The Structural Framework for a Data-Driven School-Based Mental Health Program
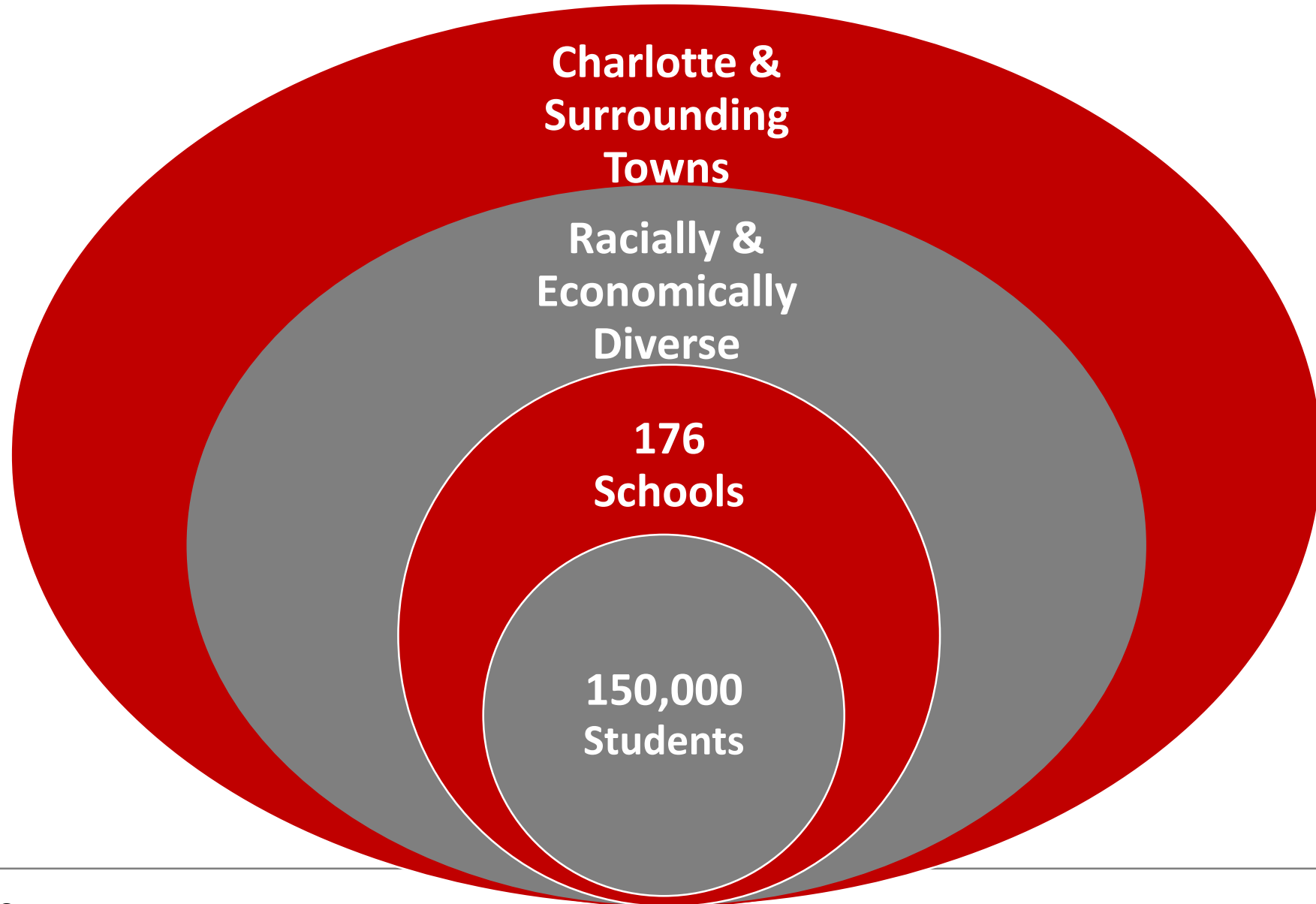
Cotrane Penn, Ph.D., Mental Health Program Specialist

Carrie Sargent, Ed.S, NIJ School Safety Initiative Specialist

Charlotte-Mecklenburg Schools AP2

The Context: About Charlotte-Mecklenburg Schools

Charlotte & Surrounding Towns

Racially & Economically Diverse

176 Schools

150,000 Students

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Charlotte-Mecklenburg Schools

Every Child. Every Day. For a Better Tomorrow.

The CMS Vision for School-Based Mental Health Services

To increase the availability of evidence-based mental health

services for the purpose of improving student's emotional

well-being and enhancing their ability to access and benefit

from instruction.

The School-Based Mental Health Program

Non-SBMH Schools
35%

SBMH Schools
65%

1 Primary Service

6 Providers

Every Child. Every Day. For a Better Tomorrow.
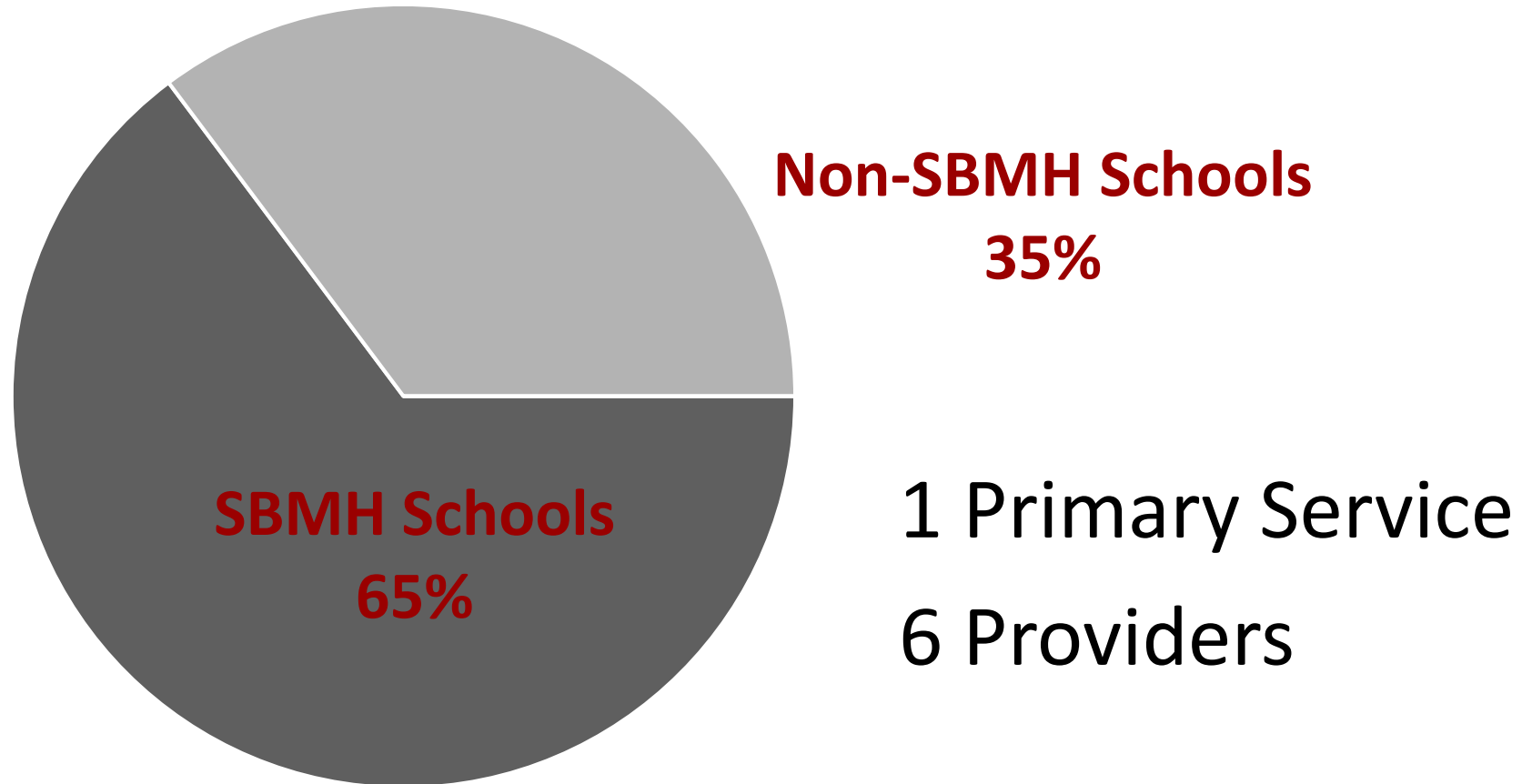
The School-Based Mental Health Program

