.7	16.3	11.4
$30,000 to $39,999	12.5	10.9	13.9
$40,000 to $59,999	12.4	13.5	11.4
$60,000 or more	9.8	6.8	12.7
MEDIAN	$15,000 - $19,999	$15,000 - $19,999	$15,000 - $19,999

Case Examples

MST Treatment Fidelity

- **MST Institute/Services**
  - **Initial 1 Week Training**
  - **Weekly Phone Supervision (including faxed review of clinical materials)**
  - **Quarterly Booster Trainings**
  - **Continually Monitored Clinical Intervention**
- **Treatment Adherence Measures (TAMS)**
- **Session Recordings Review/Rating**

Therapy Adherence Measure (TAM)
Parent Report

Rating Scale

1 = Not at all
2 = A Little
3 = Some
4 = Pretty Much
5 = Very Much

ADHERENCE (mean of 14 items)	**4.41**	**.51**
1. The session was lively and energetic.	4.30	.87
2. The therapist tried to understand how my family's problems all fit together.	4.75	.52
5. The therapist recommended that family members do specific things to solve our problems.	4.42	.86

NONPRODUCTIVE SESSIONS (mean of 4 items)	**1.52**	**.66**
15. The therapy session included a lot of irrelevant small talk (chit-chat).	1.76	1.11
16. We didn't get much accomplished during the therapy session.	1.43	.92

PROBLEM-SOLVING EFFORT (mean of 4 items)	**4.55**	**.50**
3. My family and the therapist worked together effectively.	4.57	.70
4. My family knew exactly which problems we were working on.	4.50	.71

CHANGE FAMILY'S INTERACTIONS (mean of 2 items)	**3.29**	**1.13**
8. The therapist tried to change some ways that family members interact with each other.	3.37	1.31
9. The therapist tried to change some ways that family members interact with people outside the family.	3.21	1.41

LACK OF DIRECTION (mean of 3 items)	**1.60**	**.66**
17. Family members were engaged in power struggles with the therapist.	1.27	.74

Slide 1

FAMILY-THERAPIST CONSENSUS (mean of 5 items)	4.45	.56
7. My family and the therapist had similar ideas about ways to solve problems.	4.36	.73
10. My family and the therapist were honest and straight forward with each other.	4.76	.51

Slide 2

Audio Tape Codings/Ratings:

Adherence to 9 Core Principles

7 Point Scale:

1= Not at All
7= Fully/Completely

Slide 3

Adherence Ratings from Audiotape Coding (Adherence to Principles) Rating scale: 1 = Not at all → 7 = Fully/Completely	Mean	SD
Principle 1: The primary purpose of assessment is to understand the "fit" between the family-identified problems and their broader systemic context.	4.77	1.79
Principle 2: Therapeutic contacts should emphasize the positive and should use systemic strengths as levers for change.	5.64	1.30
Principle 3: Interventions should be designed to promote responsible behavior and decrease irresponsible behavior among family members.	5.03	1.46
Principle 4: Interventions should be present-focused and action-oriented, targeting specific and well-defined problems.	5.21	1.13
Principle 5: Interventions should target sequences of behavior within or between multiple systems.	4.69	1.62
Principle 6: Interventions should be developmentally appropriate and fit the developmental needs of the family/youth.	6.00	1.16
Principle 7: Interventions should be designed to require daily or weekly effort by family members.	4.85	1.68
Principle 8: Intervention effectiveness is evaluated continuously from multiple perspectives.	5.32	1.64
Principle 9: Interventions should be designed to promote treatment generalization and long-term maintenance of therapeutic change.	4.76	1.53

Slide 4

Audio Tape Codings/Ratings: Specific Intervention Behaviors

- For example, helping families to take the lead in devising solutions to problems, identifying and reinforcing family members' positive efforts, and explaining session goals and tasks in a way that family members could understand

Rating scale: 1 = Not at all
2 = A Little
3 = Some
4 = Pretty Much
5 = Very Much

Slide 5

1.Used a non-critical tone in addressing family members.	4.88	.40
2.Spoke in optimistic terms about the family's future and potential for change.	4.54	.83
Helped family members meet some of their practical needs (e.g., transportation, food, arranging financial assistance).	3.31	1.89
4. Assessed and discussed how family problems "fit" with the larger social context.	3.56	1.28
5. Identified and made clear to family members the antecedents and consequences of the target behavior.	3.37	1.23
6. Identified and verbally reinforced the family's positive efforts.	4.38	.91
7. Helped family members take the lead in devising solutions to problems.	3.75	1.21
8. Implemented strategies that utilized skills or resources that family members already possessed.	3.69	1.13
9. Recommended that family members take specific actions during the session (e.g., phone calls, role play, problem-solving, family communication tasks).	3.62	1.13
10. Discussed or practiced strategies for interfacing with school personnel, legal entities, social services agencies, the child's peers, or agents in other non-familial systems.	3.44	1.31

Slide 6

11. Focused on modifying antecedents and consequences of target behaviors(s).	3.55	1.14
12. Structured or directed positive interactions between family members.	3.51	1.26
13. Explained session goals and tasks to family members in a way they could understand.	4.63	.80
14. Recommended homework to family members that they will be able to complete.	3.72	1.17
15. Evaluated the degree to which family members followed the previous recommendations.	3.71	1.34
16. Evaluated and resolved barriers to completing previous recommendations.	3.02	1.43
17. Discussed the family's success in addressing or reducing target problem(s).	3.67	1.25
18. Recommended specific homework that requires concrete action by family members.	3.45	1.14
19. Discussed how the family can identify and use resources/supports in their natural environment.	2.81	1.53
20. Required that the family, rather than the therapist, do most of the work.	4.14	1.14
TOTAL	3.74	.77

