

The CMHI 14 Years Later: Who has been served and how have their characteristics changed?

February 25, 2008
 21st Annual Research Conference: A System of Care for
 Children's Mental Health: Expanding the Research Base

**Christine Walrath
 Lucas Godoy Garraza**
 Macro International Inc

Contributing Authors

- Robert Stephens, Macro International Inc.
- Melissa Azur, Johns Hopkins University
- Philip Leaf, Johns Hopkins University
- Richard Miech, University of Colorado
- Keri Jowers, Johns Hopkins University
- Rahul Shidhaye, Johns Hopkins University

The Big Picture

- Prevention & treatment of children's MH problems is a long standing national priority
- Estimated 5% of nation's children experience serious emotional and behavioral problems
- Landmark reports have identified gaps in available services and service delivery approaches
- Movement from more restrictive office-based to comprehensive community-based care, and the development of the system of care.

Development of the System of Care

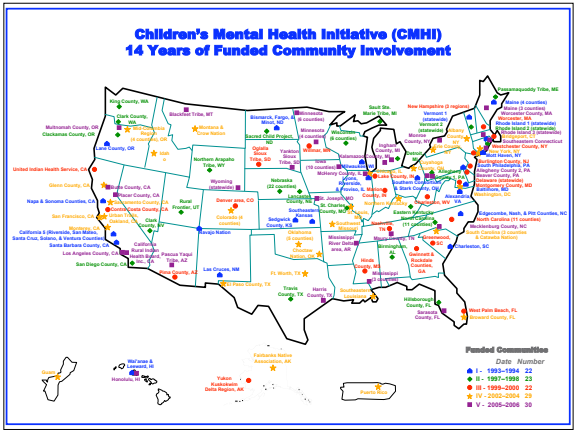
Year	SOC Development
1980s	Organized, national family voice NAMI CAN Federation of Families (1989)
1983	Child and Adolescent Service System Program (CASSP)
1986	Congress passed the State Comprehensive Mental Health Services Plan Act
1992	Congress passed legislation creating the Comprehensive Community Mental Health Services for Children and Their Families Program
1993- present	Evolution of grant/cooperative agreement requirements of CMHI

CMHI Program Background

- Children's Mental Health Initiative (CMHI) = Comprehensive Community Mental Health Services for Children and Their Families Program
- Funded by the Center for Mental Health Services of the Substance Abuse and Mental Health Services Administration (SAMSHA)
- Largest children's mental health services initiative to date (over \$1.25 billion spent to date; \$102 million FY 2008)

PURPOSE

To encourage the development of home and community-based "systems of care" in States, political subdivisions of States, American Indian tribes or tribal organizations, and territories, that meet the needs of children and adolescents with serious emotional disturbances and their families.



CMHI: Summarizing the Map

- 126 communities funded between 1993 and 2006:
 - 59 currently funded
 - 67 graduated
- Variation in:
 - Target population (size and type)
 - Geographic region (urban, rural, territory)
 - Years of funding (5 or 6 years)
 - Implementation models & partner involvement (school-based, family organization based, youth involvement, etc.)
- Multiple Phases of funding
 - Phase I: 22 communities
 - Phase II: 23 communities
 - Phase III: 22 communities
 - Phase IV: 29 communities
 - Phase V: 30 communities

Congressionally Mandated CMHI National Evaluation

Six Core Study Components

1. System of Care Assessment
2. Sustainability Study
3. Services Experience Study
4. Services & Cost Study
5. Descriptive Study
6. Child & Family Outcome Study

More about the Child and Family Descriptive & Outcome Study Components

Data Collection Method	Data Collection Approach Across the Phases		
	Phase I	Phase II & III	Phase IV & V
Data Collection Method	Record Review Self-administered checklist Administrative Data	Record Review Structured Interview	Record Review Structured Interview
Respondent	Caregiver and youth	Caregiver and youth	Caregiver and youth
Follow-up Periodicity	Intake 6 months 12 months 24 months 36 months 48 months (Follow-up only if child remains in service)	Intake 6 months 12 months 18 months 24 months 30 months 36 months (Follow-up regardless of SOC service status)	Intake 6 months 12 months 18 months 24 months 30 months 36 months (Follow-up regardless of SOC service status)