Funding Sources

- Program management funded by Mecklenburg County Behavioral Health Services Division & NIJ Comprehensive School Safety Initiative
- Outpatient therapy funded by:
  - Medicaid
  - Private Insurance
  - Self-Pay
  - NIJ grant
  - Pro bono allocations
  - State funding

The Program's Structural Framework

Awareness of Which Students are in Need of Services

The SBMH Enrollment Process

Who Needs SBMH	Why they need SBMH	What the school has done	Funding source/needs	Referral Details

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Awareness of Which Students are in Need of Services cont.

- Enrollment process allows identification of:
  - Students in need of pro bono, grant, or state funding
  - Ultimately separates students into two groups:
    - Referred and Served
    - Referred and Not Served
- Culminates in generation of an SBMH Enrollment Approval & Referral document

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Removal of Financial & Logistical Barriers to Care

- When enrolling students staff indicate:
  - Insurance type
    - If not Medicaid, indicate family's self-reported ability to pay associated costs
  - When families cannot afford costs:
    - State funding is requested via the assigned agency where available, or
    - assigned NIJ grant funds if in an eligible school & grade, or
    - placed on the pro bono waitlist
      - Waitlist students are triaged against one another based on need

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Removal of Financial & Logistical Barriers to Care cont.

- Services take place during the school day on school grounds
  - Parents do not have to transport
  - Parents can engage in treatment via telephone, in person, in the home, or in agency office
  - Agencies report significantly higher treatment participation in school-based program compared to community-based services
- Spanish-language services
  - Limited number of Spanish-speaking therapists in the community
  - Contracted with an agency to provide itinerant Spanish-language therapy to

Bi-Directional Sharing of Information

- Releases of Information
  - School district obtains ROI from district to agency at time of referral (FERPA)
  - Agency obtains ROI from agency to district at time of intake (HIPAA)

- Program Reporting

Frequency	From School District to Agencies	From Agencies to School District
Every two weeks	SBMH program enrollments	Agency Intakes
Annually	Program evaluation report	End of year services summary

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The Ability to Determine Educational Effectiveness

- The Program Evaluation Report
  - Compares SBMH participants against similar non-participants
    - SBMH participants = enrolled & had an intake
    - Non-participants = enrolled & <u>did not have</u> an intake
    - There is not a statistically significant difference between the two groups
  - Educational data points of interest
    - Out-of school & in-school suspension
    - Unexcused absences
    - Short-term academic performance
   - Long-term academic performance

The Ability to Determine Educational Effectiveness cont.

- Treatment data points of interest
  - Treatment dosage
  - Continuity of services
    - Reasons for discontinuation of care
  - Overall service effectiveness by agency
- Qualitative Data
  - Mid-year school staff feedback surveys
  - Mid-year therapist feedback surveys

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The Ability to Determine Educational Effectiveness cont.

- Continuity of Agency Contracts
  - Agency contract & MOUs are initially for 2 years
    - Program evaluation & feedback survey data are used to determine the goodness of the relationship
    - When one or more sources of data reflect significant concerns after 2 years, the agency is given a 1 year probationary contract/MOU
    - Agency receives coaching, professional development, & support from the school district
    - If needed improvements are not made, the contract/MOU is ended
    - Contracts/MOUs can be ended at will
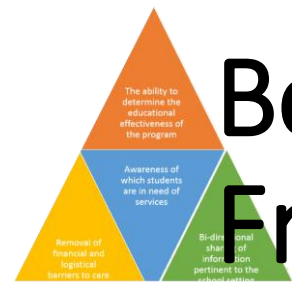
Benefits of a Highly Structured SBMH Program Framework

- Incorporation of data into a large program allows for targeted program improvement

- Data collection makes it possible for services to follow students across school & agency changes

- K-12 education is data-driven; program structure allows for the study of the influence of SBMH services on critical school-related outcomes

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Getting the Data to Understand Evidence-Based, School-Based Mental Health Services

Anna Yaros, PhD

Alex Buben, BA

Terri Dempsey, MA

Becky Durocher, BA

James Trudeau, PhD

October 19, 2017

2017 Advancing School Mental Health Conference

www.rti.org

School Safety and School-Based Mental Health Project

- Funded by the National Institute of Justice
  - Comprehensive School Safety Initiative 2015
  - Developing Knowledge About **What Works** to Make Schools Safe
- Conducted by RTI International
- Partnered with Charlotte-Mecklenburg Schools (CMS) Student Services Department
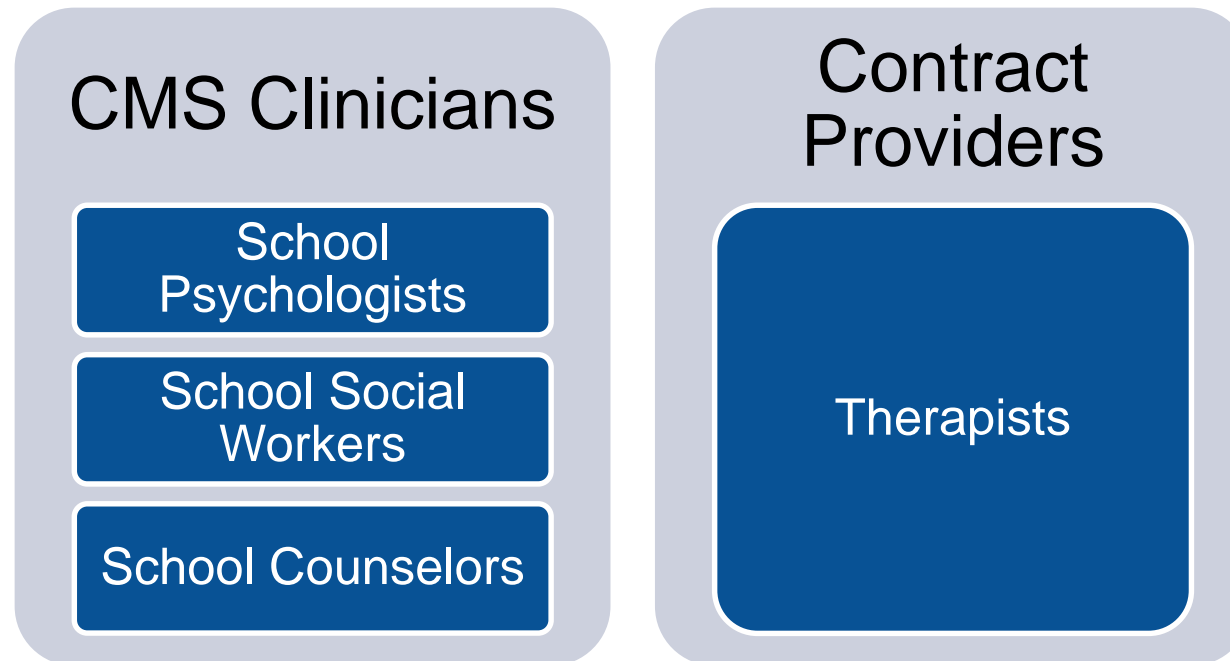
Presentation Objectives

1) Discuss the link between School-Based Mental Health at CMS and School Safety
2) Present the Quasi-experimental Design
3) Introduce Evidence-Based Treatments
4) Present Process Evaluation Initial Results
5) Present Outcome Evaluation Initial Results
6) Discuss Provider Survey Results

Background: What Is School-Based Mental Health (SBMH)?

