

TREATMENT IMPLEMENTATION INTEGRITY OF INTERVENTIONS FACILITATED BY CONJOINT BEHAVIORAL CONSULTATION

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CBC in the Early Grades



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CONJOINT BEHAVIORAL CONSULTATION

- Conjoint Behavioral Consultation (CBC; Sheridan, Kratochwill, & Bergan, 1996; Sheridan & Kratochwill, 2008)
 - A structured, indirect form of service delivery in which teachers and parents are brought together to collaboratively identify and address students' needs (Sheridan et al., 1996; Sheridan & Kratochwill, 1992); involves both families and schools in the problem-solving process.
- Empirical investigations incorporating experimental small-n designs have revealed CBC to be an efficacious model of consultation (Guli, 2005; Sheridan, Eagle, Cowan, & Mickelson, 2001).
- Specific to the present project, there is empirical support for the efficacy of CBC at addressing outcomes for students with behavioral problems (Finn, 2003; Myers, 1997; Sheridan, Eagle, Cowan, & Mickelson, 2001; Wilkinson, 2005).




INTERVENTION IMPLEMENTATION INTEGRITY

- Indirect service delivery models like CBC are only effective if parents and teachers implement interventions as planned.
- The degree to which an intervention is implemented as designed is called **treatment or intervention implementation integrity**.
- Systematic methods for ensuring intervention implementation integrity in CBC research has not kept pace with studies testing its efficacy.
- Systematic assessment of treatment implementation integrity in CBC research has not occurred to date.



ASSESSMENT OF IMPLEMENTATION INTEGRITY

- Three common methods for measuring intervention implementation integrity: (a) self-report (Colton & Sheridan, 1998), (b) permanent products (Mortenson & Witt, 1998), and (c) direct observations (Jones, Wickstrom & Friman, 1997).
 - Assessment methods are used inconsistently and little consultation research includes measures of integrity (Sheridan & Kratochwill, 2008).
 - The psychometrics qualities (i.e., reliability and validity) of treatment implementation integrity measures have not been examined.
 - From a practical perspective, the costs associated with using the various methods are not equivalent.
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PURPOSE OF PRESENT INVESTIGATION

- The present investigation was designed to understand (a) the levels at which interventions are implemented with integrity during CBC, and (b) the psychometric properties of multiple measures of treatment implementation integrity used during consultation.
- Data used in this investigation are part of a larger, grant-funded randomized trial testing the efficacy of CBC for students in K-3 grades with disruptive behavior concerns
 - Data included in this study were collected from participants randomly assigned to the experimental (CBC) condition.
- One objective of CBC in the larger project was to promote procedures to increase intervention implementation integrity among parents and teachers.



RESEARCH QUESTIONS

When implemented in the context of highly structured CBC practice:

1. To what extent do parents implement behavioral interventions with integrity in the home setting?
2. To what extent do teachers implement behavioral interventions with integrity in the school setting?



RESEARCH QUESTIONS

Concerning the reliability and validity of intervention implementation integrity:

1. What is the level of consistency between independent raters on the permanent product measure of home and school intervention implementation integrity?
2. What is the convergent validity of intervention implementation integrity measures for home and for school (i.e., the relationship between multi-source, multi-method measures of integrity at home and at school)?



Table 1
Participants

		Family (n=65)	Teacher (n=28)	Child (n=65)
Gender	Male		7.1%	80%
	Female		92.9%	20%
Age	Mean			6.92
	SD			1.04
Ethnicity	Caucasian	77.4%	100%	70.8%
	Black/African-American	7.7%		15.4%
	Other	13.8%		13.8%
Teacher's years in position	Mean		10.61	
	SD		10.85	
Mother's Educational Level	Less than High School	6.2%		
	High School Diploma	15.4%		
	Some College	32.3%		
	College Degree or Greater	41.5 %		
Family Income	\$15,000 or less	13.9%		
	\$15,001 - \$25,000	21.5%		
	\$25,001 - \$35,000	16.9%		
	\$35,001 - \$45,000	13.8%		
	\$45,001 - \$50,000+	26.1%		



PROCEDURES

- CBC stages, interviews, and objectives
 - *Needs Identification (Building on Strengths)*
 - Interview: Conjoint Needs Identification Interview
 - Objectives:
 - Review strengths of child, school and family
 - Identify and define needs, settings and goals
 - Conduct functional assessment
 - Discuss ways to gather information and possible strategies for change
 - *Needs Analysis and Plan Implementation (Planning for Success)*
 - Interview: Conjoint Needs Analysis Interview
 - Objectives:
 - Discuss information collected by parents and teachers about identified behavior(s)
 - Develop a behavioral plan to address the needs
 - Collect plan materials
 - Discuss ways to support the plan at home and school
 - Continue to gather information
 - *Plan Evaluation (Checking and Reconnecting)*
 - Interview: Conjoint Plan Evaluation Interview
 - Objectives:
 - Discuss progress made toward goals
 - Evaluate the plan(s)
 - Determine need to continue or change the plan



PROCEDURES

- CBC process integrity was calculated for a random sample of 33% of all interviews.
 - An average of 97.59% (SD=8.00) of CBC objectives were completed for this sample



PROCEDURES

- Behavioral Interventions: 3 standard components
 - Communication
 - A system of regular contact (e.g., home/school note, scheduled email, regular phone calls) between home and school is established to relay information about the child's behavior (e.g., progress toward goal, rewards earned)
 - Motivation
 - Rewards for desired behavior are delivered in a specified format (e.g., grab bag, spinner, chart moves, behavior contracts)
 - Behavioral Function
 - Methods for addressing the function of the undesired behavior are implemented (e.g., adult attention for desired behavior, breaks, access to privileges for desired behavior, social skills training)



PROCEDURES

- Like behavioral interventions (e.g., token economy) procedures were standardized and then used in the development of the intervention implementation integrity measures.
 - Each integrity measure for the same case had standardized steps.
 - Behavioral interventions included 6 to 12 steps.
 - The duration of interventions were at least 4 weeks long.



