

Theory and Research: Chapter 3.3

A Narrative Review of Wraparound Outcome Studies

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The wraparound process has been described as having a promising body of evidence (Burns, Goldman, Faw, & Burchard, 1999; National Advisory Mental Health Council, 2001; New Freedom Commission on Mental Health, 2003), to the point it has been included in two Surgeon General reports (U. S. Department of Health and Human Services, 1999, 2000), recommended for use in federal grant programs (U. S. Department of Health and Human Services, 2005), and presented as a mechanism for improving the delivery of evidence-based practices for children and adolescents with serious emotional and behavioral disorders ([SEBD] Friedman & Drews, 2005; Tolan & Dodge, 2005; Weisz, Sandler, Durlak, & Anton, 2006). Not everyone, however, is convinced. Bickman and colleagues (Bickman, Smith, Lambert, & Andrade, 2003) have stated that “the existing literature does not provide strong support for the effectiveness of wraparound” (p. 138). Farmer, Dorsey, and Mustillo (2004) recently characterized the wraparound evidence base as being “on the weak side of ‘promising’” (p. 869).

There are several significant concerns about the state of the wraparound evidence base. As presented in Figure 1, though the number of publications about wraparound has grown steadily over time, the number of outcome studies remains relatively small. Many outcome studies that have been published used less rigorous designs and included relatively small samples. Finally, the wraparound model has developed in a “grassroots” fashion and has been driven largely by local priorities. This means that there has his-

torically been a wide range of populations of children and families for which wraparound has been implemented and studied, as well as wide variation in adherence to the core principles of wraparound (Bruns et al., 2004). With many target populations, no real consensus on what exactly constitutes “wraparound,” and no single research group invested in documenting wraparound outcomes, the outcomes research base has been slow to emerge, and results are less consistent than for more strictly defined models. In addition, reviews of outcomes studies of children’s services have tended to mischaracterize some evaluation studies as pertaining to the wraparound process. For example, one widely cited review (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004) cited evaluation studies of “systems of care” (e.g., Bickman, Sumerfeldt & Noser, 1997) as speaking to the evidence base on the wraparound process, even though the two models are quite distinct in practice (Stroul, 2002).

Taken together, these concerns have made it difficult to draw clear conclusions about wraparound’s evidence base. Therefore, it is important to take stock of the full range of existing outcome studies on wraparound. To date, three wraparound narrative reviews have been published (Burchard, Bruns, & Burchard, 2002; Burns et al., 1999; Farmer et al., 2004). However, they did not capture all available outcome studies, and additional studies have been published since those reviews. Given that published research on wraparound seems to be growing at an increasing rate, it is important to conduct regular reviews of the literature to characterize the status of wraparound’s evidence base.

The primary goal of the present narrative review was to identify and summarize the full scope of wraparound outcome studies, to serve as a resource for researchers and practitioners. While traditional reviews of outcome studies may use inclusion criteria to analyze only studies with the most rigorous designs, the current review was intended to be more inclusive of the full breadth of outcome studies on wraparound. Because much of the outcome literature on wraparound is composed of program evaluations, the studies are often not published in traditional outlets (e.g., peer-reviewed journals). Such studies are often referred to as “gray literature” (Petticrew & Rob-

erts, 2006, p.90). This does not make them less important for a review (Lipsey & Wilson, 2001), just more difficult to find. Therefore, the authors acknowledge that the present review may not capture all empirical studies on wraparound. With this recognition, this review is conceptualized as a resource as well as a working document that will most likely need to be revised and amended as more studies on wraparound are conducted and identified.

Method

Selection Criteria

Studies chosen for this review evaluated interventions following the wraparound process at the child and family level. Because the goal was to provide a comprehensive resource to the field, selection criteria were chosen that were much more inclusive than most reviews. More specifically, the following selection criteria were chosen.

Intervention. The team-based planning process used in the study must have been identified as wraparound or sufficiently described by the authors as sharing the primary components of wraparound (see related descriptions elsewhere in this *Resource Guide*). Interventions that included community-based planning for children with emotional and behavioral disorders (e.g., case management), but did not explicitly incorporate other wraparound principles were excluded. Similarly, systems of care evaluation studies that followed similar principles as wraparound but were evaluated primarily at the system rather than the individual family level were also excluded.

Participants. The target population of the study was children or adolescents (5 to 22 years) with SEBD and significant functional impairment. Evidence of significant functional impairment included those at-risk of (or returning from) an out-of-home placement (e.g., psychiatric hospital, residential treatment center, juvenile justice facility, foster care), as this is a common target population for wraparound.

Design. Study design selection criteria were especially liberal to allow a full breadth of outcome studies on wraparound. As such, experimental (e.g., randomized controlled trials), quasi-experimental (e.g., non-randomized group compari-

sons), and non-experimental designs (e.g., single group pretest-posttest) were permitted. Qualitative and quantitative single subject designs were also permitted.

Outcomes. Study outcomes must have included measures of child functioning in their homes, schools, or communities. This could include emotional or behavioral functioning, academic or job performance, violence or delinquency, changes in living situation, or substance use.

Timeframe and Language. The study must have been made available between January 1, 1986 and February 29, 2008. This timeframe was



chosen because the wraparound process, as it is currently conceptualized, was reported to have begun in 1986 (VanDenBerg, 1999). To be accessible to the researchers, the study had to be in English.

Literature Search

Eligible studies for this review were identified through electronic and manually based searches of the literature. First, 16 studies identified in previous reviews were included.¹ Second, electronic databases (Web of Science, PsycINFO and ERIC) were used to search for the keywords: *wrap-around*, *wrap-around*, *individualized services*, and *individualized service plans*. Third, a manual search was conducted of the *Journal of Child and*

Family Studies, *Journal of Emotional and Behavioral Disorders*, and the annual research conference proceedings of *A System of Care for Children's Mental Health: Expanding the Research Base* hosted by the University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health. These three sources were chosen for a manual search because traditionally they have been the primary outlets for research on wrap-around.

