

Wraparound fidelity in systems of care and association with outcomes

Results of the National Wraparound Comparison Study

Eric J. Bruns / ebruns@u.washington.edu
 University of Washington School of Medicine
 Kristen M. Leverenz-Brady
 University of Vermont Department of Psychology
 Sarah Walker
 University of Washington School of Medicine

20th Annual Systems of Care Research Conference
 Tampa, FL
 March 6, 2007

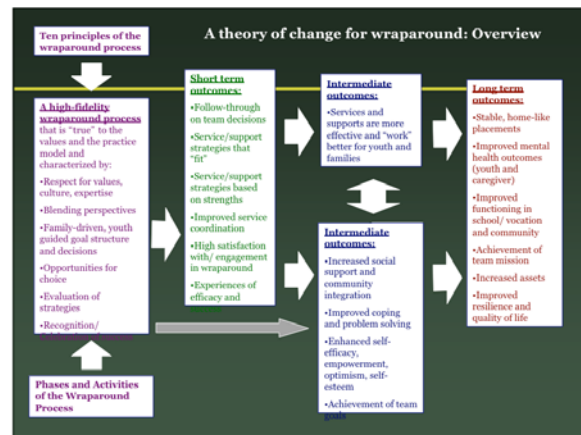
Support for this project was provided by ORC Macro, Inc. and the SAMHSA Center for Mental Health Services, Child, Adolescent, and Family Branch as part of the national evaluation of the Comprehensive Children's MH Services for Children and their Families Program

Previous research on service factors predicting child and family outcomes

- ◆ Significant but weak association between generic measures of service quality and outcomes
 - Therapeutic alliance, Parent involvement, Child and adolescent satisfaction (Noser & Bickman, 2000)
 - Adherence to national standards for treatment foster care (Farmer et al., 2003)
- ◆ Greater evidence for association between fidelity to specific treatment models and outcome
 - MST (Henggeler et al., 1997)
 - School-based prevention programs (Greenberg et al., 2001)
 - ACT (McHugo et al., 1999)

Previous research on service factors predicting child and family outcomes

- ◆ Previous research has found associations between adherence to wraparound principles and child and family outcomes
 - Associations for individual families within one system of care (Bruns et al., 2005; Hagen et al., 2002)
 - Families served by wrap facilitators showing greater adherence found to have better outcomes on
 - » Child functioning, Child behavior, School outcomes, Family resources
- ◆ Other studies found no relationship (e.g., Ogles et al., 2006)
 - However, variation in fidelity found to be limited (.96; $sd = .04$)



Wraparound elements (Burns & Goldman, 1999)

- ◆ Parent and Youth Voice and Choice
- ◆ Youth and Family Team
- ◆ Community-based Services and Supports
- ◆ Cultural Competence
- ◆ Individualized Services and Supports
- ◆ Strength-based Services and Supports
- ◆ Natural Supports
- ◆ Continuation of Care
- ◆ Collaboration
- ◆ Flexible Resources and Funding
- ◆ Outcome-based Services and Supports

Need for further research

- ◆ Several published studies have found associations between wraparound fidelity (or components of studies) and outcomes
 - However, findings have been mixed in other system-of-care communities
 - No studies have simultaneously employed:
 - » Multiple sites
 - » Large Ns
 - » Full range of validated outcome measures
 - » Measures of services received
 - No studies have assessed site level fidelity and association with outcomes

Wraparound Comparison Study

A component of the National CMHS Evaluation

◆ Research questions:

1. How does the adherence to wraparound elements vary across CMHS-funded sites?
2. How do child and family outcomes vary between CMHS-funded sites with different adherence to wraparound?
3. Across individual families (in all study sites), what is the relationship between Wraparound fidelity, services received, and client outcomes?

Wraparound Comparison Study

◆ Site selection criteria

- Differences in level of wraparound implementation and supports (WFI-Program Administrator form; WFI-PA)
- Similarities with respect to demographics of families served
- Rate of enrollment into national evaluation
- Willingness to participate

◆ Three sites ultimately selected to participate

Wraparound Comparison Study

◆ Measures

- Services received (Multi-Sector Services Checklist)
- Family and youth satisfaction (FSQ, YSQ)
- National evaluation outcome measures
 - » Residential restrictiveness and placement changes
 - » Child functioning (Child and Adolescent Functional Assessment Scale)
 - » Child behavior (Child Behavior Checklist/4-18, Youth Self Report, Behavioral and Emotional Rating Scale)
 - » Family Functioning (Family Assessment Device – General Functioning Scale)
 - » Caregiver Strain Questionnaire
 - » Family Resources (Family Resource Scale)
- Wraparound Fidelity Index 3.0
 - » Caregiver, Facilitator, and Youth forms