- Mental health services
  - Based in the schools
  - Funded by Medicaid, private insurance, state and school district funds
- Services are provided by licensed clinicians

CMS Clinicians

- School Psychologists
- School Social Workers
- School Counselors

Contract Providers

- Therapists

- Many discipline infractions and school safety problems are perpetrated by a small number of students (Fabelo et al., 2011)
- Addressing their needs can improve their behavior and thereby improve school climate for everyone

- SBMH programs:
  - Improve school climate
  - Enhance school safety
  - Significantly reduce suspensions

  (Ballard, Sander, & Klimes-Dougan, 2014; Bruns, Walrath, Glass-Seigel, & Weist, 2004)

- Other positive outcomes have been suggested:
  - Academic performance
  - School attendance

  (Powers, Wegmann, Blackman, & Swick, 2014)

Overall Research Design

- Used stratified random sampling to randomize 25 middle schools (grades 6–8) and K–8 schools with pre-existing SBMH programs
- Used propensity score matching to select 9 matched comparison schools
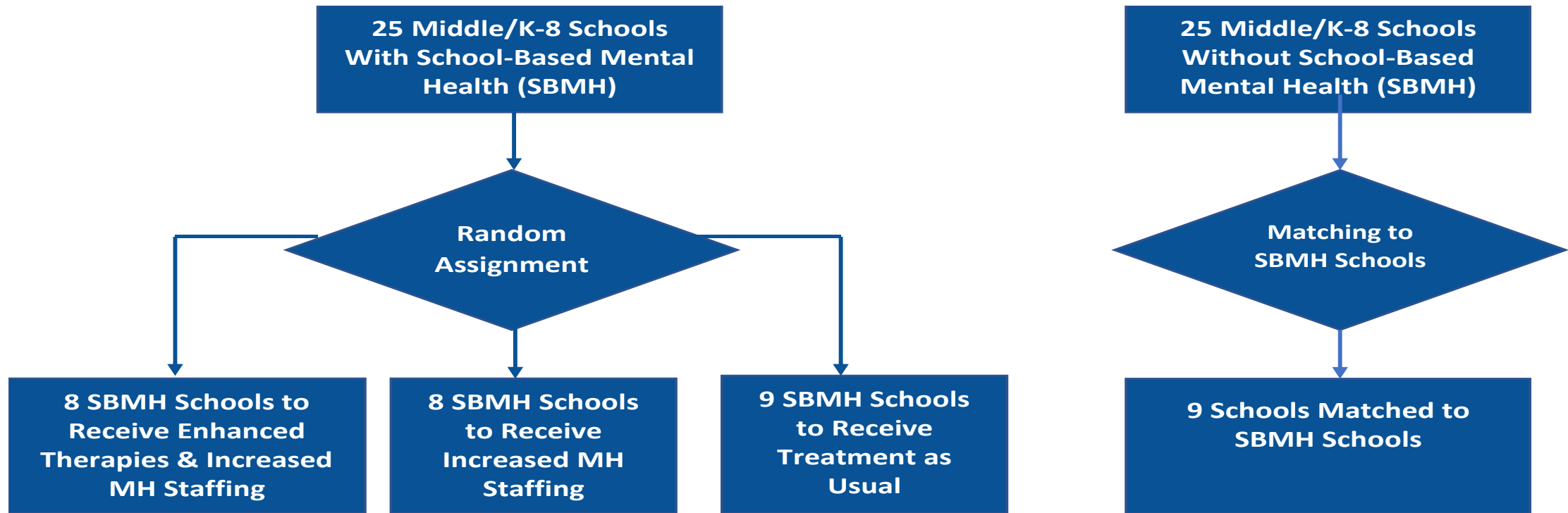
SBMH Randomization

- Expanded Treatment schools received a student services facilitator and an additional day per school psychologist at those schools
- Enhanced Therapies schools received these plus training in evidence-based treatment

Condition at Randomization	TAU (n = 9)	EX (n = 8)	ET (n = 8)
Standard school counseling, school psychology, and social work	X	X	X
Fund standard SBMH program for students who cannot afford	X	X	X
Student services facilitator		X	X
Additional school psychologist day		X	X
Training in evidence-based treatments (SPARCS and DBT)			X

Movement Between Treatment Conditions

- To prevent denial of SBMH services to students in need, 2 schools left the comparison group
  - Each began receiving SBMH TAU after randomization date
 - Staggered entry

Condition at Randomization	Comparison (n = 7)	Former Comparison, Now TAU (n = 2)	Treatment As Usual (n = 9)	Expanded Treatment (n = 8)	Enhanced Treatment (n = 8)
Standard School Counseling, School Psychology, and Social Work	X	X	X	X	X
Fund Standard SBMH Program for Students who cannot afford		X	X	X	X
Student Services Facilitator				X	X
Additional School Psychologist Day				X	X
Training in Evidence-Based Treatments (SPARCS and DBT)					X

SBMH Evidence-Based Treatments

Tier 3 Tertiary Prevention (Intensive)

Tier 2 Secondary Prevention (Targeted)

Tier 1 Primary Prevention (Universal)
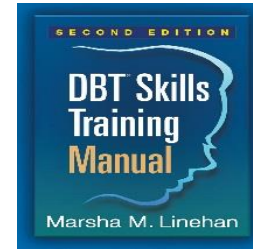
Dialectical Behavior Therapy (DBT; Linehan, 2014)
- Suicide/self-injury
- Aggression and anger
- Emotion regulation problems

Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)
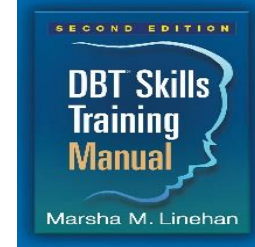- Trauma response
- Aggression, anger, disruptive behavior

Training in Evidence-Based Treatment

Tier 2 Secondary:
SPARCS
- School counselors
- School social workers

Tier 3 Tertiary:
DBT
- School psychologists
- SBMH therapists (licensed therapists)

- Training from the National Center for Child Traumatic Stress at Duke University
- Three learning sessions
  - August 2016
  - October 2016
  - January 2017
- Ongoing consultation

- Training from Behavioral Tech, LLC
- Dialectical Behavior Therapy Intensive Training™
- Two sessions
  - August 2016
  - February 2017

Evaluation Method Overview

Process Evaluation

- SBMH treatment logs – therapists, counselors, psychologists
- SBMH provider interviews
- Fidelity to treatment
  - Observations
  - Ratings

Outcome Evaluation

- Student Survey of School Climate and Safety
- Staff Survey of School Climate and Safety
- Administrative student data (attendance, discipline, academic achievement)
- SBMH clinical student measures (Strengths and Difficulties Questionnaire [SDQ], trauma checklist)
- SBMH provider survey

Cost Evaluation

- Start-up costs
- Cost-effectiveness analysis

Process Evaluation

Evaluation Method – Process Evaluation

Process Evaluation

- **SBMH treatment logs – therapists, counselors, psychologists**
- **SBMH provider interviews**
- **Fidelity to treatment**
 - **Observations**
  - **Ratings**

Outcome Evaluation

- Student Survey of School Climate and Safety
- Staff Survey of School Climate and Safety
- Administrative student data (attendance, discipline, academic achievement)
- SBMH clinical student measures (SDQ, trauma checklist)
- SBMH provider survey

Cost Evaluation

- Start-up costs
- Cost-effectiveness analysis

Process Evaluation – Implementation Science

- Our process evaluation uses a sequential explanatory mixed-methods design
  - Quantitative data informs qualitative data collection and analysis
  - Identifies high and low implementers (dosage)
  - Identifies high and low fidelity (adherence and competence)
  - Qualitative interviews explore barriers to and supports for implementation