Findings

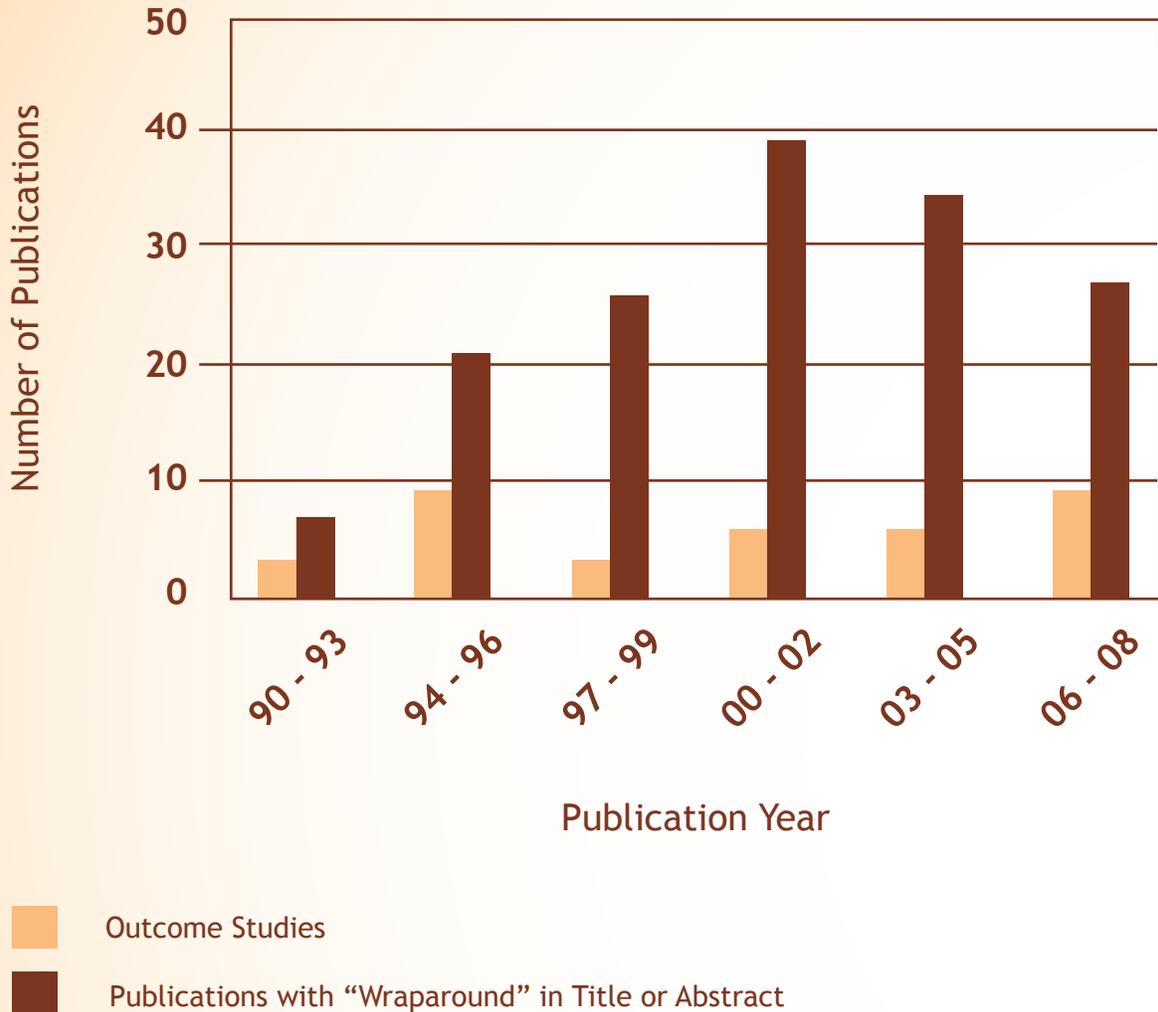
Study Characteristics

The literature search yielded 36 studies (20 more than the latest review, Farmer et al., 2004), presented in 56 separate reports. When multiple reports were available for the same study, all citations were included in this review. Additional reports for the same studies seemed to reflect either updates (earlier reports represented preliminary findings; Vernberg, Jacobs, Nyre, Puddy, & Roberts, 2004; Vernberg et al., in press), moves from unpublished to published sources (e.g., conference proceedings to journal article; Anderson, Kooreman, Mohr, Wright, & Russell, 2002; Anderson, Wright, Kooreman, Mohr, & Russell, 2003), or presentation of findings in evaluation reports and publications (Evans, Armstrong, Kuppinger, 1996; Evans, Armstrong, Kuppinger, Huz, & Johnson, 1998). Of these 56 separate reports, the most common outlet (45%) were peer-reviewed journals ($n = 25$), followed by conference proceedings ($n = 19$), book chapters ($n = 4$), doctoral dissertations ($n = 3$), federal reports ($n = 2$), paper presentations ($n = 2$), a manuscript submitted for publication, and a published monograph.

Focusing on the 36 unique studies, over 60% ($n = 22$) resulted in at least one publication in a peer-reviewed journal. The remaining studies were presented in conference proceedings ($n = 9$) dissertations ($n = 3$), 1 published monograph, and 1 paper presentation. Research designs included: 23 pretest-posttest single group designs; 6 quasi-

1. Studies identified from previous reviews are noted in Tables 2 - 5.

Figure 1. Number of Wraparound Publications by Year Including All Publications with “Wraparound” in Title or Abstract



n = 174) retrieved from PsycINFO (1/1986 through 2/2008) and primary outcome studies meeting criteria for inclusion in this review (*n* = 36).

experimental (non-equivalent comparison group designs); 4 randomized clinical trials; and 3 single case design studies (2 qualitative and 1 multiple-baseline). The lead agencies running the wraparound initiatives across the 36 studies included mental health (*n* = 20), education (*n* = 6), child welfare (*n* = 4), juvenile justice (*n* = 4), and interagency initiatives (*n* = 2). Figure 1 presents a timeline of wraparound outcome publications (in-

cluding the 36 primary outcome studies and the 19 additional study reports). The most common publication year was 1996 (*n* = 9; the year the *Journal of Child and Family Studies* published a special issue on wraparound) followed by 2003 (*n* = 7) and 2006 (*n* = 7).

Participant Characteristics

Initial sample sizes for the 36 studies ranged

from 6 to 1031 ($M = 183.31$, $SD = 251.34$). However the largest study (Kamradt, Gilbertson, & Lynn, 2005) was an extreme outlier, being a large-scale evaluation of a statewide program. Attrition rates also varied widely, ranging from a low of 0 to a high of 92%. The majority of participant attrition was due to incomplete data rather than participants dropping out of treatment (though typically information on attrition was not reported). For example, one program stated that 324 participants received wraparound, yet data were available for only 27 (Robbins & Collins, 2003). As shown in Table 1, not all studies shared data on participant demographics, and there was great variability among the data that was presented. Participants received wraparound on average from 3 to 36 months. Mean participant ages ranged from 9 to 17 years. Approximately three-quarters of the studies presented information on participant gender (study samples ranged from 0 to 50% female), and less than two-thirds presented information on the race or ethnicity of participants (studies ranged from 0 to 73% participants identified as racial or ethnic minorities).

Narrative Review

The outcome studies are summarized in Tables 2-5, which present, respectively, single case design studies, pretest-posttest single group design

studies, quasi-experimental group comparison studies, and randomized clinical trials. Each table presents the following information: study citation and source (e.g., journal article, book chapter, etc.), a brief program description, characteristics of the participants, primary measures and study findings, and notable details of study analyses. Each row represents a unique study. In cases where multiple reports exist for the same study, they were included in the same row, and findings from the most complete set of outcomes were presented (in a few cases this involved pooling information across multiple reports). For studies that compared wraparound to a comparison or control group, effect sizes were calculated whenever sufficient information was available (e.g., means, standard deviations). By Cohen's convention (Cohen, 1992), effect sizes have been classified as small ($d = 0.20$), medium ($d = 0.50$), and large ($d = 0.80$). Grouped by study design, the following sections briefly summarize the findings of these 36 empirical studies highlighting their strengths and limitations.

Single Case Design Studies

Three single case design studies were identified. Two qualitative case studies described two of the earliest formal applications of the wraparound process (Burchard, Burchard, Sewell, &

Table 1. Participant Demographics Reported by Wraparound Outcome Studies

Demographic Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max
Sample size	36	183.31	251.34	6	1031
Mean number of months receiving wraparound	32	13.61	6.61	3	36
Mean age	26	13.05	2.40	8.8	17.3
Percentage of study participants identified as female	28	28.58	13.86	0	50
Percentage of study participants identified as racial or ethnic minority	23	34.73	23.94	0	73

Table 2. Single Case Design Studies on the Wraparound Process

Citation(s) / Source(s)	Program Description	Participants	Primary Measures / Findings	Design & Analytic Details
(Burchard et al., 1993)* <i>Published monograph</i>	Alaska Youth Initiative (AYI) <i>Lead Agency:</i> Mental Health <i>Setting:</i> urban & rural regions in Alaska <i>Duration:</i> M = 22 months (9-36)	N=10 SEBD youth with history of residential treatment <i>Age:</i> 9-21, M=17.1 <i>Sex:</i> 50% female <i>Race/Ethnicity:</i> 60% Caucasian, 30% Native Alaskan, 10% Latino	<i>Structured interviews and record reviews:</i> 9 out of 10 youth stabilized in community settings; 5 no longer requiring services, 4 receiving less intensive services, and 1 not stabilized in community	Qualitative retrospective analysis Participants selected because rated “successful” and “instructive” cases by AYI staff from initial sample of 84
(Cumblad, 1996)* Cited in (Burchard et al., 2002) <i>Doctoral dissertation</i>	Kaleidoscope Program <i>Lead Agency:</i> Private child welfare agency <i>Setting:</i> urban setting in Chicago, IL <i>Duration:</i> M = 36 months	N=8 SEBD youth referred due to high-risk behaviors <i>Age:</i> unknown <i>Sex:</i> unknown <i>Race/Ethnicity:</i> unknown	<i>Interviews and record review:</i> At assessment no youth were displaying problems behaviors that led to referral, no evidence of abuse/neglect, four youths reunited with families, two not reunited but ongoing contact (remaining two youths’ parents were deceased)	Qualitative retrospective analysis
(Myaard et al., 2000)* <i>Journal article</i> (Myaard, 1998) <i>Conference proceedings</i>	Wraparound Initiative <i>Lead Agency:</i> Juvenile Justice <i>Setting:</i> rural Michigan <i>Duration:</i> M = 8.6 months (7-10)	N = 6 SEBD youth (with attrition: N = 4) <i>Age:</i> 14-16, M = 14.7 <i>Sex:</i> 100% male <i>Race/Ethnicity:</i> 100% Caucasian	<i>DAIC:</i> was used to provide daily longitudinal ratings of compliance (improved), peer interactions (improved), physical aggression (improved), alcohol/drug use (eliminated), and verbal abuse (improved) <i>CAFAS:</i> substantial reductions in CAFAS scores	Multiple baseline study Parent provided daily rating of behaviors and was not blind to start of treatment

Note: SEBD = serious emotional and behavioral disorders; DAIC = Daily Adjustment Indicator Checklist; CAFAS = Child and Adolescent Functioning Scales

* *Report included in a previous review*

VanDenBerg, 1993; Cumblad, 1996). These two studies have frequently been cited in the literature as providing compelling evidence for the positive changes wraparound can achieve for children with SEBD (Burns, 2002; Burns et al., 1999). The first study, conducted as a doctoral dissertation, provided a retrospective qualitative analysis of eight youth with SEBD receiving care through Chicago's Kaleidoscope Program (Cumblad, 1996). This program targeted children in the child welfare system with histories of abuse and neglect. After receiving services through Kaleidoscope for an average of three years, there was no longer any evidence of maltreatment and none of the participants were removed from their families. Further, the participants no longer presented the behaviors that led to their initial referrals.

Burchard and his colleagues authored a thorough description and evaluation of the Alaska Youth Initiative ([AYI] Burchard et al., 1993). AYI was modeled after the Kaleidoscope Program, and the authors' description of the model of care closely paralleled that program. This evaluation was also conducted retrospectively using qualitative data from interviews and record reviews of ten children with SEBD. Overall, nine of the youth were successfully maintained in community settings following the intervention (five no longer required services and four needed less intensive supports).

Myaard and his colleagues (Myaard, Crawford, Jackson, & Alessi, 2000) conducted a multiple-baseline study of four adjudicated children participating in a wraparound program in rural Michigan. This design demonstrates the effect of an intervention by showing that outcome change occurs with (and only with) the introduction of wraparound at different points in time. The authors used the Daily Adjustment Indicator Checklist (Bruns, Woodworth, Froelich, & Burchard, 1994) to track five daily behavioral ratings (compliance, peer interactions, physical aggression, alcohol and drug use, and extreme verbal abuse) for each of the youth. Participants began receiving wraparound after 12, 15, 19, and 22 weeks. For all four participants, on all five behaviors, dramatic improvements occurred immediately following the introduction of wraparound.

