Gender Differences in Patterns of Risk Across Programmatic Phases of the CMHI

Melissa Azur
Johns Hopkins Bloomberg School of Public Health

Lucas Godoy Garazza
Macro International

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Context

- Boys and girls enter into mental health services from different agencies and with different types of problems[1-5]
- A better understanding of gender differences in risk histories would allow for targeted service and policy development

Context

- In 2000, Walrath and colleagues published a study that identified patterns of risk among boys & girls entering into mental health services with the Children's Mental Health Initiative (CMHI)[5]
- Investigating these gender differences across extended years of CMHI has important policy and program implications

Study Aims

- To determine whether the nature of risk patterns, the relative prevalence of each risk pattern, or both, have remained constant (or changed) across funding phases for boys and girls
- To examine the relation between risk patterns and age, for boys and girls, and to identify to what extent that relation has changed across funding phases
- To examine the relationship between risk patterns and impairment for boys & girls, and to determine the extent to which that relation has changed across funding phases

Data Source

- Data: collected as part of Phases I-III of the national evaluation of the Children's Mental Health Initiative
  - Collected between 1994-2004
  - Collected from 67 communities initially funded between 1993-2000
- Study Sample: 18, 437 children, 5-22 years, enrolled in the National Evaluation with data on gender, referral source, race/ethnicity, 6 child risk factors

Sample Characteristics

- Average age was 12.2 years
  - Phase I children were somewhat younger
  - Boys were younger than girls, across phases
- Across phases, 52% of the sample was Caucasian, 25% was African American, 10% was Hispanic
  - In Phase III, the proportion of African American and children of "other" races increased
- In Phase I & II, about 25% of referrals were from mental health agencies; in Phase III, referrals from mental health agencies almost doubled.

Variables of Interest

Variable	Source of Information	Description
Demographic Information	Caregiver	Age, gender, race/ethnicity, referral source
Child Risk Factors	Caregiver	Lifetime history of physical or sexual abuse, substance abuse, running away, suicide attempt, sexually abusing others
Functional Impairment	Caregiver	Child and Adolescent Functional Impairment Scale
Funding Phase	Generated from administrative records	Phase sites received their funding (i.e., I, II, or III)

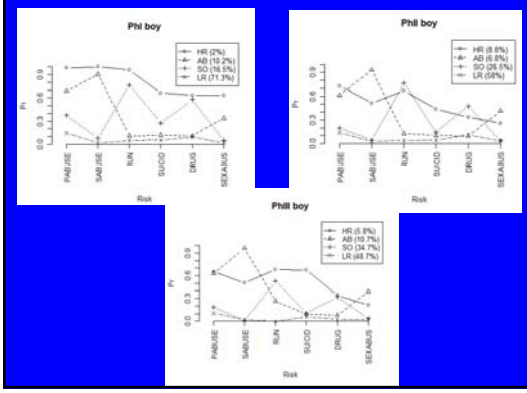
Analytic Approach
Aim 1: Nature of Risk Patterns

- Multi-group latent class analysis
  - Compares latent class characteristics across groups
    - We have 6 gender-by-phase groups
  - 4-class solution originally proposed in Walrath et al (2004) [6] was compared to 3- and 5-class models
  - Multiple fit statistics were used to select the best fitting model, with an emphasis on parsimony
  - Equivalence of the probabilities of endorsing each risk factor by class, between boys & girls, as well as across phases, was tested

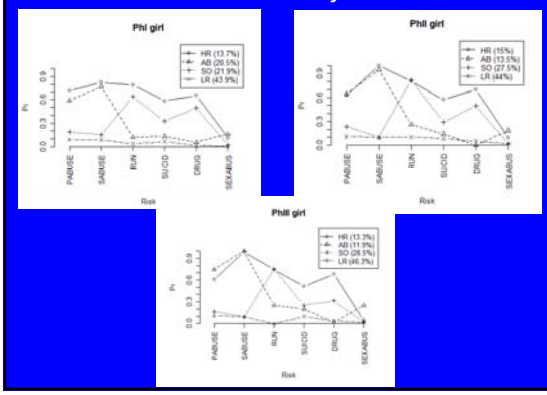
Results: Latent Class Model Selection

Model	AIC	BIC	L^2	DF	P	% Reduction in L^2 (H_0)
H_0	166503.4	166824.1	7669.6	342	0.0000	
H_{3C}	159770.7	160748.5	769.0	258	0.0000	90%
H_{4C}	159349.5	160655.8	263.7	216	0.0147	97%
H_{5C}	159347.9	160982.7	178.2	174	0.3988	98%

Latent Class Analysis for Boys



Latent Class Analysis for Girls



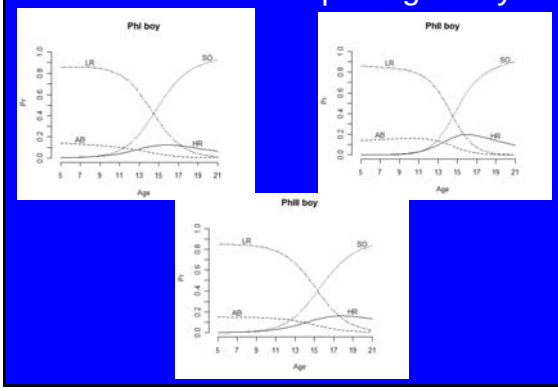
Analytic Approach:
Aim 2: Age & Class Membership