Training Experiences
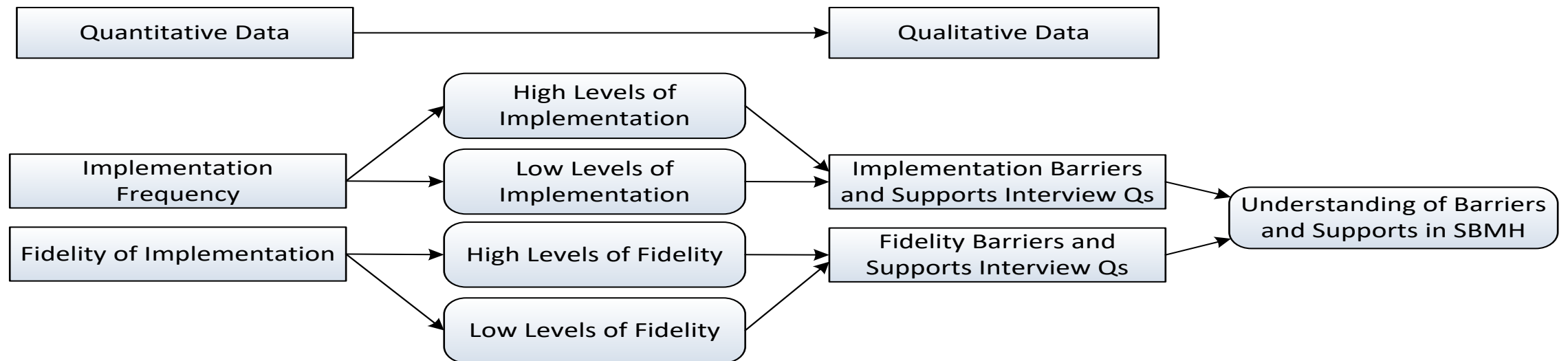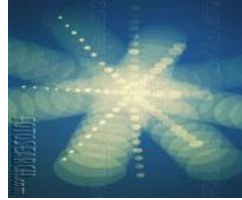
Tier 2 Secondary:
SPARCS
- School counselors
- School social workers

- Evaluation scores averaged 4 out of 5, improved over training
  - Learning Session 1 score averages = 3.18 – 4.38
  - Learning Session 2 score averages = 4.04 – 4.48
  - Learning Session 3 score averages = 4.17 – 4.56
- Qualitative Themes
  - Relevance
    - *"Many/most students have experienced some form of trauma"*
    - Found "Cultural Considerations" particularly relevant
  - Logistics
    - Requirements were unclear
    - Training felt rushed, participants needed more time
    - *"Demonstration of group activities was helpful"*
    - *"Would like more collaboration time"*

Tier 2 Secondary:
SPARCS
- School counselors
- School social workers

- 16 sessions, 1 per week, 60 minutes per session

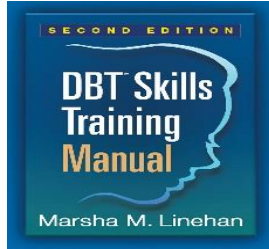|	
8 schools	
14 groups total	• 1-2 groups per school • 5-11 students per group
111 students reached total	• 9-17 students per school • Mean = 12.6 students

Tier 3 Tertiary:
DBT
- School psychologists
- SBMH therapists (licensed therapists)

- Qualitative Themes
  - Relevance
    - Many problems with suicidal behavior in school
  - Logistics
    - Very intensive training
    - Concerns about the 2 hours of homework required each week
  - Challenges administering intensive DBT services within a school
    - Regular availability of therapist
    - Abstract concepts, students with disabilities
    - How to keep kids engaged
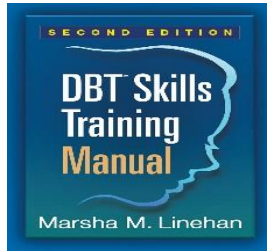
Tier 3 Tertiary:
DBT
- School psychologists
- SBMH therapists (licensed therapists)

Individual DBT Sessions

DBT Skills Groups
- 25 sessions, 1 per week, 60 minutes per session

8 schools

6 groups total
- 0-1 groups per school
- 2-6 students per group

26 students reached total

Outcome Evaluation

Evaluation Method – Outcome Evaluation

Process Evaluation

- SBMH treatment logs – therapists, counselors, psychologists
- SBMH provider interviews
- Fidelity to treatment
  - Observations
  - Ratings

Outcome Evaluation

- **Student Survey of School Climate and Safety**
- **Staff Survey of School Climate and Safety**
- **Administrative student data (attendance, discipline, academic achievement)**
- **SBMH clinical student measures (SDQ, Trauma Checklist)**
- **SBMH provider survey**

Cost Evaluation

- Start-up costs
- Cost-effectiveness analysis

Data Collection Timeline

Instrument	Respondents per school (34 schools)	Mode	2016–17 school year		2017–18 school year		2018–19 school year	
			Fall	Spring	Fall	Spring	Fall	Spring
Student survey	~120 students from randomly selected classes in 6th–8th grades	Paper-and-pencil survey; classroom setting; 1-hour session	✓	✓		✓		✓
Staff survey	40 randomly selected instructional staff and 20 non-instructional staff	Web-based survey lasting ~20 minutes	✓	✓		✓		✓
Provider survey	All counselors, psychologists, social workers and therapists	Web-based survey lasting ~20 minutes	✓	✓		✓		✓

Student Survey Data Collection Techniques

- 34 middle schools (both SBMH and non-SBMH schools)

School Recruitment

- Contact with school liaison
- Flexibility with timeline
  - 1- and 2-day options
  - Large combined groups or individual classes

Student Recruitment

- Passive parent consent (opt out)
- Whole-school parent messages (phone/e-mail)

Data Collection

- Rolling and simultaneous data collection
  - 3-month time period
- Random classroom selection
  - Focus on electives
- ~100 students per school, divided by grade (6th, 7th, & 8th)

Student Survey Sample

- 34 schools
- Grades 6–8
- Approx. 6 classes per school

- Often elective classes

- Paper and pencil

Fall 2016 (baseline)

N = 4,026

49.8% male, 49.6% female

Mean age = 12.3

Spring 2017 (follow-up 1)

N = 3,635

48.4% male, 50.1% female

Mean age = 12.7

Staff Survey Recruitment Techniques

- Instructional and noninstructional staff
- Use of local field staff to make face-to-face contact
- Reminder e-mails each week
- In-school flyers and signs
- Some principals cut staff meetings short to provide time to work on survey in lieu of meeting
- Some schools sent Outlook reminders to staff
- Offered paper copies of survey for staff who don't have e-mail access during their work day (Cafeteria and custodial staff)

- Progress thermometer to track recruitment for administration

Progress

Overall Target
Overall Total
On Track Target

120

100

80

60

50

40

50

20

0

50%
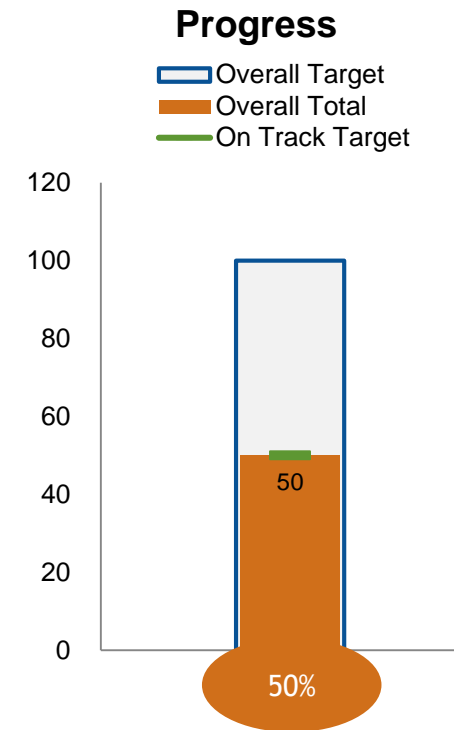
- Principal announcement
- Extended 2-week survey window to 4 weeks