Bickman and his colleagues (2003) criticized this study on the grounds that it had a small sam-

ple size and lacked a control group. These concerns need to be addressed because they represent a misunderstanding of the multiple-baseline approach. The purpose of the small sample size in the multiple-baseline approach is to collect a wealth of data before and after an intervention begins (in this case daily ratings for one year). If the pattern of data changes abruptly with the start of treatment, one can be much more confident about making a causal inference than if only two data points (pretest and posttest) had been collected. While no specific rules exist regarding how many baselines a study should have, Kazdin has suggested "two baselines are a minimum, but another one or two can measurably strengthen the demonstration" (Kazdin, 2002, p. 219). Bickman and colleagues (2003) also implied that causal inferences could not be made because the study did not have a control group. On the contrary, the experimental nature of multiple-baseline designs makes them well suited for addressing threats to internal validity. A more inherent limitation of this design is with external validity (i.e., generalizability of findings); however, this problem pervades many of the between-group designs in the literature as well (Kazdin, 2002).

These case studies provided a wealth of qualitative information regarding both outcomes and implementations of wraparound. As descriptions of the Kaleidoscope Program and AYI, they have been used as rationale and as guides for creating new wraparound interventions around the U.S. However, it is important to note that these case studies do not provide definitive evidence connecting wraparound and positive outcomes. No comparison groups were used, participants were not selected at random (in fact the participants from AYI were selected because they were deemed successful cases), and findings were collected retrospectively. As such, selection bias is a strong threat to validity. Therefore, the studies should be interpreted as offering evidence for *potential* or *best case* outcomes.

Single Group Pretest-Posttest Studies

The majority of the outcome studies reviewed ($n = 23$) used a pretest-posttest, no control group design (Anderson et al., 2003; Bartley, 1999; Brothers, McLaughlin, & Daniel, 2006; Bruns, Burchard,

Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Anderson et al., 2003) <i>Journal article</i>	Dawn Project System of Care <i>Lead Agency:</i> Mental Health <i>Setting:</i> Marion County Indiana <i>Duration:</i> 12 months	N = 384 SEBD youth (with attrition: N = 156) <i>Age:</i> M = 13 <i>Sex:</i> 35% female <i>Race/Ethnicity:</i> 70% African American or biracial	<i>CAFAS:</i> significant improvement in clinical functioning (total scores) Decrease in percentage of youth in restrictive living placements Completing project was related to a significant drop in recidivism rates	
(Anderson et al., 2002)* <i>Conference proceedings</i>				
(Bartley, 1999) <i>Doctoral dissertation</i>	Children's Health and Mental Health Preservation Services <i>Lead Agency:</i> Mental Health <i>Setting:</i> Philipsburg, PA; supports in home & school <i>Duration:</i> 16 months	N = 25 SEBD youth (5 prematurely discharged) No attrition <i>Age:</i> 6-13, M = 9.8 <i>Sex:</i> 20% female <i>Race/Ethnicity:</i> not reported	<i>SCICA:</i> 60% of participants improved <i>CBCL:</i> 59% of participants improved <i>TRF:</i> 40% of participants improved	No tests of statistical significance
(Brothers et al., 2006) <i>Conference proceedings</i>	Project T.E.A.M. (Tools, Empowerment, Advocacy, & Mastery) <i>Lead Agency:</i> Juvenile Justice <i>Setting:</i> Urban; King County, WA <i>Duration:</i> 12 months	N = 99 SEBD youth involved with court system <i>Age:</i> 7-17, M = 14.7 <i>Sex:</i> 37.4% female <i>Race/Ethnicity:</i> 62.6% Caucasian, 18.2% African American, 11.1% Multi-racial, 10.1% American Indian, 2% Asian, 1% Hawaiian/Pacific Islander, (6.1% Hispanic)	No significant changes were found for number or type of parent reported community connections (i.e., relationships). <i>CAFAS:</i> Significant improvements in CAFAS total score from intake to 12 months	Purpose of study was to compare effects for Caucasian and minority youth.

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Bruns et al., 1995)* <i>Journal article</i>	Vermont's statewide wrap-around initiative <i>Lead Agency:</i> Mental Health <i>Setting:</i> urban & rural areas <i>Duration:</i> 12 months	N = 27 SEBD youth <i>Age:</i> 8-18, M = 13.6 <i>Sex:</i> 30% female <i>Race/Ethnicity:</i> not reported	<i>CBCL:</i> significant improvement on total, internalizing, and externalizing scales <i>DAIC:</i> significant improvement on total negative behaviors <i>ROLES:</i> no significant change <i>Costs:</i> no significant change	
(Bruns et al., 2005) <i>Journal article</i>	Nebraska Family Central System of Care <i>Lead Agency:</i> Mental Health <i>Setting:</i> Rural <i>Duration:</i> 6 months	N = 36 families with youth with SEBD Sample was split into two overlapping groups to compare fidelity and outcome data. Only one group is included in present review (n = 32). <i>Age:</i> 6-17, M = 12 <i>Sex:</i> 19% female <i>Race/Ethnicity:</i> 100% Caucasian	Means and standard deviations reported in article showed outcomes moved in negative direction for: <i>-BERS Total Score</i> <i>-ROLES</i> <i>-FSQ Satisfaction with services</i> <i>-FSQ Satisfaction with progress</i> One small positive effect was found with CAFAS Total Score	Purpose of study was to examine relationship between fidelity and outcomes, so no analyses were conducted on outcomes alone
(Clarke et al., 1992)* <i>Journal article</i>	Project wraparound providing individualized services to youth <i>Lead Agency:</i> Mental Health <i>Setting:</i> rural New England; in home & school <i>Duration:</i> 12-24 months	N = 28 SEBD youth receiving services in home and school [with attrition: school (n=12) home (n=19)] <i>Age:</i> 5-18, M = 11 <i>Sex:</i> 100% male <i>Race/Ethnicity:</i> 53% Native American 47% Caucasian	<i>CBCL (home):</i> significant improvement on total, internalizing, and externalizing scales <i>TRF (school):</i> no significant improvement on total, internalizing, and externalizing <i>SCRS:</i> significant improvement at home but not school <i>Connors Hyperkinesis Index:</i> significant improvement at home but not school <i>Child Well-Being Scale:</i> significant improvement	Outcomes examined separately for home and school-based wrap-around groups

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Copp et al., 2007) <i>Journal article</i>	Georgia SAMHSA Site <i>Lead Agency:</i> Mental Health <i>Setting:</i> Rural <i>Duration:</i> not reported (data collected every 6 months)	N = 15 youth with SEBD with pretest-posttest data (out of a larger group of 45) <i>Age:</i> 8-14, M = 10.5 <i>Sex:</i> 46.7% female <i>Race/Ethnicity:</i> 53.3% Caucasian, 46.7% African American	<i>CAFAS (total) and CBCL (total):</i> No statistically significant improvements were found over 6 months	
(Eber et al., 1996a)* <i>Journal article</i>	Wraparound in Schools (WAIS) & wraparound Inter-agency Network (WIN) <i>Lead Agency:</i> Education <i>Setting:</i> school-based <i>Duration:</i> 9 months	N = 44 [2 groups: WIN (n = 25) WAIS (n = 19)] <i>Age:</i> not reported <i>Sex:</i> 11% female <i>Race/Ethnicity:</i> 86% Caucasian, 7% African American, 7% Other	<i>ROLES:</i> positive change (statistical significance not reported) <i>CBCL, TRF, CAFAS</i> data provided only for baseline	No tests of statistical significance
(Eber et al., 1996b)* <i>Conference proceedings</i>	Emotional and Behavioral Disability Partnership Initiative <i>Lead Agency:</i> Education <i>Setting:</i> state-wide in Illinois <i>Duration:</i> M = 12 months	N = 81 (at baseline) [with attrition: <i>CBCL</i> (n=25), <i>FACES</i> (n=46) <i>CAFAS</i> , <i>TRF</i> , <i>ROLES</i> (not reported)] <i>Age:</i> 7-19, M = 14.64 <i>Sex:</i> 18% female <i>Race/Ethnicity:</i> not reported	<i>CBCL:</i> significant improvement for females on internalizing scale; no significant improvements for males and females on externalizing and males on internalizing <i>TRF:</i> no significant changes <i>CAFAS:</i> significant improvements in performance and mood scales only; not significant: behavior, thinking, and drugs <i>FACES:</i> significant improvement for both adaptability and cohesiveness <i>ROLES:</i> positive change (statistical significance not reported)	

