Risk Status and the Differential Efficacy of Urban School-Based Mental Health Services

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Overview

- Researchers report initial outcome findings from a study (ODMH #04-1201) examining the differential efficacy of urban school-based mental health interventions using eight years (1995 – 2003; N = 2,403) of psychiatric rating data on youth consecutively referred to a large school-based program.
- Currently, Beech Brook is part of an expanded public/private mental health partnership involving the Cuyahoga County Community Mental Health Board (CCCMHB), six private not-for-profit mental health agencies, and over 100 schools in the Cleveland Municipal School District (CMSD).
- Much of the research from school-based initiatives lack explanatory power because the data elements, while consistent, are not linked to each other, and not linked to individual children, specifically measuring changes in the mental health status of those with serious emotional disturbances.

Beech Brook SBCSP History & Philosophy

- In 1976, Cleveland Day Treatment began at Beech Brook and expanded to 5 elementary schools in 1978.
- At the beginning of the 1994-1995 school year, the program changed its service delivery platform to Community Support services and changed its name to the School-Based Community Support Program (SBCSP).
- Community Support Program services are individualized, active mental health interventions, specific to each child's individualized service plan (ISP), designed to reduce the symptoms of psychiatric illness and to obtain the highest possible functional level.

Beech Brook SBCSP Program Design

- Diagnostic Assessment
- Individual Treatment Planning
- Prevention and psycho-educational training
- Comprehensive year-round community support services to children and families
- Assistance in crisis situations
- Training and consultation to teachers and other school personnel
- Assessment, linkage, coordination and referral of children and families to other community based services

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Sample

- The Beech Brook SBCSP sample contains descriptive data on 2,403 children enrolled in over 20 Cleveland elementary schools from September 1, 1995 to September 1, 2003. These are the children who were seen by clinical staff leading to the opening of a case.
- A subset of the 2,403 SBCSP children (approximately 600) received only assessment and consultation services. These children were not seen for continued treatment which included ongoing Devereux Scales of Mental Disorders (DSMD) ratings at 90 day intervals.
- DSMD ratings are available for 1,817 unique children enrolled from November 5, 1995 to December 19, 2003. There are over 8,000 DSMD ratings in the data base.

Sample: Descriptives

N = 2,403

Native American 0.3%
Asian 0.1%
Hispanic 0.6%
Caucasian 14.7%
Other 4%
African American 81.1%

Female 27%
Male 73%

Average Age = 9.74 years (SD = 2.69)

Table 1. Client Demographics

Variable	N	%
Gender		
Female	676	27.8%
Male	1,750	72.1%
Race		
African American	1,969	81.1%
Caucasian	358	14.7%
Hispanic	15	.6%
Native American	7	.3%
Asian	3	.1%
Custody Status		
Cuyahoga County (CCDCFS)	162	6.7%
Other	13	.5%
Relative -Guardian	329	13.7%
Parent	1899	79.0%
History of Physical Abuse	107	4.6%
History of Sexual Abuse	132	5.6%
History of Inter -Partner Domestic Violence	202	8.6%
Child of a Substance Abuser	442	18.8%
Mean Age	9.74 ($\underline{SD}$ = 2.9)	
Mean # of Out of Home Placements (OHP)	.54 ($\underline{SD}$ = .54)	
Mean Length of Stay (LOS) in days	283 ($\underline{SD}$ = 268)	
Median Length of Stay (LOS) in days	196	

Methodology

- Client demographic and service data have been collected and are stored in client charts and multiple archival databases (i.e., client demographic data base, service data base, DSMD data base, satisfaction data base).
- Descriptive and cross-sectional statistical analyses are used to describe service and psychiatric status characteristics of youth. Service characteristics are summed and averaged by Medicaid category. DSMD total, composite, and subscale scores are used to profile initial levels of clinical need.
- Paired t-tests are used to assess entry/exit change on parent and teacher rated DSMD scores by initial level of symptomatology (i.e., all treated youth with 2 or more scores, youth with subclinical entry scores, and youth with entry scores in the borderline to clinical ranges).
- Each child has an average of 4.68 ratings made by parents and/or teachers. There were 940 children with at least two ratings by teachers, and 1,209 children with at least two ratings by parents.

Services

- Children were given an average of 1.39 units of diagnostic assessment with a maximum of 5 units.

- Children received an average of 9.26 units of individual CSP, with a maximum level of 118.25 units, and they also received an average of 10.55 units of group CSP, with a maximum of 86.89 units

- The referred children in this sample averaged 0.32 units of individual therapy with a maximum of 5.80 units.

Instrumentation
Devereux Scales of Mental Disorders (DSMD)

- Behavior rating and symptomatology
- 111 items; 15 minutes to complete
- Two versions: child (5-12) and adolescent (13-18)
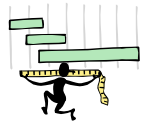- Parent (caretaker) and teacher informants