Staff Survey Sample

- 34 schools

- Web-based

- Paper invitation to participate with QR code

- Email r

- 60% Response rate

Fall 2016 (baseline)

| N = 1,116 |
| 76.7% female, 20.9% male |
| 49.6% Bachelors or lower, 50.3% Master's or higher |
| 70.6% Instructional Staff |

Spring 2017 (follow-up 1)

| N = 1,143 |
| 76.8% female, 21.6% male |
| 49.6% Bachelors or lower, 50.5% Master's or higher |
| 73% Instructional Staff |

Provider Survey Demographics

Fall 2016

n = 73

89% female

69% Masters';
4% PhD

Spring 2017

n = 56

93% female

50% Masters';
11% PhD

Categories of Provider Respondents

- School Counselor
- School Psychologist
- Contracted MH Provider
- School Social Worker
- Other Provider

Outer ring: 50%, 32%, 13%, 5%, 0%
Inner ring: 49%, 25%, 15%, 10%, 1%
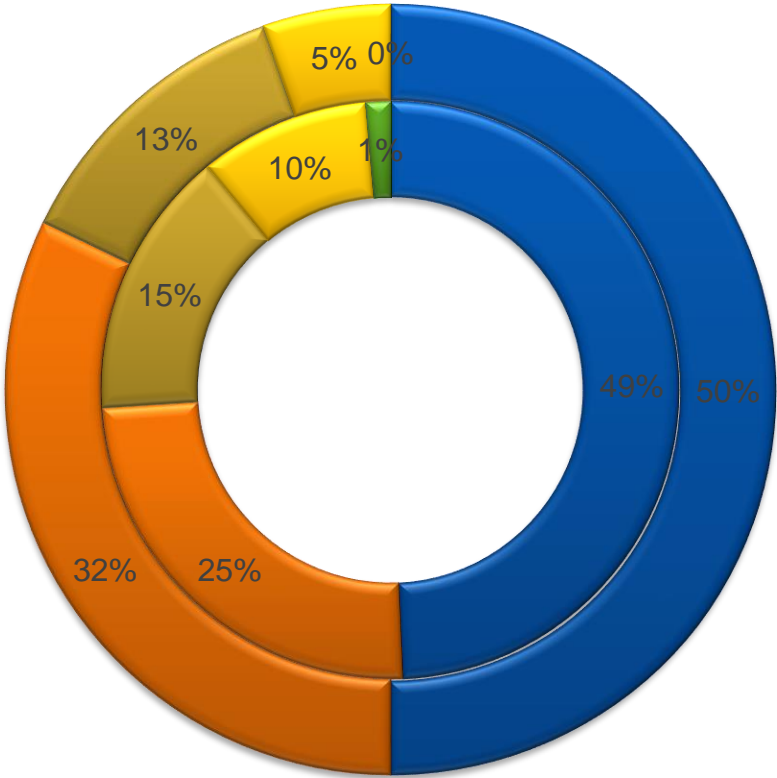
- 34 schools
- Web-based
- Designed to measure response to training and implementation of evidence-based practices (EBPs)
  - Attitudes about EBPs
  - Organizational Readiness for EBPs
  - Self-efficacy for suicide prevention

Therapists

School Psychologists

School Counselors

School Social Workers

Treatment Groups of Respondents
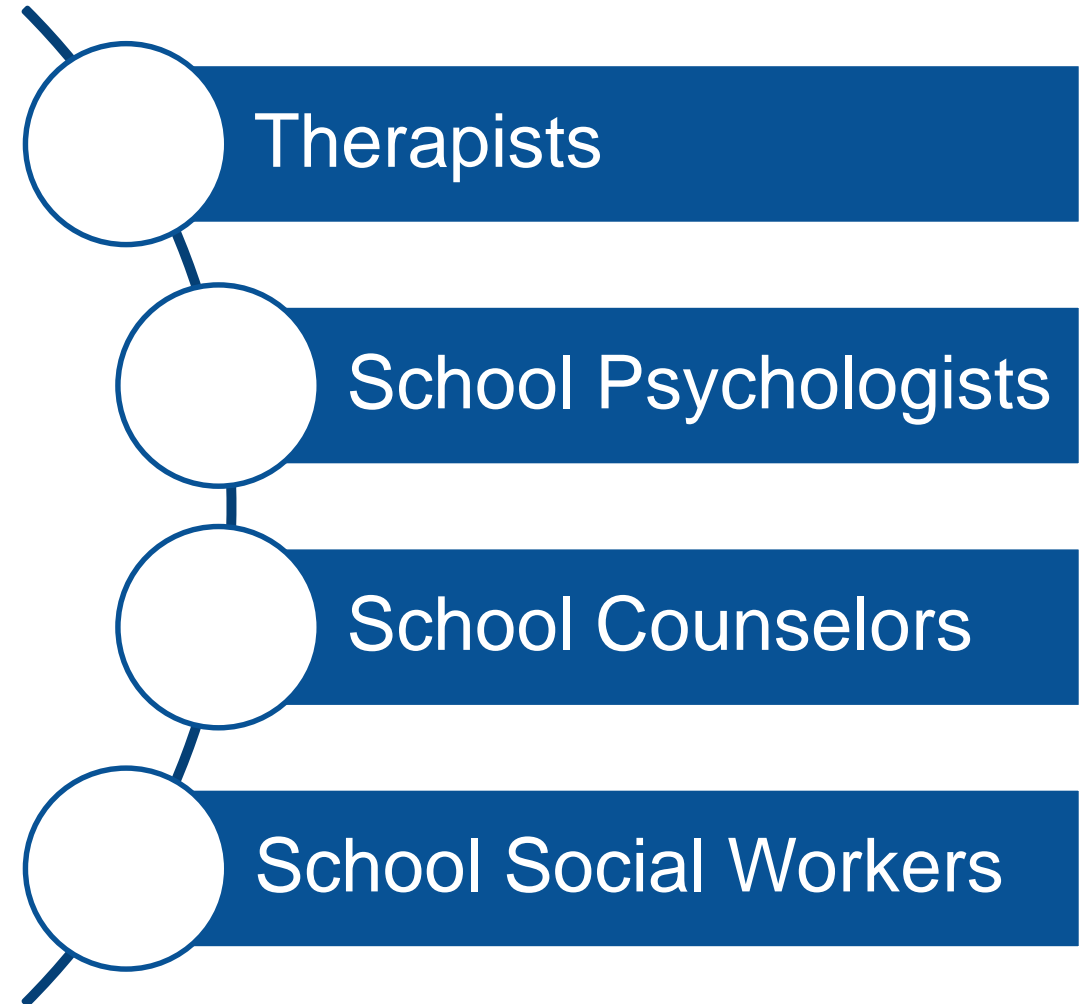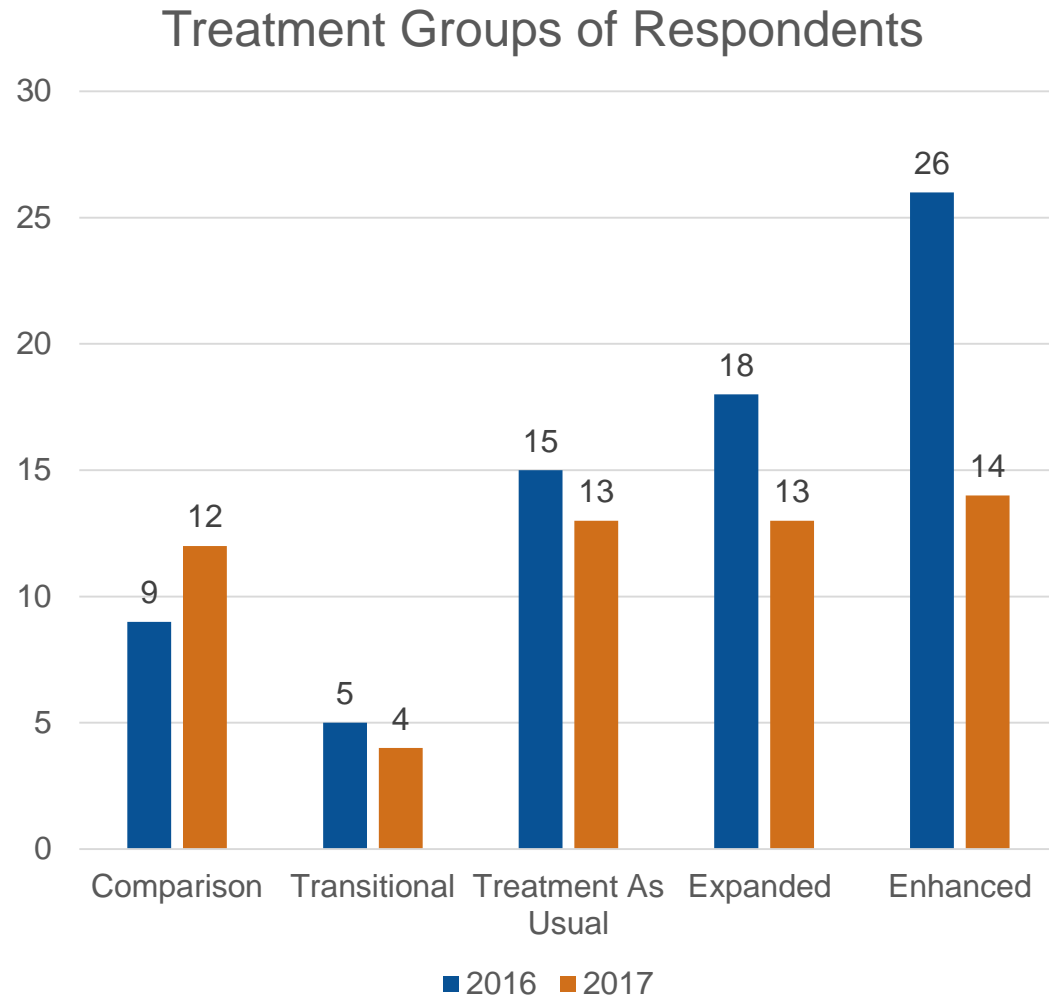
- No change from Fall 2016 to Spring 2017 in any treatment group on:
  - Attitudes about EBPs
  - Organizational Readiness for EBPs
  - Self-efficacy for suicide prevention
- Due to small n's or stable constructs?