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Eber & Hyde, 2006) <i>Conference proceedings</i>	Illinois Positive Behavior Interventions and Supports <i>Lead Agency:</i> Education <i>Setting:</i> public schools in Illinois <i>Duration:</i> outcomes measured at 3 months	N = 22 students with EBD <i>Age:</i> not reported <i>Sex:</i> not reported <i>Race/Ethnicity:</i> not reported	Study used internal assessment instruments to compare findings at intake to 3 months: -Reported need for behavioral supports in classroom decreased -No change reported in classroom behaviors -Significant improvements in academic performance -Reported improvements in emotional and behavioral functioning at home (not at school) -No reported improvements in functioning for medical/safety, social, or spiritual functioning -Significant reduction in 3 out of 10 high-risk behaviors -Parents were significantly more satisfied with program after 3 months	
(Hyde et al., 1995) <i>Conference proceedings</i>	Family Preservation Initiative of Baltimore City <i>Lead Agency:</i> Child Welfare <i>Setting:</i> urban <i>Duration:</i> M = 9.73 months	N = 70 SEBD youth <i>Age:</i> 9-21, M = 15.97 <i>Sex:</i> 36% female <i>Race/Ethnicity:</i> 67% African American, 33% Caucasian	<i>Costs:</i> lower than out-of-state residential placement (\$269/day vs. \$216/day) <i>ROLES:</i> shift from 20% to 88% of youth with living situation no more restrictive than group home Critical behaviors (suspension, hospitalization, suicide attempts, arrests) assessed post only	No tests of statistical significance

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Illback, Nelson, & Sanders, 1998) <i>Book chapter</i> (Illback et al., 1993)* <i>Journal article</i>	Kentucky IMPACT Program <i>Lead Agency:</i> Mental Health <i>Setting:</i> rural and urban <i>Duration:</i> 16.43 months	N = 954 SEBD youth With attrition: CBCL (N=431) ROLES (N=953) <i>Age:</i> 0-21 <i>Sex:</i> 29.1% female <i>Race/Ethnicity:</i> not reported	CBCL: significant improvement on total, internalizing, externalizing, and social competence scales ROLES: significant decrease in participants in hospital placements, but also significant increase in residential placements	
(Kamradt et al., 1998; Seybold & Gilbertson, 1998) <i>Conference proceedings</i> (Kamradt, 1996)* <i>Paper presentation</i> Cited in (Burchard et al., 2002)	Wraparound Milwaukee Pilot Project update <i>Lead Agency:</i> Mental Health <i>Setting:</i> initially residential treatment center then community, urban <i>Duration:</i> M = 20.18 months	N = 25 SEBD youth placed in residential services <i>Age:</i> M = 14.36 <i>Sex:</i> 36% female <i>Race/Ethnicity:</i> 52% Caucasian, 44% African American, 2% Hispanic	Living situation: At the end of the two-years, the majority of youth had transition to less restrictive living situations: home (n=10), foster home (n=11), residential (n=2), corrections (n=2) School performance: 21 participants were rated as improved Costs: wraparound service plan less than 1/3 cost of residential placement	No tests of statistical significance
(Kamradt et al., 2005) <i>Book chapter</i> (Kamradt, 2000; Kamradt & Meyers, 1999) <i>Journal articles</i>	Wraparound Milwaukee <i>Lead Agency:</i> Mental Health <i>Setting:</i> Milwaukee County, WI, urban <i>Duration:</i> at least 12 months	N = 1031 SEBD youth receiving wraparound With attrition: CBCL (n=383); YSR (n=278); CAFAS (n=543) <i>Age:</i> M = 14.2 <i>Sex:</i> 20% female <i>Race/Ethnicity:</i> 65% African American, 27% Caucasian, 7% Hispanic, 1% Native American	<i>CBCL:</i> Significant reductions in mean T-scores from intake (73) to 6 months (64) to 12 months (55) <i>YSR:</i> Significant reductions in mean T-scores from intake (56) to 6 months (50) to 12 months (45) <i>CAFAS:</i> Significant reductions in total scores from intake (74) to 6 months (60) to 12 months (54)	Demographics not reported, but available from previous report (Kamradt & Meyers, 1999)

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Kutash et al., 2002) <i>Journal article</i></p>	<p>School, Family, and Community Partnership <i>Lead Agency:</i> Education <i>Setting:</i> school-based <i>Duration:</i> 2 years</p>	<p>N = 23 ED students With attrition: N = 15 <i>Age:</i> M = 11.7 <i>Sex:</i> 13% female <i>Race/Ethnicity:</i> 78% Caucasian</p>	<p><i>CBCL:</i> no significant improvements on total, internalizing, and externalizing <i>CAFAS:</i> no significant improvements <i>WRAT-III:</i> no significant improvements reading & math <i>Discipline referrals:</i> significant decrease <i>% of day in special education:</i> no change <i>Absences:</i> no change <i>Fidelity:</i> significantly related to reading scores but no other outcomes</p>	<p>Initially study had a matched comparison group but dropped due to high and differential attrition Fidelity measure</p>
<p>(Levison-Johnson & Gravino, 2006) <i>Conference proceedings</i></p>	<p>Monroe County Youth and Family Partnership <i>Lead Agency:</i> Interagency <i>Setting:</i> Monroe County, NY <i>Duration:</i> not reported</p>	<p>N = 84; 2 cohort groups: n = 29 & n = 55 <i>Age:</i> not reported <i>Sex:</i> not reported <i>Race/Ethnicity:</i> not reported</p>	<p><i>CAFAS:</i> Functioning from intake to “most recent CAFAS scores” was measured. 69% of group 1 (and 71% of group 2) showed improvements in CAFAS Total Scores</p>	<p>No tests of statistical significance</p>
<p>(Lyman & de Toledo, 2002) <i>Conference proceedings</i></p>	<p>Family Advocacy, Stabilization, and Support Team (FASST) <i>Lead Agency:</i> Mental Health <i>Setting:</i> intensive home-based program in Massachusetts <i>Duration:</i> M = 4.5 months</p>	<p>N = 79 SEBD youth <i>Age:</i> 4-19 <i>Sex:</i> not reported <i>Race/Ethnicity:</i> not reported</p>	<p><i>CAFAS:</i> Reductions in mean total scores from intake (98) to discharge (80) <i>GAF:</i> Increase in mean scores from intake (49) to discharge (56)</p>	<p>No tests of statistical significance</p>

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Robbins & Collins, 2003) <i>Conference proceedings</i>	Bridges Project school-based wraparound <i>Lead Agency:</i> Education <i>Setting:</i> schools in rural Kentucky <i>Duration:</i> 12 months	N = 324 SEBD students With attrition: N = 27 <i>Age:</i> M = 12.4 <i>Sex:</i> 28% female <i>Race/Ethnicity:</i> 97% Caucasian	<i>CBCL:</i> decrease in mean total problems from baseline (71) to 12 months (62) <i>CAFAS:</i> improved mean total scores from baseline (104) to 12 months (79) <i>School indicators:</i> higher grades, fewer suspensions/detentions	No tests of statistical significance Large attrition due to incomplete data for post-treatment
(Taub et al., 2006; Taub & Pearrow, 2007) <i>Conference proceedings</i>	Coordinated Family Focused Care Initiative <i>Lead Agency:</i> Interagency <i>Setting:</i> 5 sites in Massachusetts <i>Duration:</i> enrolled for at least 6 months	Reports present data from two overlapping samples Sample 1: N = 159 youth with SEBD at risk of residential placement Sample 2: N = 377; 6 months (n=343) & 12 months (n=163) <i>Age:</i> not reported <i>Sex:</i> not reported <i>Race/Ethnicity:</i> not reported	Repeated measures analyses revealed significant improvements for the following scales: Sample 1: <i>CAFAS Total Score:</i> intake (142.9) to 9 months (101.7) <i>Child symptoms (YOQ):</i> intake (101.6) to 6 months (92.9) <i>BERS:</i> intake (98.7) to 6 months (104.5) Sample 2: <i>CAFAS School Scale:</i> intake (26.7) to 12 months (22.3) <i>BERS:</i> improvements in all domains (except School) at 6 months <i>School disciplinary data:</i> No improvements at 6 months	Fidelity measure
(Toffalo, 2000) <i>Journal article</i>	Nonprofit service agency providing wraparound <i>Lead Agency:</i> Mental Health <i>Setting:</i> rural Pennsylvania <i>Duration:</i> at least 6 months	N = 33 SEBD youth With attrition: N = 28 <i>Age:</i> 4-7, M = 8.78 <i>Sex:</i> 39% female <i>Race/Ethnicity:</i> 100% Caucasian	<i>CBCL:</i> significant improvement on total scale score <i>Fidelity metric:</i> not significantly related to outcomes; however metric was not specific to wraparound (mean # treatment hours provided/mean # of hours prescribed)	

CONTINUED: Table 3. Single Group Pretest-Posttest Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
(Vernberg et al., 2004; in press; 2006) <i>Journal articles</i>	Intensive Mental Health Program a school-based program with home and service coordination <i>Lead Agency:</i> Education <i>Setting:</i> Lawrence, Kansas <i>Duration:</i> M = 12 months	N = 58 SED elementary school students N = 50 with attrition <i>Age:</i> 5-13, M = 9.6 <i>Sex:</i> 27% female <i>Race/Ethnicity:</i> 70% Caucasian, 16% African American, 8% Native American, 4% Biracial	CAFAS: average statistical (and clinical) significant improvements from intake to discharge on total scores. 42 of 50 enrolled students showed clinically significant improvement CAFAS: statistical improvements on CAFAS subscales: school performance, home performance, behavior, moods, self-harm, thinking; no improvements on community performance, material needs, and family / social support BASC: Average ratings moved from “clinically significant” to “at risk” for total behavioral functioning	Fidelity measure (see (Randall, et al., in press)
(Yoe et al., 1996)* <i>Journal article</i>	Vermont’s Wrap-around Care Initiative <i>Lead Agency:</i> Mental Health <i>Setting:</i> urban & rural settings <i>Duration:</i> at least 12 months	N = 40 SEBD youth <i>Age:</i> 7-20, M = 16 <i>Sex:</i> 48% female <i>Race/Ethnicity:</i> not reported	ROLES: significant decrease in mean level of restrictiveness and increase in community placements QAIC: significant decreases in total, externalizing, internalizing, and abuse related problems, but not public externalizing problems.	