Wraparound Fidelity Index, version 3

• Found to possess good psychometric characteristics

- Test-retest reliability
- Inter-rater agreement
- Internal consistency

• Validity has been established through studies showing

- Agreement with external experts' assessment
- Correlation with child and family outcomes
- Correlation with measures of system support for wraparound
- Discrimination between Wrap and non-wrap groups
- Improvements in scores for providers over course of receiving quality improvement activities (e.g., training and coaching)

Data Collection

- ◆ Study enrollment: January 2004 – October 2005
- ◆ WFI Data collection: March 2004 – January 2006
- ◆ Outcome measure collected via the national evaluation at baseline, 6-months, and 12-months.
- ◆ WFI data collection

- Families enrolled in national evaluation during study period recruited by local evaluators to participate in WFI-3 interview and signed consent to contact form.
- Each family was contacted by a WERT member for the interview six months after entry into services and an attempt was made to contact the family twelve months after entry into services.
- Caregivers and youths who participated in the WFI received \$20 compensation, youth received \$10.
- Majority of interviews administered by phone.

Wraparound Fidelity Index 3.0

Respondent Scheme, by element

Element	Number of items		
	Resource Facilitator	Parent	Youth
Parent/Youth Voice and Choice	4	4	4
Youth and Family Team	4	4	4
Community-based Svcs/Suppts	4	4	4
Cultural Competence	4	4	4
Individualized Svcs/Suppts	4	4	4
Strength-based Svcs/Suppts	4	4	4
Natural Supports	4	4	4
Continuation of Care	4	4	4
Collaboration	4	4	
Flexible Resources/Funding	4	4	
Outcome-based Svcs/Suppts	4	4	
Total Items	44	44	32
0-2 scale = Element Scores Range	0-8	0-8	0-8

Participants

- ◆ **Baseline**
 - N = 121 total families from 3 CMHS-funded Systems of Care national evaluation sites in 3 states
- ◆ **Six-Month Follow-up**
 - N = 93 total families
 - » N=93 Facilitator interviews
 - » N=84 caregiver interviews
 - » N=42 youth interviews
- ◆ **Twelve-Month Follow-up**
 - N=56 total families
 - » N=25 Facilitator interviews
 - » N=22 caregiver interviews
 - » N=9 youth interviews

Baseline Demographic Information (total N=121)

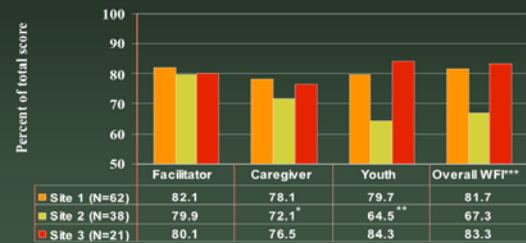
	Site 1		Site 2		Site 3	
	N=62	51%	N=38	32%	N=21	17%
Mean age*	12.8		11.8		11.8	
Gender*						
Male	45	73%	20	53%	17	81%
Female	17	27%	18	47%	4	19%
Race*						
African American	29	47%	18	47%	2	9%
White	27	43%	19	50%	18	86%
Other or Missing	6	10%	1	3%	1	5%
Hispanic Ethnicity	3	5%	2	5%	3	14%
Custody Status**						
Parental (birth or adoptive)	38	61%	30	79%	21	100%
Other Relative	4	6%	5	13%	0	0%
Ward of the State	17	27%	0	0%	0	0%
Other	3	5%	3	8%	0	0%

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

Results: Missing data (total N=121)

	Number	Percentage
Baseline		
Any Outcome Measure	25	21%
Six-Month Follow-up		
Any Outcome Measure	47	39%
WFI	8	7%
Twelve-Month Follow-up		
Any Outcome Measure	71	59%
WFI	83	69%

Research question 1: Between-site differences on WFI-3

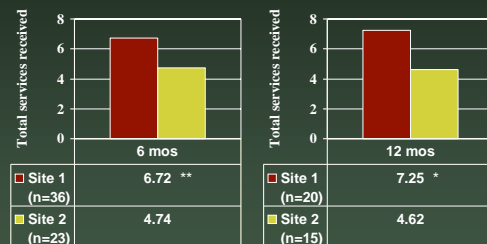


***Overall WFI score combines all 3 respondents; only calculated for cases with all 3 respondents
**p<.01
*p<.1

Decisions on Research questions 2 and 3

- ◆ **Research question 2: How do child and family outcomes vary between CMHS-funded sites with different adherence to wraparound?**
 - Between-site comparisons restricted to Sites 1 and 2 due to Site 3's low Ns and comparable WFI-3 scores to site 1
 - » *Hypothesis: Based on trends in WFI data, Site 1 will demonstrate better outcomes than Site 2*
- ◆ **Research question 3: Across individual families (in all study sites), what is the relationship between Wraparound fidelity, services received, and client outcomes?**
 - Families from all three sites retained in cross-site analysis of association between WFI-3 scores and outcomes
 - First WFI assessment used as fidelity measure