Across-Phase Baseline Data Set

- The evaluation protocol was changed/enhanced between Phase I and II&III and IV&V
- This is the first time that baseline data has been combined across phase
- What does that mean logistically?
 - Subset of variables/instruments included in all Phases
 - Reconciled response option inconsistencies
 - Impossible to reconcile data collection approach inconsistencies
- What does that mean conceptually?
 - We can assess baseline characteristics and trends analytically across the life of the CMHI

Study Objectives

- 📁 What is the cross-year variation/stability of behavior problems of the children served both between sites (by year of funding) and within sites (by children's cohort)?
- 📁 What is the variation/stability in behavior problems of the children served by race/ethnicity, age, gender and referral source?

Data Source and Sample

- **Data:** collected as part of Phases I - IV of the National Evaluation of the Comprehensive Community Mental Health Services for Children and Their Families Program
 - Collected between 1994 and 2007
 - Collected from 96 communities funded in between 1993 and 2004
- **Sample:** 15,266 children enrolled in the National Evaluation with complete data on age, gender, referral source, race/ethnicity and internalizing and externalizing problem behavior scores on the Child Behavior Checklist at intake into system.

Study Sub-sample Comparison

	Exploratory (n=7,611)	Validation (n=7,615)
Male	66.6%	66.1%
Age	M=11.87	M=11.82
Race/Ethnicity		
White	53.1%	53.4%
Black	24.8%	24.1%
Hispanic	12.3%	12.8%
Asian - PI	2.9%	3.0%
Native American	3.7%	3.5%
Referral Source		
MH	28.4%	29.2%
SCH	21.0%	21.2%
CW	13.0%	13.0%
JJ	14.0%	13.4%
FAMILY	12.3%	12.4%
HEALTH	2.0%	1.9%
OTHR	9.4%	8.9%

	Exploratory (n=7,611)	Validation (n=7,615)
CBCL		
INT	M=64.19	M=64.29
EXT	M=68.79	M=68.88
Phase		
I	42.6%	42.9%
II	23.1%	22.3%
III	19.8%	19.5%
IV	14.6%	15.3%

Variables of Interest

Variable	Source of Information	Description
Child Behavioral Checklist - CBCL (Achenbach 1991; Achenbach & Rescorla, 2000)	Caregiver Report	<ul style="list-style-type: none"> Internalizing problem T-scores Externalizing problem T-scores
Demographic Information	Caregiver Report	Gender, Race/Ethnicity, Age
Referral Source	Record Review	Referred for system-of-care services by mental health, schools, justice, child welfare, family, physical health, self-referral or other
Cohort	Generated	Year of child's intake within the site's program cycle (1 to 6)
Site's Year of Funding	Generated	Year in which the site enters the program

Analytic Approach

- To protect inferential accuracy, a random sample of half the dataset was used for exploration and model formulation.
 - OLS was used to get a first estimation of the importance of demographic variables, cohort trend and site differences
 - GEE and HLM also allow estimation of a funding year effect (by "moving" the site effect from the systematic to the random part of the model)
 - HLM additionally allows estimation of random effects and site varying cohort slopes

Analytic Approach

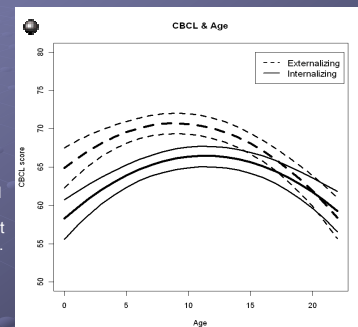
- The final HLM includes both individual and site level models
 - Individual level:** the expected CBCL score for a child in a given site is a function of demographic characteristics, referral source and the year of intake within the site (cohort).
 - Site level:** both the average CBCL score in the initial year of the program (the intercept) and the cohort trend vary by site. In particular, the intercept is a function of the year of funding of the site.
- Site's averages of individual level predictors were also included as site level predictors