Note. SEBD = serious emotional and behavioral disorders

Outcome measures abbreviations:

BASC = Behavior Assessment System for Children; BERS = Behavioral and Emotional Rating Scale; CAFAS = Child and Adolescent Functioning Scales; CBCL = Child Behavior Checklist; DAIC = Daily Adjustment Indicator Checklist; FACES = Family Adaptability and Cohesiveness Evaluation Scales; FSQ = Family Satisfaction Questionnaire; GAF = Global Assessment of Functioning; QAIC = Quarterly Adjustment Indicator Checklist; ROLES = Restrictiveness of Living Environment Scale ; SCICA = Semi-structured Clinical Interview for Children and Adolescents; SCRS = Self-Control Rating Scale; SSRS = Self-Control Rating Scale; TRF = Teacher Report Form; WRAT-III = Wide Range Achievement Test; YOQ = Youth Outcomes Questionnaire; YSR = Youth Self Report.

***Report included in a previous review**

Table 4. Quasi-Experimental Group Comparison Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Bickman et al., 2003)* <i>Journal article</i></p> <p>(Bickman et al., 2002) <i>Federal report</i></p>	<p>Department of Defense managed care delivery of wraparound</p> <p><i>Lead Agency:</i> Mental Health</p> <p><i>Setting:</i> generally rural across 16 states</p> <p><i>Duration:</i> 6 months</p>	<p>N = 612 SEBD youth With attrition: N = 111</p> <p>2 Groups: wrap-around (n=71) Treatment as Usual (n=40)</p> <p><i>Age:</i> 4-16, M = 12.2</p> <p><i>Sex:</i> 42% female</p> <p><i>Race/Ethnicity:</i> 72% Caucasian</p>	<p>Service utilization for case management, in-home treatment, and nontraditional services higher for Wrap & lower discontinuity of care</p> <p>Pre-post data (CBCL, YSR, VFI) reported significant improvements over time, but amount of improvement equal across groups</p> <p>7-wave longitudinal measures (Ohio Scales) reported no significant improvements over time, and no differences between groups</p> <p>Costs were significantly higher (42%) for Wrap group</p>	<p>Analyses only available in federal report</p> <p>Insufficient data to calculate effect sizes</p>
<p>(Bruns et al., 2006) <i>Journal article</i></p> <p>(Rast et al., 2007) <i>Unpublished manuscript</i></p> <p>(Peterson et al., 2003; Rast et al., 2003) <i>Conference proceedings</i></p>	<p>Wraparound in Nevada</p> <p><i>Lead agency:</i> Child Welfare</p> <p><i>Setting:</i> urban & rural</p> <p><i>Duration:</i> 18 months</p>	<p>N = 67 SEBD youth in custody of child welfare</p> <p>2 Groups: wrap-around (n = 33) and traditional case management + mental health services (n = 34)</p> <p><i>Age:</i> M = 11.9 years</p> <p><i>Sex:</i> 49% female</p> <p><i>Race/Ethnicity:</i> 43% Caucasian</p>	<p>Wraparound group showed greater improvements than comparison over time for:</p> <ul style="list-style-type: none"> -CBCL Total Score (d = 0.71) -CAFAS Total Score (d = 0.25) -ROLES Score (d = 0.62) -School GPA (d = 0.28) -School disciplinary (d = 0.57) <p>No differences between groups were found for</p> <ul style="list-style-type: none"> -School attendance -Juvenile Justice involvement 	<p>Used multi-level modeling to analyze changes between groups over time</p> <p>Fidelity measure</p>

CONTINUED: Table 4. Quasi-Experimental Group Comparison Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Hyde et al., 1996)* <i>Journal article</i></p>	<p>Family Preservation Initiative of Baltimore City, Inc. <i>Lead Agency:</i> Mental Health <i>Setting:</i> urban <i>Duration:</i> 6 - 36 months</p>	<p>N = 107 SEBD youth 4 Groups: 2 received wraparound either following (WR, n=25) or instead of residential treatment (WD, n=24); 2 received traditional services and measured before receiving wraparound (PW, n=39) or did not receive wraparound (NW, n=19) With attrition: N = 69 WR (n=21) WD (n=24) PW (n=14) NW (n=10) <i>Age:</i> M = 17.28 <i>Sex:</i> 25% female <i>Race/Ethnicity:</i> 63% African American</p>	<p><i>Community adjustment rating in "good" range: Higher for wraparound groups WR had higher % in good range than PW (d=0.76) and NW (d=1.53) and WD higher than PW (d=0.72) and WD (d=1.49)</i> <i>% of youth with more than 10 days community involvement: WR higher than PW (d=0.53) and NW (d=1.94); WD higher than PW (d=0.28) and NW (d=1.69)</i></p>	<p>No tests of statistical significance</p>
<p>(Pullmann et al., 2006) <i>Journal article</i></p>	<p>Connections Program in Clark County, WA <i>Lead agency:</i> Juvenile Justice <i>Setting:</i> not reported <i>Duration:</i> M = 11.2 months (range: 1 to 24.5 months)</p>	<p>N = 204 juvenile offenders with SEBD 2 groups: youth in Connections Program (n = 106) and a historical comparison group (n = 98) <i>Age:</i> M = 15.2 years <i>Sex:</i> 31% female <i>Race/Ethnicity:</i> 88% White</p>	<p>Analyses demonstrated lower recidivism for wraparound group for: -Any type of offense (d = 0.25) -Felony offense (d = 0.26) -Whether they served in detention (d = 0.85) For those who did serve in detention, -Number of days served in detention (d = 0.66) -Number of times served in detention (d = 0.76)</p>	<p>Cox regression time-to-event analyses</p>

CONTINUED: Table 4. Quasi-Experimental Group Comparison Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Resendez, 2002) <i>Conference proceedings</i></p>	<p>Riverside County Department of Mental Health provided “flexible wraparound funding” <i>Lead Agency:</i> Mental Health <i>Setting:</i> not reported <i>Duration:</i> not reported intake to discharge</p>	<p>N = 485 SEBD youth 2 groups: receiving flexible funds (n=284) and a group receiving services but not flexible funds (n=201) With attrition: flex funds (n=60), attrition for comparison not reported <i>Age:</i> M = 13 years <i>Sex:</i> majority male <i>Race/Ethnicity:</i> majority White</p>	<p><i>CAFAS:</i> significant improvement in total scores from intake to discharge for flexible funds (71 to 51) and non-flexible funds (73 to 50); there were no between group differences</p>	<p>Insufficient data available to calculate effect sizes</p>
<p>(Stambaugh et al., 2007) <i>Journal article</i> (Reay et al., 2003; Stambaugh et al., 2008) <i>Conference proceedings</i></p>	<p>Nebraska Family Central System of Care <i>Lead Agency:</i> Mental Health <i>Setting:</i> Rural <i>Duration:</i> Months in treatment differed for wraparound (M=15), MST (M=5.5), and wrap + MST (M=10.2) groups</p>	<p>N = 320 SEBD youth 3 Groups: wraparound (n=213), MST (n=54), both (n=53) With attrition: 6 months (n=285), 12 months (n=230), 18 months (n=202) <i>Age:</i> M = 12 years (4 to 17.5 years) <i>Sex:</i> 27% female <i>Race/Ethnicity:</i> 90% White, 4% American Indian, 6% Other (11% Hispanic)</p>	<p><i>CBCL:</i> significant improvement in total scores from intake to 18 months for all groups. Significant Group x Time interaction effect with the trajectory of the MST group showing significantly greater improvement than wraparound group. <i>CAFAS:</i> significant improvement in total scores from intake to 18 months for all groups; however, there were no significant between group differences</p>	<p>Linear mixed models No control group Insufficient data available to calculate effect sizes Fidelity measure</p>

Note. SEBD = serious emotional and behavioral disorders. Outcome measures abbreviations: CAFAS = Child and Adolescent Functioning Scales; CBCL = Child Behavior Checklist; ROLES = Restrictiveness of Living Environment Scale; TRF = Teacher Report Form; VFI = Vanderbilt Functional Impairment Scale; YSR = Youth Self Report.