- *Total score and internal reliability coefficients range from .97 to .98*
- *Composite reliability coefficients range from .88 to .98*
- *Individual scale reliability coefficients range from .70 to .90*
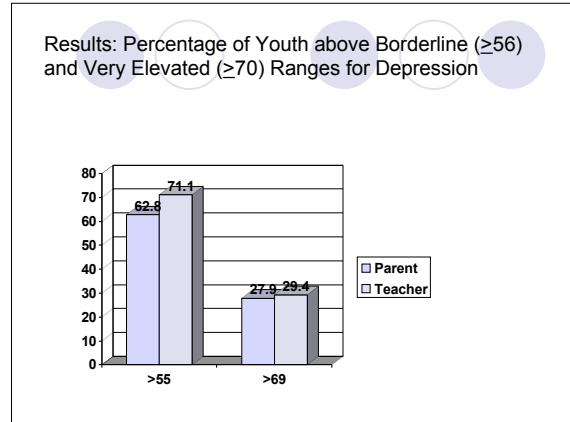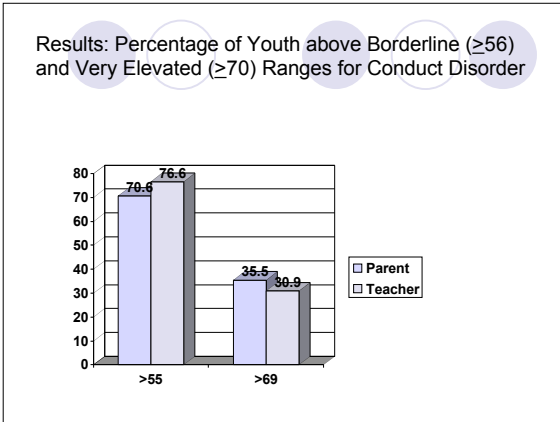
DSMD Scoring Interpretation

- Generally DSMD T- scores can be interpreted as follows:
  - 40-55   Average
  - 56-59   Borderline
  - 60-69   Elevated
  - 70+   Very Elevated

- A total score of 60 has been empirically determined to be the best cut-score for differentiating clinical from non-clinical samples

Results

- Initial analyses have been conducted to examine preliminary program effects. Significant portions of youth evidence both externalizing and internalizing problem behaviors as rated both parents and teachers.
- Findings from paired t-tests indicate statistically significant improvements on the DSMD total score, externalizing composite score (conduct disorder and ADHD), and internalizing composite score (depression and anxiety).

Results: Percentage of Youth above Borderline (≥56) and Very Elevated (≥70) Ranges for Conduct Disorder

Results: Percentage of Youth above Borderline (≥56) and Very Elevated (≥70) Ranges for Depression

Results:

Table 2. Change in DSMD Composite Scores for Entire Sample

	Mean Pretest	Mean Posttest	N	Mean Difference	SD	t	df	p
PARENT								
Total DSMD	60.63	56.12	1209	4.50	12.56	12.47	1208	.000
Internalizing	58.54	54.49	1209	4.05	12.20	11.55	1208	.000
Externalizing	63.06	57.93	1209	5.12	12.90	13.81	1208	.000
TEACHER								
Total DSMD	59.86	57.90	940	1.96	12.35	4.86	939	.000
Internalizing	59.89	57.88	940	2.01	13.14	4.70	939	.000
Externalizing	61.64	59.32	940	2.31	10.75	6.59	939	.000

Differential Program Effects

Total DSMD Paired t-test: All Children with Two or More DSMD Scores

Total DSMD Score	Mean Pretest	Mean Posttest	N	Mean Difference	SD	t	df	p	Effect Size
Parent	60.63 (SD = 13.37)	56.12 (SD = 13.54)	1209	4.50	12.56	12.46	1208	.000	.33
Teacher	59.86 (SD = 10.64)	57.90 (SD =10.86)	940	1.96	12.34	4.86	939	.000	.18

Total DSMD Paired t-test: Children Initially Scoring in Average Range of Functioning (< 56)

Total DSMD Score	Mean Pretest	Mean Posttest	N	Mean Difference	SD	t	df	p	Effect Size
Parent	48.24 (SD = 4.71)	49.13 (SD = 9.17)	484	-.89	8.98	-2.18	483	.030	.17
Teacher	49.51 (SD = 4.30)	53.78 (SD =9.39)	353	-4.26	9.33	-8.59	352	.000	.58

Total DSMD Paired t-test: Children Initially Scoring in Borderline or Clinical Range of Functioning (≥ 56)

Total DSMD Score	Mean Pretest	Mean Posttest	N	Mean Difference	SD	t	df	p	Effect Size
Parent	68.90 (SD = 10.61)	60.79 (SD = 13.97)	725	8.10	13.30	16.40	724	.000	.65
Teacher	66.09 (SD = 8.19)	60.38 (SD =10.94)	587	5.70	12.43	11.10	586	.000	.59

Discussion

- School-based mental health models employ effective platforms to identify and engage large numbers of high-risk children
- In 2004, the Beech Brook school-based program alone served over 800 youth, or 6.7% of the 11,851 school-aged children in Cuyahoga County's public mental health system.
- Once engaged, on average, children evidence statistically significant reductions in psychiatric symptomatology, as measured by both their parents and teachers.
- There are differential treatment effects based on entry psychiatric status
  - Parents report greater improvements than teachers; children in clinical need appear to receive greater benefit
- Further research is needed on "real world" services models using routine funding, particularly those that can engage and retain large numbers of at-risk children and families, and demonstrate effective clinical outcomes.

Discussion (continued)

- Next Steps:
  - Apply greater rigor; major design limitation is lack of control group
  - Hierarchical Linear Modeling (HLM) to explore if/how client (e.g., age, race, gender, social adversity, caretaker) and/or service characteristics (e.g., CSP vs. CSP + therapy; dosage) impact change trajectories
  - Propensity Score Matching (PSM) to investigate differential/additional impact of school based mental health services + summer programming

HLM Change Analysis