Study Results

- Variation between children with different demographic characteristics and source of referral
- Cross-year variation between sites: YEAR OF FUNDING
- Cross-year variation within the site: COHORT EFFECT

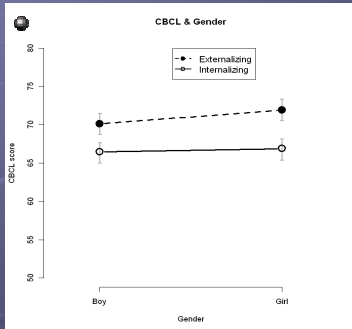
Variation between Children

- Most demographic variables are highly significant predictors of children's CBCL scores, both externalizing and internalizing ($p < 0.01$).
- In the case of age, the relationship is better described by a curved rather than a linear trend (the quadratic term for age is a highly significant predictor of both scores).



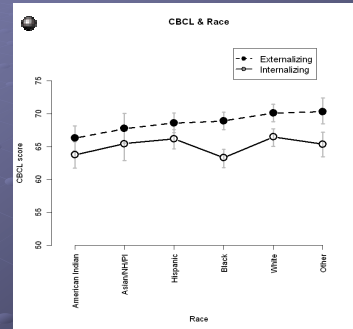
Variation between Children

- Gender is a highly significant predictor of externalizing scores ($p < 0.01$) but is not associated with a significant difference in internalizing scores.
- Girls are estimated to have an average externalizing score 1.77 points (95% CI 1.25 - 2.30) higher than boys at baseline.



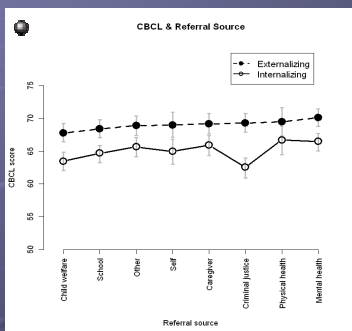
Variation between Children

- Children from races/ethnicities other than white are estimated to have lower externalizing and internalizing scores.
- For instance, Black children are estimated to have an average internalizing score 3.18 points (95% CI 2.43 - 3.93) lower and an average externalizing score 1.21 points (95% CI 0.48 - 1.94) lower than White children.



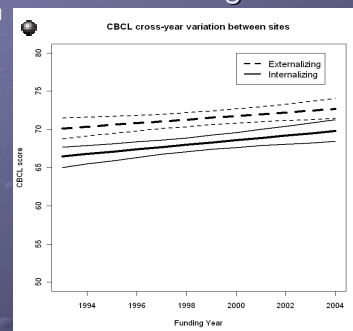
Variation between Children

- Children referred from sources other than a mental health care provider are estimated to have lower scores.
- That is the case for School and Child Welfare System, which are estimated to refer children with 1.79 (95% CI 0.96 - 2.61) and 3.01 (95% CI 2.09 - 3.93) lower internalizing scores, and 1.69 (95% CI 0.89 - 2.50) and 2.34 (95% CI 1.45 - 3.23) lower externalizing scores.



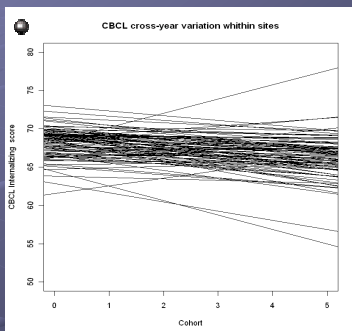
Cross-year Variation between Sites: Year of Funding

- There is a significant and positive linear trend in the initial site average scores, both externalizing and internalizing, by the year of funding of the site ($p < 0.01$).
- The estimations of the rate of change by funding year for internalizing and externalizing scores are similar (0.30 [95% CI 0.11-0.49] and 0.20 [95% CI 0.06-0.41]).