**Report included in a previous review*

Table 5. Experimental Randomized Controlled Trial Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Carney et al., 2003) <i>Journal article</i></p>	<p>Juvenile Delinquency Task Force Implementation Committee (JDIC) demonstration project <i>Lead Agency:</i> Juvenile Justice <i>Setting:</i> Urban <i>Duration:</i> 18 months</p>	<p>N = 307 youth referred to court or adjudicated and/or entered children's services for delinquent behaviors With attrition: N=141 2 groups: wraparound (n=73) and conventional services (n=68) <i>Age:</i> M = 14.8 <i>Sex:</i> 38% female <i>Race/Ethnicity:</i> 50% Caucasian 48% African American 1% Biracial</p>	<p>Wraparound group missed less school (d=0.48), suspended less (d=0.48), less likely to run from home (d=0.46), less assaultive (d=0.47), and less likely to be stopped by police (d=0.51), but conventional services more likely to have a job (d=-0.39). Wraparound group somewhat less likely to be arrested (d=0.23) somewhat more likely to be incarcerated (d=-0.18)</p>	
<p>(Clark et al., 1998)* <i>Book chapter</i> (Clark et al., 1997) <i>Conference proceedings</i> (Clark et al., 1996) <i>Journal article</i></p>	<p>Fostering Individualized Assistance Program (FIAP) <i>Lead Agency:</i> Child Welfare <i>Setting:</i> foster care in Florida <i>Duration:</i> not reported</p>	<p>N = 132 SEBD youth in foster care 2 groups: FIAP (n=54) and standard practice (SP) foster care (n=78) With attrition: SP (n=77) <i>Age:</i> 7-15 <i>Sex:</i> 40% female <i>Race/Ethnicity:</i> 62% Caucasian, 33% African American, 5% Hispanic & biracial</p>	<p><i>Permanency status:</i> FIAP group significantly more likely to live in permanency-type setting following program Significantly fewer days on run-away and fewer days incarcerated for FIAP No group differences on rate of placement changes, days absent, & days suspended <i>DISC conduct disorder:</i> FIAP males showed significantly less, but FIAP females significantly more <i>Delinquency score:</i> FIAP males demonstrated significantly less YSR (n=43) & CBCL (n=41) <i>Internalizing & Total scores:</i> no repeated measures differences; yet significantly smaller % boys (not girls) in clinical range for FIAP <i>Externalizing:</i> repeated measures showed significant improvement over time for boys not girls, plus significantly smaller % of FIAP group in clinical range</p>	

CONTINUED: Table 5. Experimental Randomized Controlled Trial Studies on Wraparound Process

Citation(s) & Source(s)	Program Description	Participants	Primary Measures / Findings	Analytic Details
<p>(Evans et al., 1998)* <i>Book chapter</i></p> <p>(Evans et al., 1998) <i>Evaluation report</i></p> <p>(Evans et al., 1996) <i>Journal article</i></p>	<p>Family Centered Intensive Case Management (FCICM)- similar to wraparound and Family Based Treatment (FBT)</p> <p><i>Lead Agency:</i> Mental Health</p> <p><i>Setting:</i> rural New York home-based and foster care</p> <p><i>Duration:</i> 12 months</p>	<p>N = 42 SEBD youth 2 Groups: FCICM (n=27) and FBT (n=15)</p> <p>Differential attrition among measures</p> <p>Age: 5-13, M = 9</p> <p>Sex: 10% female</p> <p>Race/Ethnicity: 83% Caucasian, 5% African American, 5% Native American, 5% Biracial, 2% Hispanic</p>	<p><i>CAFAS (n=31):</i> significant improvement for FCICM overtime on behavior and moods subscales but not role performance and cognition</p> <p><i>CBCL (n=28):</i> no significant improvements for FCICM vs. FBT overtime on total, internalizing, and externalizing scales</p> <p><i>FACES (n=35):</i> no significant differences between groups</p> <p><i>Piers-Harris (n=23):</i> no significant differences between groups</p> <p><i>TRF:</i> dropped due to missing data</p>	<p>Insufficient data available to calculate effect sizes</p>
<p>(Rast et al., 2008) <i>Paper Presentation</i></p>	<p>Wraparound as implemented by child welfare caseworkers or by wraparound facilitators hired and supported by an allied mental health agency.</p> <p><i>Lead agency:</i> Child Welfare</p> <p><i>Setting:</i> Urban and suburban Oklahoma</p> <p><i>Duration:</i> 18 months</p>	<p>N = 108 youth with high level of behavioral health needs.</p> <p>3 Groups: Wrap-around implemented by case-workers (CW Wrap; n=36), Wraparound implemented by MH (MH Wrap; n=36), treatment as usual (n=36).</p> <p>Age: 3-17</p> <p>Sex: Not reported</p> <p>Race: Not reported</p>	<p><i>Permanency:</i> Significantly more days in permanency placement and a higher percent of youth in permanency placement at 12 and 18 months for both CW Wrap and MH wrap than TAU</p> <p><i>Residential:</i> Fewer placement changes for CW Wrap than either MH Wrap or TAU; Lower restrictiveness for both wrap groups than TAU</p> <p><i>Behaviors:</i> Greater reduction in problem behaviors as reported by the Ohio Scales for CW Wrap than MH Wrap or TAU</p> <p><i>Functioning:</i> Greater reduction in CAFAS scores for CW Wrap than MH Wrap or TAU</p> <p><i>Caregiver Strain:</i> Greater reduction for CW Wrap than MH Wrap or TAU</p>	<p>Insufficient data available to calculate effect sizes</p> <p>Fidelity measure</p>

Note. SEBD = serious emotional and behavioral disorders. Outcome measures abbreviations: CAFAS = Child and Adolescent Functioning Scales; CBCL = Child Behavior Checklist; DISC = Diagnostic Interview Schedule for Children; FACES = Family Adaptability and Cohesiveness Evaluation Scales; TRF = Teacher Report Form; YSR = Youth Self Report.

*Report included in a previous review

& Yoe, 1995; Bruns, Suter, Force, & Burchard, 2005; Clarke, Schaefer, Burchard, & Welkowitz, 1992; Copp, Bordnick, Traylor, & Thyer, 2007; Eber & Hyde, 2006; Eber, Osuch, & Redditt, 1996a; Eber, Osuch, & Rolf, 1996b; Hyde, Woodworth, Jordan, & Burchard, 1995; Illback, Neill, Call, & Andis, 1993; Kamradt, Kostan, & Pina, 1998; Kamradt & Meyers, 1999; Kutash, Duchnowski, Sumi, Rudo, & Harris, 2002; Levison-Johnson & Gravino, 2006; Lyman & de Toledo, 2002; Robbins & Collins, 2003; Seybold, 2002; Taub & Pearrow, 2007; Tofalo, 2000; Vernberg et al., 2004; Yoe, Santarcangelo, Atkins, & Burchard, 1996). As such, they conducted within subjects comparisons across time, typically measuring outcomes at intake and 6 to 12 months later ($M = 11.63$ months, $SD = 5.39$). The advantage of this design over the qualitative case study design is that it includes larger (and ideally more representative) samples and often employs standardized measures of outcomes. However, due to lack of comparison groups, these studies cannot confirm that any observed changes occurred as a result of wraparound. Consequently, they provide evidence that wraparound may be associated with positive outcomes but do not offer the same level of confidence as provided by comparison studies.

Rather than discuss each of these 22 studies individually, key characteristics about the studies and findings were summarized. Just over half of these studies ($n = 13$) were published in peer-reviewed journals. Although all studies indicated that the participants received wraparound, the interventions were fairly heterogeneous with regard to setting, participants, and the types of outcomes measured. It should be noted that three of the studies used different samples to evaluate the same wraparound initiative (Wraparound Milwaukee, Kamradt et al., 1998; 2005; Seybold, 2002). Many of the interventions provided services in the home and community, though several others also (or exclusively) took place in schools (e.g., Eber et al., 2006). Most of the youth participants were reported to have SEBD, yet referral problems ranged from imminent risk of hospitalization to impaired functioning at school. Some interventions served primarily child or adolescent groups, while others simply targeted anyone 21 years or younger.

Examining outcome analyses from the pretest-posttest no comparison studies, approximately one

third ($n = 7$) did not conduct any tests of statistical significance and reported primarily positive effects. Of the studies that did conduct statistical analyses, significant positive effects were found for youth living situation (e.g., youth were able to return to their communities following wraparound) and reported number of negative behaviors. Other findings were more difficult to interpret due to the range of measures used. Examining two of the most commonly used measures revealed mixed results. The ten studies that used the Child Behavior Checklist ([CBCL] Achenbach & Rescorla, 2001) were evenly split between showing significant improvements ($n = 5$) and no improvement or mixed findings ($n = 5$). Nine studies used the Child and Adolescent Functional Assessment Scale ([CAFAS] Hodges, Wong, & Latessa, 1998) with only slightly more than half finding statistically significant improvements in functioning ($n = 5$). Burchard and colleagues (2002) noted that there was some evidence for greater improvements at home than at school (Clarke et al., 1992; Eber et al., 1996b; Kutash et al., 2002; Yoe et al., 1996), however the null findings in the schools could be attributed to the relatively low power of these studies.

Quasi-Experimental Studies

Five quasi-experimental studies that compared outcomes for youth enrolled in a wraparound initiative compared to usual care were identified. These studies (Bickman et al., 2003; Bruns, Rast, Peterson, Walker, & Bosworth, 2006; Hyde et al., 1996; Pullmann et al., 2006; Resendez, 2002) adopted pretest-posttest, comparison group designs without random assignment. This design exerts a greater level of control over the independent variable (i.e., provision of wraparound) than either of the previously discussed designs, allowing the researcher to be more confident that changes in outcome may be attributed to the intervention. This does not mean that this type of design allows one to unequivocally make causal inferences. Yet quasi-experimental design represents a major leap forward in methodology compared to single group design, thus each of these studies was reviewed individually.

The earliest of these quasi-experimental studies was conducted in urban Baltimore with children returned or diverted from residential out-of-

state placements (Hyde et al., 1996). The authors examined outcomes for four groups: (a) youth who received wraparound after returning from residential placement (Wrap+Return or WR), (b) youth who received wraparound as an alternative to residential placement (Wrap+Diversion or WD), (c) youth who received traditional services during the year prior to the wraparound program initiating (Prior to Wrap or PW), and (d) children who received traditional services instead of wrap-



around (No Wrap or NW). The authors stressed that the four groups were not equivalent (e.g., PW group was older, WD had not experienced residential placement), and thus they cautioned against making direct comparisons. A community adjustment scale was developed for this study to provide a single rating of several relevant indicators (restrictiveness of the youth's living situation, school attendance, job/job training attendance, and serious problem behaviors). Children received ratings of "good" if they were living in regular community placements, attending school and/or working for the majority of the week, and had fewer than three days of serious behavior problems during the course of a month.