Measures of Evidence-Based Practices

- **Evidence-Based Practices Attitudes Scale** (EBPAS; Aarons et al., 2010)
- 15 items
  ex: *Research based treatments/interventions are not clinically useful.*
- Responses 1 = *Not at all* to
  5 = *To a very great extent*
  - Requirements Scale (α = .92 –.93)
  - Appeal Scale (α = .78 – .90)
  - Openness Scale (α = .82 – .88)
  - Divergence Scale (α = .50 –.51)

- **Organizational Readiness for Implementation of Evidence-Based Practice** (Austin & Ciaassen, 2008)
- 20 items
  ex: *The mission reflects a commitment to being a learning organization and is linked to EBP.*
- Responses 1 = *Not even close* to
  4 = *We're there*
  - Organizational Capacity Scale (α = .89 – .92)
  - Organization Culture/Climate Scale (α = .88 – .92)
  - Staff Capacity Scale (α = .81 – .86)
  - Implementation Plan Scale (α = .89)
  - Total Score (α = .95 – .96)

Baseline Provider Correlational Analyses

Scale	Subscale		1	2	3	4	5	6	7	8	9
Organizational Readiness	Organization Capacity	1	—								
	Organization Culture/ Climate	2	.55*	—							
	Staff Capacity	3	.68*	.68*	—						
	Implementation Plan	4	.62*	.56*	.68*	—					
	Total	5	.84*	.82*	.89*	.84*	—				
Evidence-Based Practice Attitudes Scale	Requirements Scale	6	-.22†	-.09	.01	-.03	-.11	—			
	Appeal Scale	7	-.08	.03	.13	.24†	.09	**.28***	—		
	Openness Scale	8	.21†	.05	**.28***	**.41***	**.30***	.19	**.45***	—	
	Divergence Scale	9	.19	.17	.12	.04	.15†	-.08	-.01	.06	—

*p < .05
†p < .10

- Initial data from trainings indicate that…
  - School-based providers are interested in evidence-based prevention practices
  - School-based providers have many other competing duties

- Provider survey results suggest that…
  - Evidence-based practice attitudes are closely aligned with organizational readiness
- Attitudes could be stable over time
- Important to understand how attitudes might affect delivery of the program

Future Directions

- Provider Survey
  - Do attitudes toward EBPs and self-efficacy predict implementation?
  - Do attitudes toward EBPs and self-efficacy relate to student or staff outcomes? [school level]

- Provider Interviews
  - Understanding barriers and facilitators to implementation

- Staff Survey
  - Results still being analyzed
  - Change over time?

- Student Survey
  - Up next!

Separating Changes in Measurement From Changes in Student Outcomes in School-Based Mental Health

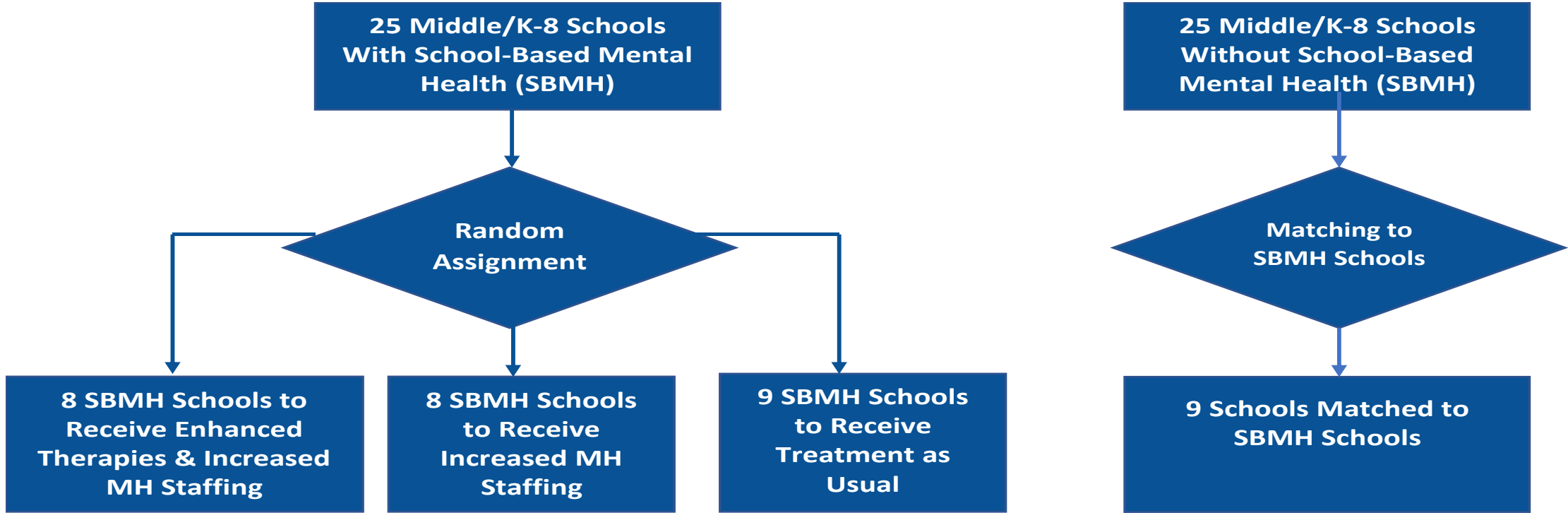Antonio A. Morgan-Lopez, PhD

22nd Annual Conference on Advancing School Mental Health

October 19–21, 2017   •   Washington, DC

Objectives

- Assess differences in changes over time in student outcomes (e.g., aggressive behavior, victimization)
  - Between Treatment as Usual SBMH schools and Expanded Treatment/Enhanced Therapies schools
  - **Between SBMH schools and non-SBMH comparison schools**