Primary Outcomes

- Achenbach (Self, Parent and Teacher)
- D & D Scale
- FACES
- Juvenile Justice
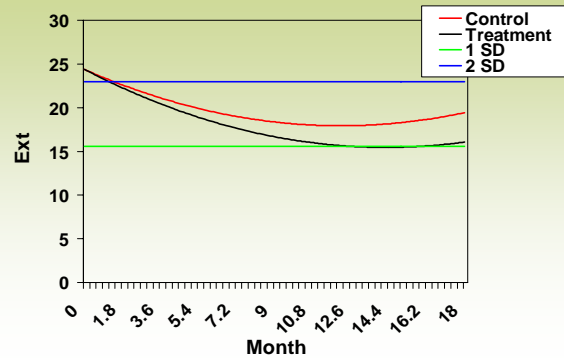- Academic (grades and placements)

MST Outcomes

- Outcome Measures were collected at
  - Intake
  - 3 months
  - 6 months
  - 12 months
  - 18 months
  - 24 months (JJ only)

Parent CBCL - EXT

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	130	1.73	0.1911
month	1	152	75.56	<.0001
month*TXGROUP	1	130	4.99	0.0272
month*month	1	149	47.09	<.0001

Parent CBCL - EXT

Teacher TRF- EXT

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	43	2.11	0.1538
month	1	114	3.32	0.0710
month*TXGROUP	1	43	2.01	0.1630
month*month	1	81	1.67	0.2003
month*month*TXGROUP	1	43	2.69	0.1086

Teacher TRF - EXT
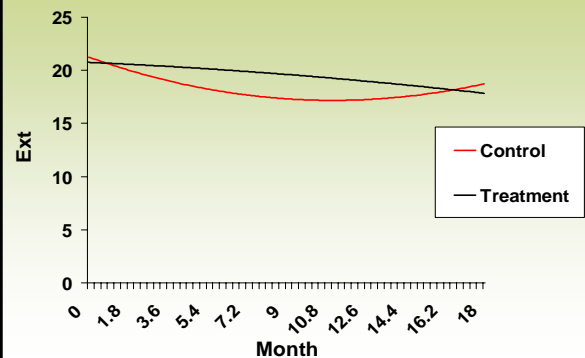
Adolescent YSR - EXT

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	110	0.16	0.6900
month	1	145	32.62	<.0001
month*TXGROUP	1	110	5.70	0.0187
month*month	1	141	23.21	<.0001
month*month*TXGROUP	1	110	4.53	0.0356

Adolescent YSR - EXT
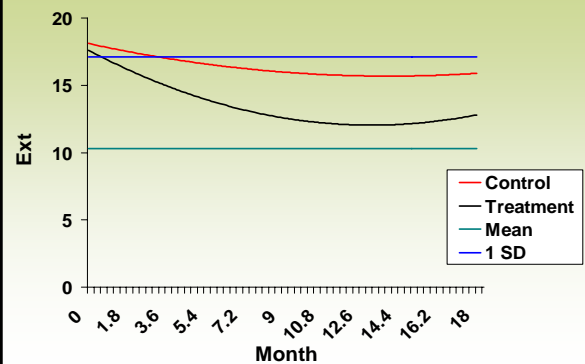
D & D – Delinquency

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	65	3.53	0.0649
month	1	122	5.60	0.0195
month*TXGROUP	1	65	0.48	0.4928
month*month	1	102	3.44	0.0667

D & D – Delinquency
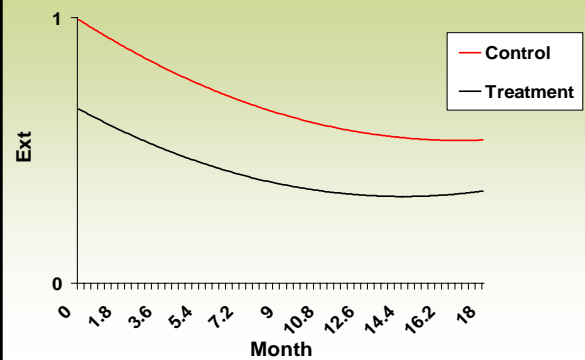
D & D – Drugs (Num)

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	65	0.78	0.3802
month	1	122	13.61	0.0003
month*TXGROUP	1	65	0.67	0.4144
month*month	1	102	13.97	0.0003

D & D – Drugs (Num)
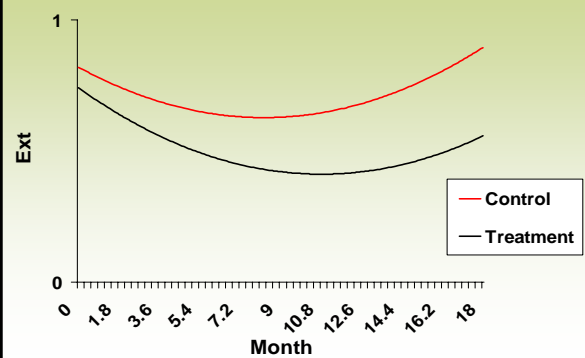
D & D – Drugs (Freq)

Effect	Num DF	Den DF	F Value	Pr > F
TXGROUP	1	65	0.26	0.6131
month	1	122	5.04	0.0266
month*TXGROUP	1	65	1.65	0.2032
month*month	1	101	6.34	0.0133
month*month*TXGROUP	1	65	3.85	0.0540

D & D – Drugs (Freq)

Discussion & Questions