After approximately two years of wraparound, 47% of the wraparound groups (WR and WD) received a rating of good community adjustment,

compared to 8% of children who received traditional mental health services. Unfortunately, high rates of attrition in the non-wraparound groups further compound the problem that the groups were not equivalent at baseline. As the authors stated, "this is not a comparison study" (Hyde et al., 1996, p. 70), so perhaps the biggest contributions are the identification of these groups for future comparison studies and the creation of a measurement tool that directly assessed the key indicators important to providers and families.

Bickman and his colleagues have conducted experimental evaluations of systems of care at Fort Bragg, NC (Bickman et al., 1995) and Stark County, OH (Bickman et al., 1997). More recently, they completed a quasi-experimental study on a demonstration project of wraparound through the Department of Defense (Bickman et al., 2003). A managed care company oversaw the demonstration, organizing the delivery of services hierarchically with professionals at the family level (case managers), program level (care managers), and system level (clinical management committee). The demonstration group ($n = 71$) received both traditional (e.g., psychotherapy, psychiatric hospitalization) and nontraditional services (e.g., respite, recreation services, therapeutic foster homes). A comparison group ($n = 40$, treatment as usual) was formed from families referred to the demonstration project but who refused to participate or were ineligible because the demonstration group had different exclusionary criteria.² Outcomes for the two groups were assessed from baseline to six months later.

The authors' findings included (a) largely no baseline differences between the two groups, (b) higher utilization of "wraparound services" (e.g., case management, in-home supports, and nontraditional services) for the demonstration group, (c) higher costs for the demonstration group (primarily due to this group remaining in treatment longer), and (d) no consistent differences between the groups on the outcome measures. Limita-

2. Exclusionary criteria for the demonstration that were *not* exclusionary criteria for TAU included: requiring long-term residential care, history of treatment resistant drug use, persistent antisocial behavior not resulting from a treatable mental disorder, developmental or cognitive disorder that negatively impacts treatment, conviction/adjudication for sexual perpetration, and being amenable to treatment.

tions of this study include the short time span (6 months) and whether the demonstration project truly followed the wraparound process. The authors stated that the services were community-based, included informal services, and included availability of flexible funding. However, they were not aware if any of the remaining seven elements had been followed. Strengths include the similarities between the groups at baseline, use of standardized measures, adequate power, and sophisticated data analyses.

Another quasi-experimental study (Resendez, 2002) compared groups of youth who did ($n = 284$) or did not ($n = 201$) receive “flexible wrap-around funding” (p. 243) while receiving mental health services from the same agency. Flexible funds were primarily directed toward financial aid as well as recreational and social supports. The average amount of flexible funds allotted was \$155.81. Participants’ functioning and impairment was measured at baseline and six months later. Like the previously reviewed study, significant improvements were found for both groups over time, but no between-group differences were detected. Limitations include high attrition for the flexible funds group, relatively short time span (6 months), and weak manipulation of the independent variable. With the only difference between groups being an award ranging from \$5 to \$200, a significant difference on functioning scores seems unlikely. The main strength of this study was the assessment of the impact of a single wraparound element: Flexible Resources and Funding. As researchers begin to question the importance of the hypothesized components of wraparound, dismantling studies (that investigate the impact of specific components or principles) similar to this one will be important. However, it is questionable whether this study truly meets criteria for inclusion in this review of wraparound, given our inclusion criteria.

Pullmann and colleagues (2006) conducted a two-year longitudinal matched comparison study of youth involved in the juvenile justice system and receiving mental health services. Overall, 110 youth enrolled in wraparound were compared to 98 receiving conventional mental health services. Youths in the comparison group were three times more likely to commit a felony offense during the follow up period than youths in the wraparound

group. Among youth in the wraparound program, 72% served detention “at some point in the 790 day post identification window” (p. 388), while all youth in the comparison group served detention. Of youth in the wraparound program who did serve detention, they did so significantly less often than their peers. Wraparound youth also took three times longer to recidivate than those in the comparison group. According to the authors, a previous study by Pullmann and colleagues showed “significant improvement on standardized measures of behavioral and emotional problems, increases in behavioral and emotional strengths, and improved functioning at home at school, and in the community” (p. 388) among youth in the wraparound program.

The final wraparound vs. control condition quasi-experimental study was a matched comparison pilot study conducted to demonstrate the effectiveness of the *Wraparound in Nevada* (WIN) program for youth in custody of the child welfare system due to abuse or neglect. Thirty-three youth with SEBD receiving wraparound were compared to a sample of 34 youth receiving traditional mental health services. The comparison group was matched on location, age, severity of emotional and behavioral symptoms, and residential placement. Findings from this pilot study were presented in a policy paper on wraparound (Bruns et al., 2006), two conference proceedings (Peterson, Rast, Gruner, Abi-Karam, & Earnest, 2003; Rast, Peterson, Earnest, & Mears, 2003), and a manuscript currently under review that was shared by the authors (Rast, Bruns, Brown, Peterson, & Mears, 2007). After 18 months, approximately 82% of youth in WIN moved to less restrictive environments, compared to 38% of comparison group youth, yielding a large estimated effect ($d = 0.93$). In addition, family members were identified to provide care for 11 of the 33 youth in the wraparound group (33.3%) compared to only six in the comparison group (17.6%). Mean scores on the CAFAS for youth in wraparound decreased significantly across all waves of data collection (6, 12, 18 months) in comparison to the traditional services group. More positive outcomes were also found for the wraparound cohort on school attendance, school disciplinary actions, and grade point averages. No significant differences were found in favor of the comparison group.

In addition to the positive impact found for wraparound, the study also reported fidelity data from the Wraparound Fidelity Index (WFI; Bruns et al., 2005). Scores from the WFI were quite high compared to other programs nationally (Bruns et al., 2006; Bruns, Leverentz-Brady, & Suter, in press). These results provide information for the field about the level of adherence that may be necessary to achieve outcomes such as those observed for the wraparound-enrolled youths in this study.

In addition to the five studies described above that compared outcomes for youth enrolled in wraparound to treatment as usual conditions, a unique quasi-experimental study was conducted (Stambaugh et al., 2007) that compared $n = 213$ children receiving wraparound to $n = 54$ youths receiving Multisystemic Therapy (MST; Henggeler, Schoenwald, Rowland, & Cunningham, 2002) in a single system of care in rural Nebraska. (A third group received a combination of MST and wraparound.) Although MST and wraparound have been conceptually compared (Burns, Schoenwald, Burchard, Faw, & Santos, 2000), this study provided a unique opportunity to contrast the two approaches empirically. MST has a more established evidence base than wraparound and meets criteria as an empirically supported treatment for children with conduct problems (Brestan & Eyberg, 1998). Results showed that both groups showed significant improvements in functioning as assessed by the CAFAS and behavior as assessed by the CBCL, and similar downward trajectories in scores for each of these measures. Rates of improvement in behavior problems were significantly better for the MST group; however, rates of improvement in child functioning over time were the same for the two groups.

Though the authors speculate that the results indicate greater benefit of using specific models such as MST as opposed to more general care coordination models such as wraparound, it is difficult to conclude that the results demonstrate the superiority of MST to wraparound, given that youth in the MST group were selected based on meeting criteria for MST while wraparound was used to support a much larger number of youth and families with a much more diverse set of needs. Thus, though statistical controls were used in between-group comparisons, the two groups were inher-

ently non-equivalent at baseline by definition. Nonetheless, the paper points to an important direction in wraparound outcomes studies, and provides interesting information about the types of outcomes that might be achieved for youth receiving care through these two models in a single system of care, as well as potential methods for organizing a system of care to meet the needs of a diverse group of youth and families.

Experimental Studies

Four randomized trials (Carney & Buttell, 2003; Clark, Lee, Prange, & McDonald, 1996; Evans, Armstrong, Kuppinger, Huz, & McNulty, 1998; Rast, Vetter, & Poplin, 2008) constitute the wraparound evidence base employing experimental designs. Experimental studies provide the strongest protections against threats to internal validity, thus allowing researchers to draw more confident connections between interventions and outcomes. However, one cannot assume that the findings will necessarily generalize to other settings or environments (referred to as external validity). This is a particularly noteworthy point for the randomized studies reviewed here because they represent specific groups of children receiving wraparound in several different contexts, including a foster care-based program (Clark et al., 1996; 1997; 1998), an intensive case management approach (Evans et al., 1996; Evans, Armstrong, Kuppinger, Huz, & Johnson, 1998; Evans, Armstrong, Kuppinger, Huz, & McNulty, 1998), a program for adjudicated or court-referred youths (Carney & Buttell, 2003), and a program for youth involved with the child welfare system (Rast et al., 2008). These programs were deemed consistent enough with the wraparound process to be included in the evidence base (Burchard et al., 2002); however the findings may not generalize to wraparound programs in other settings.