PROCEDURES

- As part of the CBC process, consultees were supported through intervention implementation to promote high levels of integrity.
 - This support was provided in a variety of ways, mainly focused on:
 - Providing in-depth intervention instruction and materials
 - Modeling intervention components
 - Observing and providing performance feedback
 - Coaching



INTEGRITY MEASURES

Measure	Self-Report	Direct Observation	Permanent Product
Source	Parent/Teacher	Consultant	Parent/teacher/student
Description	A list of essential intervention steps (plan summary checklist)	Observation of consultee implementing interventions	A product used for the intervention yielding evidence of implementation (e.g., home note, progress charts)
When Completed	Daily	1 to 4 observations over 4 weeks	Daily; Product was reviewed and implementation steps were recorded by 2 coders
Result	Percentage of steps completed	Percentage of observable steps completed	Percentage of steps observed on permanent products completed



MEASURES OF INTERVENTION INTEGRITY

- Global ratings of integrity were taken across all data points for a case to capture integrity of intervention implementation for the duration of treatment (i.e., at least 4 weeks).
- For each measure, integrity scores were computed as the median percent of steps completed.
 - Data were skewed toward 100% intervention integrity and data for some measures were sparse; thus, median scores provided a better indication of overall integrity than mean scores.



RESULTS - HOME INTEGRITY

Table 2

Home Intervention Integrity

	Self-report (n=35)	Permanent Products (n=36)
Median	100%	100%
Mean	80%	91.8%
SD	29.71	22.84

- *Regardless of the method or source used to assess treatment implementation integrity, high median and mean levels were evident.*



RESULTS - SCHOOL INTEGRITY

Table 3

School Intervention Integrity

	Self-report (n=52)	Direct Observation (n=54)	Permanent Products (n=45)
Median	100%	100%	100%
Mean	92.5%	84.8%	97.4%
SD	18.90	23.16	15.06

- *Regardless of the method or source used to assess treatment implementation integrity, high median and mean levels were evident.*



RESULTS - RELIABILITY

- Inter-rater reliability for the permanent product measure of home and school intervention integrity was computed using intraclass correlation coefficients from a one-way random effects model where cases were considered random effects

Table 4

Inter-rater Reliability

	Intraclass Correlation Coefficients	
	Home (n=36)	School (n=45)
Single Rater	.967	.986
Two Raters	.983	.993



RESULTS - RELIABILITY

- Inter-rater agreement for home and school permanent products was calculated.

Table 5

Inter-rater Reliability

	% Exact Agreement	
	Home ($n=36$)	School ($n=45$)
Two Raters	91.67%	97.78%



RESULTS - VALIDITY

- To determine convergent validity, correlations between 3 measures of intervention integrity at school and 2 measures of intervention integrity at home were proposed, but unobtainable due to:
 - High ceiling effects for all measures (vast majority of intervention integrity measures yielded rates of 100%)
 - Lack of congruence across measures (i.e., the number of steps possible for each measure differed)
 - Was this an issue of too few measures completed at the same exact time points?



DISCUSSION

- High levels of intervention integrity were noted across multiple methods and sources.
 - Overall, interventions developed in the CBC context were implemented as intended.
- Similar patterns of intervention integrity were evident regardless of the method used and source.
 - Costs associated with measures are not equivalent.
 - Research is needed to determine the cost-benefit ratio of various assessment procedures.



DISCUSSION

- Concerted efforts to promote integrity appear to be effective at ensuring overall use of the interventions.
- The intraclass correlation of raters suggest that permanent products can be reliably coded to determine some aspects of intervention integrity.



LIMITATIONS

- High ceiling effects for all measures precluded our ability to compute correlations for validity checks, and to test the mediational effects of treatment integrity on child outcomes.
- Integrity levels were not manipulated experimentally; data were part of a larger clinical trial.



LIMITATIONS

- Permanent product and direct observation data are limited in what they are able to capture.
 - Only concrete steps or components of interventions are observable by independent observers and coders.
 - Permanent products, as coded here, may be inflated estimates of integrity.
 - Too few concurrent time points across measures were represented in the data.



FUTURE DIRECTIONS

- Interrater reliability of direct observation assessment methods needs to be determined empirically.
- The question of “how often is enough” needs to be examined.
 - Measures can be costly in terms of teacher time, observer training, etc.
 - There is a need to determine critical points at which assessment fails to provide unique intervention information.



FUTURE DIRECTIONS

- Experimentally manipulating the level of intervention integrity will allow for the following areas to be investigated:
 - Validation of self-report, permanent product, and direct observation methods for assessing intervention integrity
 - Empirical utility of specific methods for promoting intervention integrity
 - The degree to which the integrity measure predicts child outcomes
 - Determination of the mediational influence of treatment integrity on child outcomes
 - The ability of measures to pick up unique, important components of the intervention (quality vs. quantity)



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