Results: Between site differences on Service use (MSSC total services received)

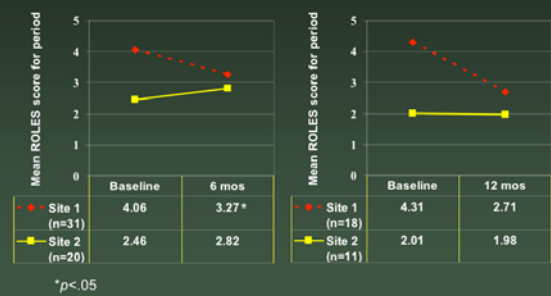


**p<.001
*p<.05

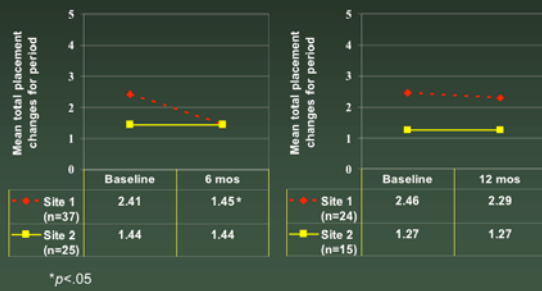
Results: Between site differences on Caregiver satisfaction



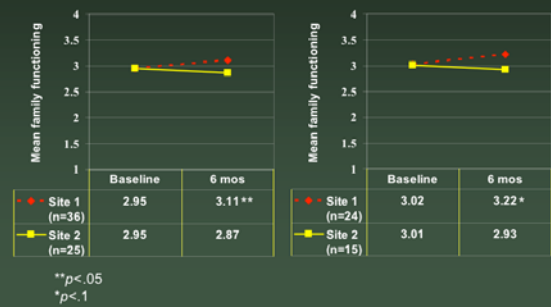
Results: Between site differences on Restrictiveness of Living Environment (ROLES)



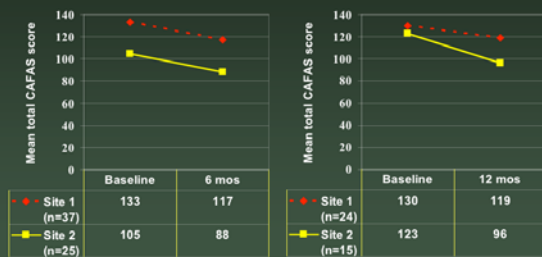
Results: Between site differences on Placement changes



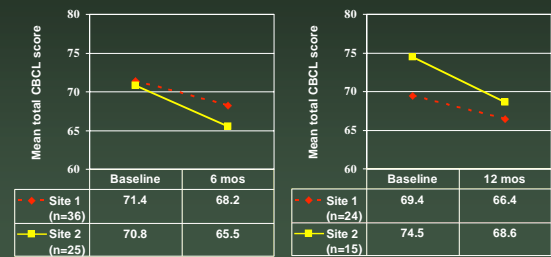
Results: Family Assessment Device, general functioning scale



Results: Between site differences on Child functioning



Results: Between site differences on Child behavior (CBCL/4-18)



Summary of between-site differences

- ◆ Significant differences
 - Total services received
 - Caregiver satisfaction
 - Restrictiveness of living environment
 - Placement changes
 - Family functioning
- ◆ No differences found
 - Child functioning
 - Child behavior (CBCL or YSR)
 - Behavioral strengths
 - Caregiver strain
 - Family resources
 - Youth satisfaction
- ◆ All differences in the hypothesized direction

Results: Association between CG-reported wraparound fidelity and 6-month outcomes

Outcome variable	B	SE	Beta	t	Sig.
Restrictiveness of Living	-0.294	.177	-.196	-1.658*	0.10
Placement changes	-0.005	.071	-0.008	-0.067	.947
CAFAS	-0.78	3.32	-0.02	-0.23	0.82
CBCL	-0.84	0.58	-0.12	-1.46	0.15
YSR	-1.00	1.12	-0.09	-0.89	0.38
BERS	1.32	1.05	0.15	1.26	0.21
Family Functioning	0.05	0.04	0.13	1.24	0.22
Caregiver Strain	-0.10	0.07	-0.14	-1.48	0.14
Family Resources	3.27	1.22	0.24	2.68**	0.01
Outcome variable			r		Sig.
MSSC Total				.08	
Caregiver Satisfaction				.56**	.000
Youth Satisfaction				.03	