Clark and his colleagues (Clark et al., 1996; Clark et al., 1998) conducted the most frequently cited empirical outcome study on wraparound. Participants included children in foster care randomly assigned to either the Fostering Individualized Assistance Program ([FIAP] $n = 54$) or standard practice foster care ($n = 78$). The program provided individualized services for children in foster care with the primary goals being to achieve an ef-

fective permanency plan and improve behavioral outcomes. Findings from this study demonstrated significantly fewer placement changes for children in the FIAP program, fewer days on runaway, fewer days incarcerated (for subset of incarcerated youths), and older children were significantly more likely to be in a permanency plan at follow-up.

Though there may not yet be sufficient evidence in peer-reviewed journals to state that wraparound consistently results in better outcomes.... the evidence base is encouraging and certainly growing.

No group differences were found on rate of placement changes, days absent, or days suspended. Significantly fewer boys in the treatment program met criteria for conduct disorder compared to the children in standard practice foster care, but significantly *more* girls in the treatment group were diagnosed with conduct disorder. No group differences were found for internalizing disorders, but boys in the treatment program

showed significantly greater improvement on externalizing problems than the comparison group. Taken together, the findings provided moderate evidence for better outcomes for the wraparound program, though the differences appear limited to boys and externalizing problems.

The second randomized clinical trial (Evans et al., 1996; Evans, Armstrong, Kuppinger, Huz, & Johnson, 1998; Evans, Armstrong, Kuppinger, Huz, & McNulty, 1998) assigned children referred for out-of-home placements to either family centered intensive case management ($n = 27$) or treatment foster care (family based treatment, $n = 15$). The case management program largely followed the elements of the wraparound process by providing individualized, team-based, and comprehensive services and supports. Significant group differences in favor of the case management program

were found for behavioral and mood functioning. No differences were found with regard to other types of functioning (role performance or cognition), behavior problems (internalizing and externalizing), family cohesiveness, or self-esteem. Probably the most serious limitation of this study is the small sample size, plus further loss of data on many of the outcome measures. As a result, the study had very low power to detect differences between the groups.

A third randomized clinical trial (Carney & Buttell, 2003) evaluated the effectiveness of a wraparound program designed to reduce recidivism of adjudicated or court referred youths. Participants included 141 youths (out of 500 invited to participate) randomly assigned to a team-based wraparound program ($n = 73$) or conventional services ($n = 68$) after being referred to juvenile court. The two groups were followed for 18 months. Youths receiving wraparound were absent from school less often, suspended from school less often, ran away from home less frequently, and were less assaultive than those in the conventional services group. However, youths receiving conventional services were more likely to obtain a job, and no differences were found for subsequent arrests or incarceration. Thus, though the “weight of evidence” from this study indicates better interim outcomes for the wraparound condition, the study’s proposed ultimate outcomes—subsequent arrests and incarceration—were not found to be significantly impacted by assignment to wraparound.

The most recent randomized trial is currently being completed in the context of the Oklahoma child welfare system (Rast et al., 2008). Though this study is not yet complete, interim findings have been reported at the annual research conference of *A System of Care for Children’s Mental Health: Expanding the Research Base* hosted by the University of South Florida Research and Training Center for Children’s Mental Health (one of the sources for this review). Participants were 108 children in the child welfare system who were nominated for the study because they were high users of behavioral health services. These children were randomly assigned to three groups (each $n = 36$): (1) wraparound facilitation conducted by the child welfare caseworker; (2) wraparound conducted by a facilitator employed by a local mental health center; or (3) services as usual. Re-

sults found that the group of children and youths receiving wraparound experienced fewer school and residential placement disruptions, more days overall in a permanency setting, and improved behavioral and functional outcomes, when compared to the services as usual group. There was also a trend toward better outcomes for children in the group for which the wraparound process was facilitated by the child welfare caseworker, as opposed to the group for which wraparound was implemented by the local mental health center.

Discussion

This review was intended to present results from the full range of outcome studies on wraparound as a way to both (1) evaluate the weight of the evidence as well as (2) explore the methodologies used. Overall, the findings from this review are encouraging with respect to the potential for wraparound to have a positive impact on youth and families. Though the majority of the studies that have been published and that were reviewed here have serious methodological limitations, there is a growing body of more rigorous research on wraparound that is now emerging. This includes experimental and quasi-experimental studies recently completed or nearly completed (e.g., Pullmann et al., 2006; Rast et al., 2008), as well as additional randomized studies that are now underway, such as an NIMH sponsored study of wraparound compared to intensive case management for youth in the child welfare system in Clark County, Nevada (Walker & Bruns, 2006). Though there may not yet be sufficient evidence in peer-reviewed journals to state that wraparound consistently results in better outcomes than alternative treatments for specific populations, the evidence base is encouraging and certainly growing.

At the same time, if advocates of wraparound hope to provide convincing evidence that wraparound is an effective process for meeting the needs of children with SEBD, a number of methodological limitations must be addressed. First, more studies on wraparound are needed that utilize rigorous methodological design and appropri-

ate comparison groups. This includes comparing wraparound to traditional control groups (e.g., treatment as usual) as well as conceptually relevant alternatives. For example, although wraparound developed as a less restrictive substitute for residential placements, no studies that directly compared these two interventions were found.³ Without question, increasing the number of studies that included randomized selection of participants would be a major benefit to the field.



Second, many of the studies provided incomplete data on participant demographics and outcomes. As noted in one previous narrative review (Burchard et al., 2002), few of the reviewed studies specified how participants were selected for inclusion. Most likely, the researchers chose youth based on staff nominations or simply by using all available data. More care needs to be taken in future studies to specify how samples were selected in order to determine if they are truly representative of their programs or children with SEBD in general. Similarly, several studies presented detailed findings only when the effects were statistically significant. In order to better synthesize the evidence base, it is crucial for authors to include basic information (e.g., means, standard deviations, effect sizes) for all analyses.

Third, outcomes were measured on average from 3 to 36 months after baseline, often as post-

3. Although Hyde and her colleagues (1996) examined outcomes for youth assigned to both wraparound and residential treatment, comparisons were explicitly not conducted.

tests with children still engaged in services. A goal of wraparound is to create long-standing changes in the youth in family. Thus, more longitudinal follow-ups are necessary to see if changes last beyond the end of treatment.

And fourth, one cannot conclude that all reviewed studies offered equivalent versions of wraparound. The programs varied on a number of factors including setting, target population, stated goals, and outcomes measured. Only seven (19%) of the studies reported systematic assessment of the degree to which wraparound was delivered as intended (Bruns et al., 2006; Bruns et al., 2005; Kutash et al., 2002; Rast et al., 2008; Stambaugh et al., 2007; Taub & Pearrow, 2007; Vernberg et al., 2004). Without evaluating the fidelity of an intervention, it is difficult to determine if the program offers wraparound or merely “wannabe wraparound” (Walker & Bruns, 2003). Fortunately, it appears that recent studies of wraparound have more consistently reported results of fidelity assessment using tools that are widely available. The accumulation of evaluation results that include reports of fidelity assessments will facilitate interpretation of the results as well as help synthesize findings across studies.

Conclusions

As summarized above, this review of wraparound outcomes studies yielded a large number of publications describing a wide array of target populations and study designs, most of which were far from rigorous. Regardless, because of the diverse ways in which wraparound is applied for children and families, it is important to keep a “catalog” of the breadth of the overall evidence base on this model, especially in the absence of a well-developed set of randomized controlled studies. By presenting this summary in this way, we hoped to provide a format that can be updated over time, and create a resource for program developers, administrators, practitioners, and researchers who wish to seek out published studies on a specific target population or context in which wraparound has been implemented. This review can also serve as a tool for answering more specific research questions, such as typical trajectories in behavioral or functional improvement over time, or the relationship between wraparound fidelity

and outcomes. Finally, with greater recognition of the broad range of wraparound outcomes studies, perhaps more local evaluators will be encouraged to publish their results, and/or design their evaluations to feature greater rigor, integrate fidelity assessment, and otherwise help the field move forward.

While the goal was to be exhaustive, we recognize that this review may not include all relevant wraparound outcomes studies. As a result, we are continuing to search for additional gray literature not identified by the inclusion criteria used for this review (e.g., unpublished local evaluation reports). Such findings will likely expand our understanding of outcomes typically found for systems as well as children and families and may facilitate a future exercise of benchmarking commonly measured outcomes such as behavior, functioning, and residential placement.

In addition, as results emerge from the controlled studies of wraparound currently underway, a more systematic appraisal of the quality of the wraparound evidence base is needed, which will make reviews such as this one more complete as well as “evidence based” unto itself. At that point, we can also identify the specific gaps in the literature (e.g., specific target populations, specific types of outcomes), beyond simply noting that “more needs to be done.” Finally, we need to translate the results of quasi-experimental and experimental studies into a meta-analysis that can generate average effect sizes for different types of outcomes, as determined by between group comparisons of wraparound and control groups. Given that we have now identified 8-10 unique studies that provide some type of ability to generate estimates of the size of effects of implementing wraparound, this can be an immediate next step that further informs the field about wraparound’s potential for positive impact on the lives of children and families.

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Weisz, J. R., Sandler, I. N., Durlak, J. A., & Anton, B. S. (2006). A proposal to unite two different worlds of children's mental health. *American Psychologist*, 61, 644-645.

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Authors

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Suggested Citation:



Suter, J., & Bruns, E. J. (2008). A narrative review of wraparound outcome studies. In E. J. Bruns & J. S. Walker (Eds.), *The resource guide to wraparound*. Portland, OR: National Wraparound Initiative, Research and Training Center for Family Support and Children's Mental Health.