- The model was refitted to include age as a predictor of class membership
- For each gender-by-phase group, the log odds of belonging to one class compared with a base class was modeled as a linear function of age

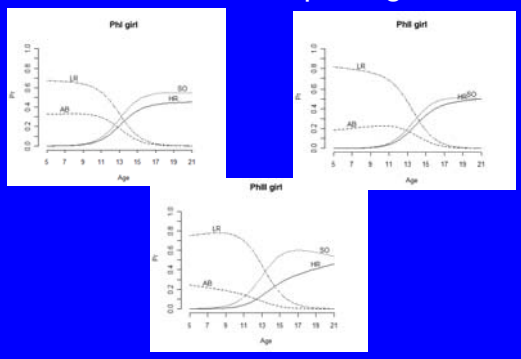
Results
Class Membership & Age

	Phase I OR (95%CI)	Phase II OR (95%CI)	Phase III OR (95%CI)
Boys			
HR	1.60 (1.39-1.84)	2.00 (1.28-3.13)	1.65 (0.93-2.93)
AB	0.96 (0.9-1.01)	1.04 (0.94-1.14)	1.00 (0.92-1.08)
SO	1.97 (1.8-2.16)	2.51 (1.98-3.17)	1.87 (1.65-2.13)
Girls			
HR	2.32 (1.78-3.03)	2.39 (1.89-3.02)	2.30 (1.83-2.90)
AB	1.02 (0.92-1.12)	1.07 (0.9-1.26)	0.93 (0.83-1.03)
SO	2.30 (1.78-2.96)	2.32 (2.00-2.69)	2.10 (1.73-2.54)

Class Membership & Age: Boys



Class Membership & Age: Girls



Analytic Approach
Aim 3: Class Membership & Impairment

- Latent class regression was used to examine the relation between class membership and impairment
- As before, the parameters, which describe the nature & prevalence of the classes, were re-estimated
- Age was kept in the model
- Relationship was examined by gender & phase
- Wald test was used to assess the equivalence of means and variances across classes

Results: Mean Impairment Score & Class Membership for Boys

	Phase I Estimate (95%CI)	Phase II Estimate (95%CI)	Phase III Estimate (95%CI)
HR	135.5 (125.2-145.8)	139.1 (124.4-153.8)	157.0 (146.2-167.9)
AB	92.2 (82.2-102.2)	117.4 (109.6-125.3)	130.6 (120.1-141.1)
SO	109.9 (105.2-114.5)	109.7 (89.6-129.9)	120.4 (113.1-127.8)
LR	74.9 (72.7-77.1)	95.6 (90.3-100.9)	98.9 (93.1-104.6)

Results: Mean Impairment Score & Class Membership for Girls

	Phase I Estimate (95%CI)	Phase II Estimate (95%CI)	Phase III Estimate (95%CI)
HR	113.6 (106.9-120.3)	132.2 (122.1-142.2)	134.5 (122.4-146.5)
AB	71.3 (63.5-79.1)	99.4 (80.3-118.5)	121.7 (103.4-139.9)
SO	92.2 (85.1-99.4)	119.4 (106.9-131.9)	118.1 (109.6-126.6)
LR	51.4 (45.8-57.1)	88.6 (79.0-98.2)	95.0 (88.4-101.7)

Summary

- Multigroup latent class analysis was used to identify groups of children with similar patterns of risk entering into SOC
  - Overall, 4 latent classes offer best explanation for patterns, across phases and by gender
- Proportion of girls in high risk class was greater than the proportion of boys in same class
  - Difference diminishes across funding periods

Summary

- There was variation in the probability of item endorsement across phases
  - Phase I boys in HR group had high probability of physical abuse, sexual abuse & running away. Probability of these factors decreased in subsequent phases
  - Probability of history of sexual abuse increased across phases for girls in HR and Abuse classes

Limitations

- Caregivers were the reporters of child risk factors
- Investigation of patterns of risk were limited to the 6 child risk factors available
- National evaluation protocol changed between Phase I and Phases II & III
- Alternative statistical models could offer plausible explanations

Implications

- Clinicians & service providers can use this information to better develop individualized treatment plans, and direct resources to children in greatest need
- Across funding phases, the CMHI has enrolled more boys with complex histories of child risk.
  - History of drug use and running away more common

Implications

- There may be a higher threshold for problems in girls
  - Need to increase awareness regarding behaviors in girls that suggest need for mental health services?
- Need for further research
  - Family, community, societal level factors

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Contact Information

Melissa Azur
mazur@jhsph.edu
410-502-8506

Lucas Godoy Garraza
Lucas.GodoyGarraza@macrointernational.com
646-695-8144

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