After controlling for baseline score

**p<.01 *p<.1

Summary of other analyses of association between wrap fidelity and outcomes

- ◆ Facilitator WFI scores associated with caregiver satisfaction at 6 months
- ◆ Youth WFI scores associated with youth satisfaction at 6 and 12 months and caregiver satisfaction at 6 months
- ◆ No other significant associations between WFI scores and outcomes in cross-site analyses
- ◆ Several measures showed no relationship with outcome at either wave (6 or 12 mos) for any respondent report
 - CBCL
 - CAFAS
 - BERS
 - Caregiver strain
 - Family functioning

Findings: Fidelity differences between sites

- ◆ No difference in wraparound fidelity according to facilitator report between sites 1 and 2
- ◆ Small (ES = .38) and only marginally significant difference in caregiver-reported fidelity
- ◆ Large (ES = 1.08) and significant difference in youth-reported fidelity
 - However, N of youth surveyed small (Ns = 23, 12)
- ◆ These findings about the greater sensitivity of caregiver and youth reports replicate previous studies

Findings: Outcomes differences between sites

- ◆ Significant between-group differences found for:
 - Total services received
 - Caregiver satisfaction
 - Restrictiveness of living environment
 - Placement changes
 - Family functioning
- » All differences in hypothesized direction
- ◆ No differences found for:
 - Child functioning
 - Child behavior (CBCL or YSR)
 - Behavioral strengths
 - Caregiver strain
 - Family resources
 - Youth satisfaction

Findings: Relationship between fidelity and outcomes

- ◆ Caregiver reported fidelity was found to be related to several 6-month outcomes:
 - Restrictiveness of living (p<.1)
 - Family resources
 - Caregiver satisfaction
- ◆ CG-reported fidelity was associated in the hypothesized direction with all 6-months outcomes
- ◆ Overall, however, few significant relationships were found

Limitations

- ◆ Actual differences between sites in fidelity was not large
- ◆ Differences found in between-site outcomes could be related to factors other than differences in wrap fidelity
- ◆ Attrition in outcomes data collection compromises power and leads to difficulties in interpretation in outcomes
- ◆ Current exploratory analytic approach increases family-wise error rate and likelihood of Type I error
- ◆ Limitation to one WFI assessment point may result in imprecise measurement of fidelity
 - Hypothesis of an association between fidelity as assessed at 6 months and outcomes at 12 months may not be realistic
- ◆ Fidelity assessment limited to self-report

Implications

- ◆ WFI-3 interviews may not be very sensitive to between-site differences, especially facilitator interviews
- ◆ Though differences found were small, results suggest sites that adhere more closely to wraparound principles may:
 - Engage families in more services
 - Be more likely to return youth to home-like settings
 - Be better able to keep placement changes to a minimum
 - Achieve greater service satisfaction
 - Possibly help improve family functioning
- ◆ However, as in previous studies, association between quality indicators such as adherence to wraparound principles and more clinical outcomes (e.g., CBCL, CAFAS) found to be inconsistent and weak

Implications

- ◆ Relationship between wraparound fidelity and outcomes at a youth and family level may be less clear than has been found previously
- ◆ Why were such relationships not found in this study?
 - Conforming to the principles of wraparound in coordinating services may not be very important to outcomes
 - Attrition in enrollment in the system of care (and outcomes data collection) may have systematically confounded the relationship
 - Variance in fidelity scores was fairly limited overall, perhaps these particular system of care sites implemented services that are consistently high quality
 - The WFI-3 interviews may not be very sensitive to differences in service processes that are proposed to be relevant to outcomes at an individual family level
 - » Studies that experimentally manipulate staff- or site-level implementation may be better able to determine the impact of wraparound on outcomes

Next steps

- ◆ Continued data analysis
 - Multi-level modeling on study data, including use of imputation for missing data, to reduce family-wise error rate and increase precision
- ◆ Other steps related to the study findings
 - The WFI-3 has been revised to better conform to the specified phases and activities of the wraparound process (see www.u.washington.edu) and also to increase its variability and sensitivity
 - Fidelity measures have been designed and are being pilot tested to augment the use of interviews in assessing adherence to the wraparound model
 - » Team Observation Measure
 - » Document Review Measure
- ◆ Larger scale, more controlled multi-site studies assessing the relationships between system conditions, wraparound adherence, and outcomes

For more information

- ◆ **Wraparound Evaluation and Research Team (WERT)**
 - wrapeval@u.washington.edu
 - 206-685-2310
 - <http://depts.washington.edu/wrapeval>