Challenge I: "Semi-Randomized" Design

25 Middle/K-8 Schools With School-Based Mental Health (SBMH)

Random Assignment

8 SBMH Schools to Receive Enhanced Therapies & Increased MH Staffing

8 SBMH Schools to Receive Increased MH Staffing

9 SBMH Schools to Receive Treatment as Usual

25 Middle/K-8 Schools Without School-Based Mental Health (SBMH)

Matching to SBMH Schools

9 Schools Matched to SBMH Schools

Challenge I: "Semi-Randomized" Design

- To prevent denial of SBMH services to students in need, 2 schools left the comparison group
- Receiving SBMH TAU after randomization date

Condition at Randomization	Comparison (n = 7)	Former Comparison, Now TAU (n = 2)	Treatment As Usual (n = 9)	Expanded Treatment (n = 8)	Enhanced Treatment (n = 8)
Standard School Counseling, School Psychology, and Social Work	X	X	X	X	X
Fund Standard SBMH Program for Students who cannot afford		X	X	X	X
Student Services Facilitator				X	X
Additional School Psychologist Day				X	X
Training in Evidence-Based Treatments (SPARCS and DBT)					X

- Reflected in pre-evaluation differences in school-level factors (e.g., suspension rates, crime rates) between SBMH and comparison schools

- Same factors are *also related to student outcomes*

- Make it difficult – without statistical adjustments – to isolate the impacts of SBMH and pre-existing differences for student outcomes

(Students Within) "Ideal" Comparison Schools

- **Not engaged in SBMH activities**
  - In the same LEA
  - Similar on key confounding characteristics
    - Enrollment
    - Economic disadvantage (e.g., free/reduced lunch)
    - Suspensions
    - Crime rates
    - *Baseline levels of the outcome (i.e., aggressive behavior, victimization, positive outlook)*
  - (Students within) schools that more closely resemble SBMH schools will receive greater weight

Propensity Scoring

- The probability of treatment *assignment* (i.e., being in an SBMH school) given the key confounding characteristics
  - Estimated via logistic regression
    - Ex: P(SBMH = 1 | Enrollment, Suspensions, Crime, ED, Base Outcome)
  - Boils information used to select into SBMH down to one value
  - Can be used to…
    - Select "similar" non-SBMH students/schools that differ only based on assignment to SBMH (i.e., propensity score matching)
    - **Use all available non-SBMH students/schools in outcome evaluation analyses by giving higher weight to comparison students/schools that are similar to SBMH schools and "downweighting" students/schools that are less similar (i.e., propensity score weighting)**

A Tale of Four Students

Student ID	Propen-sity Score	PS Weight	SBMH	Aggres-sion	School Size	% Low Income	Suspen-sions	Crime per 100 Students
739	0.3673	1.580533	0	0.6	610	86.07	79.01	2.88
740	0.37745	2.649324	1	0	558	96.24	96.25	1.19
6071	0.92221	1.084354	1	2.75	790	95.19	29.02	1.88
6072	0.92238	12.88321	0	3.6	938	43.6	4.17	0.2

Confounder Balance Checks: Cohen's *d* Effect Sizes

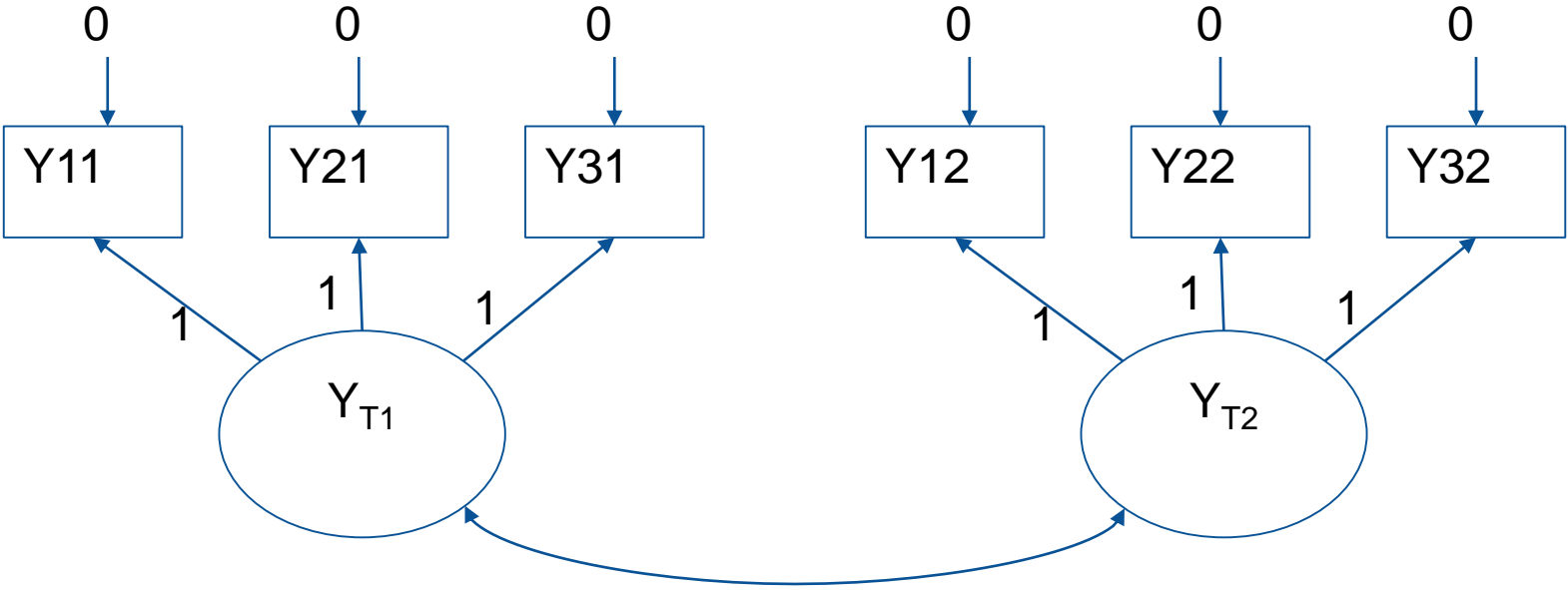| Weighting Condition	SBMH Standard v. Control	SBMH Expanded v. Control	SBMH Enhanced v. Control
Unweighted			
Baseline aggression	0.29	0.38	0.33
Baseline victimization	0.21	0.24	0.15
Baseline positive outlook	−0.12	−0.13	−0.16
Weighted			
Baseline aggression	−0.03	0.02	−0.01
Baseline victimization	0.07	0.1	0.01
Baseline positive outlook	−0.02	−0.02	−0.05

Challenge II: Longitudinal _and_ Repeated Cross-Sectional

- Schools are tracked over time but students are not

- Some percentage of students is likely included within both pre and post assessments