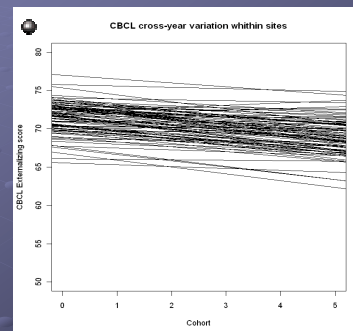
Cross-year Variation within Site: Cohort Effect

- After the initial year of funding, sites' average CBCL scores follow different trajectories as the sites serve successive cohorts of children.
- These trajectories can be described as multiple linear trends with different slopes (whose variation is estimated as 0.51 and 0.42, for internalizing and externalizing scores respectively)



Cross-year variation within the site: Cohort Effect

- On average there is a downward trend estimated at -0.37 (95% CI -0.74, 0.00) for internalizing and -0.48 (95% CI -0.83, -0.14) for externalizing scores



Other cross-site differences

- In general, there is no evidence of “contextual” or “compositional” effects.
 - i.e. site aggregates of child-level demographic characteristics are not related to CBCL scores *after* controlling for child-level differences.
- The only exception is race and internalizing CBCL scores ($p < 0.05$).

Study Findings

- Demographic variables and referral source are significant predictors of children’s CBCL scores, both externalizing and internalizing, all through the period.
- However, children with the same demographic characteristics and referred from the same source have different CBCL scores, on average, depending on the site they are served.
- Particularly, in sites funded later children have higher CBCL scores on average.
- On the other hand, children entering later into the funding cycle within a site have lower CBCL scores on average.

Study Implications (1)

- Culturally-specific problem thresholds for entering services remain stable across Program history (females with more severe problems; non-whites, younger children and non-mental health referrals with less severe problems)
 - Measurement bias related to cultural differences among caregivers in rating children’s behavior problems? Or disparities in levels of problems required for referral to services?
 - Cultural sensitivity of the systems and/or referral sources?
 - Are these the thresholds that local systems “want”?

Study Implications (2)

- SOC communities continue to serve children with serious emotional and behavioral problems; and evidence suggests that later funded sites are serving children with even more serious challenges that earlier funded sites.
 - More fine-tuned model of outreach within a community?
 - More fine-tuned model of proposal solicitation and funding priority to high-need areas and populations?

Study Implications (3)

- Local SOCs serve children with the most serious behavioral and emotional problems during their early years of funding.
 - Immature system infrastructure being tested; children with fewer challenges are being served when SOC is functioning most optimally
 - Are federal service and national evaluation enrollment expectations contributing?
 - Are all of youth with more severe need being serviced in earlier funding years?

References

- Achenbach, T.M. *Manual for the child behavior checklist/4-18*. Burlington, VT: University of Vermont, Department of Psychiatry; 1991.
- Achenbach, T.M., Rescorla, L.A. *Manual for the AESBA school-age forms and profiles*. Burlington: University of Vermont, Research Center for Children, Youth & Families; 2000.
- Center for Mental Health Services. *Mental Health, United States 2004*. 2006;DHHS Pub No. (SMA)-06-4195.
- Joint Commission on the Mental Health of Children. *Crisis in child mental health*. 1969.
- Knitzer J. *Unclaimed Children: The failure of public responsibility to children and adolescents in need of mental health services*. Washington, D.C.: Children’s Defense Fund; 1982.
- New Freedom Commission on Mental Health. *Achieving the Promise: Transforming Mental Health Care in America. Final Report*. 2003;DHHS Pub. No. SMA-03-3832.
- U.S. Department of Health and Human Services. *Mental Health: A Report of the Surgeon General*.
- Pinheiro, Jose, Bates, Douglas, DebRoy Saikat and Sarkar, Deepayan the R Core team. (2007). nime: Linear and Nonlinear Mixed Effects Models. R package version 3.1-86.
- Pumariega AJ, Winters NC, Huffine C. The evolution of systems of care for children’s mental health: forty years of community child and adolescent psychiatry. *Community Ment. Health J.* 2003 Oct;39(5):399-425.
- R Development Core Team (2007). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0. URL <http://www.R-project.org>.

Contact Information

- Christine Walrath,
cwalrath@macrointernational.com
646-695-8154
- Lucas Godoy Garraza,
lucas.godoygarraza@macrointernational.com
646-695-8144