- Cannot remove any nesting or clustering effects due to repeated measures among the same students, even if they have both pre and post assessments
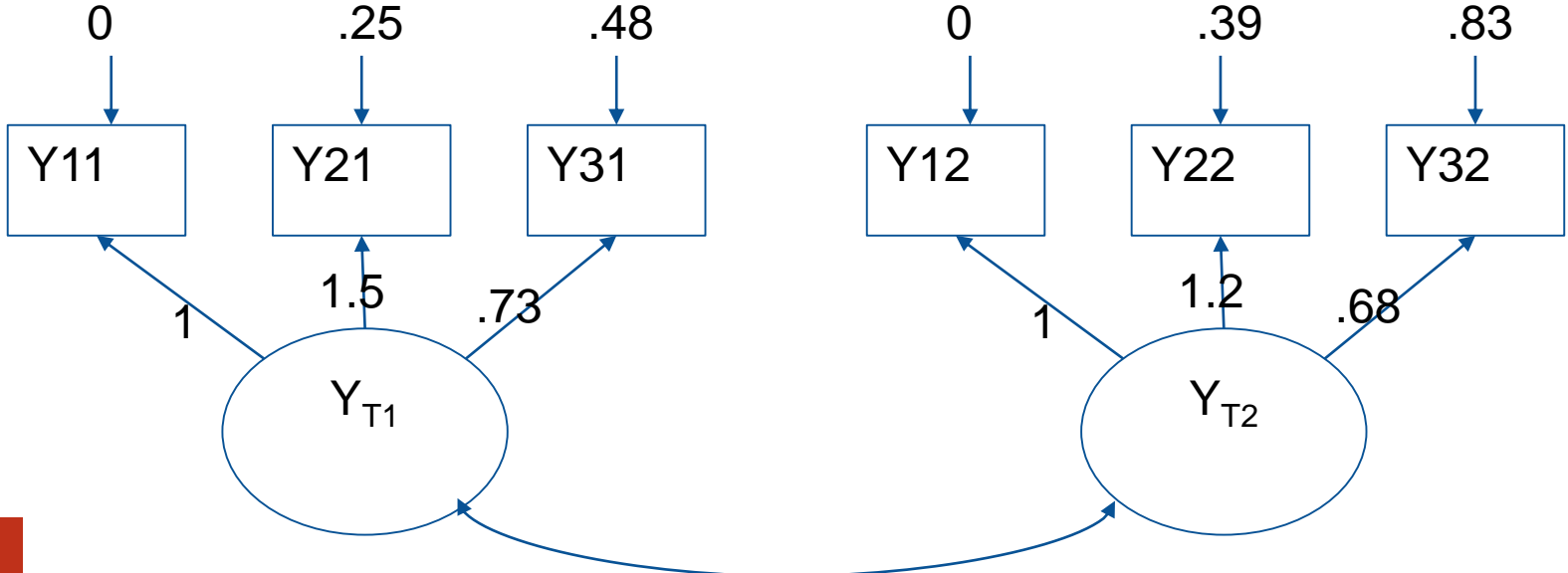
Challenge III: Measurement Challenges

- Conventional scale scores (e.g., means, sums)
  - Susceptible to measurement error if…
    - Some items are stronger reflections of the construct than others
    - Some items change meaning over time, particularly after intervention (e.g., assessment reactivity)
  - Confirmatory Factor Analysis (CFA)/Item Response Theory (IRT)
    - "Weighed" scale scores
      - Differences in the strength of each item and differences over time in each item
      - "Anchor" item (Bauer & Hussong, 2009)
  - Intervention effects can be stronger with CFA/IRT scores than mean/sum scores (Curran et al., 2016; Trudeau et al., 2015)

Mean Scores

CFA Scores

Outcome Items

Aggressive Behavior
(Orpinas & Frankowski, 2001)

I teased students to make them angry.

I pushed or shoved other students.

I got into a physical fight because I was angry.

I slapped or kicked someone.

I threatened to hurt or to hit someone.

Victimization (Orpinas, 1993)

A student beat me up.

A student pushed or shoved me.

A student slapped or kicked me.

A student threatened to hurt or to hit me.

Positive Outlook -Individual
Protective Factors Index
(Phillips & Springer, 1992)

I will probably die before I am 30.

I think I will have a nice family when I get older.(R)

I am afraid my life will be unhappy.

Bad things happen to people like me.

I think I can have a nice house when I grow up.(R)

I will probably never have enough money.

- **Single-Factor, Two-Timepoint CFAs**
  - Only one item in each model set to have equal factor loadings at pre and post; other loadings allowed to vary over time
  - Item intercepts equal over time
  - Factor means and variances allowed to vary

Internal Consistency and CFA Fit

Outcome	Cronbach's α	RMSEA (≤ .05 is ideal)
Aggressive behavior	0.84	0.066 (0.061, 0.070)
Victimization	0.78	0.044 (0.038, 0.049)
Positive outlook	0.74	0.075 (0.072, 0.079)

Path Diagram for SBMH Evaluation
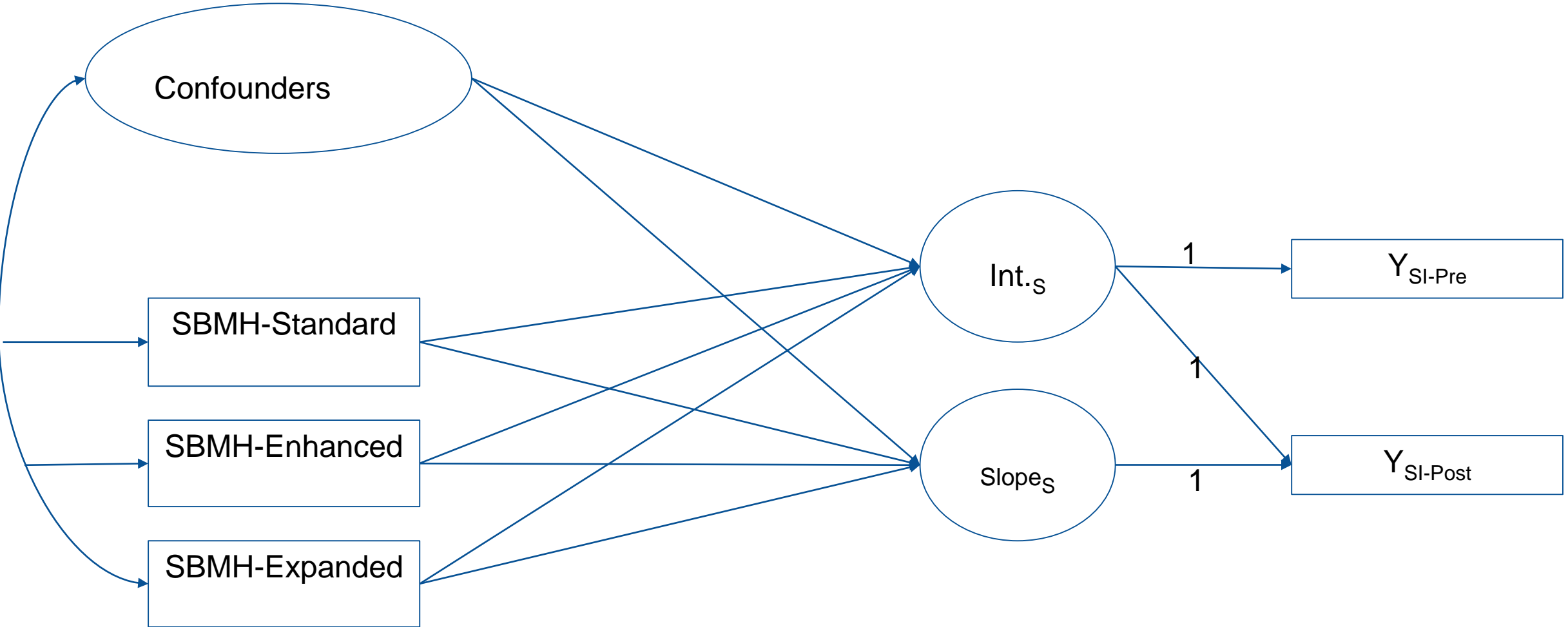
- ## 32 schools
  - 10 SBMH-Standard, 8 SBMH-Exp, 8 SBMH-Enh, 6 comparison
  - Student N = 3,783 at pre; 3,381 at post

- ## Propensity model confounders
  - Enrollment
  - Economic disadvantage (e.g., free/reduced lunch)
  - Suspensions
  - Crime rates
  - Baseline levels of the outcome (i.e., aggressive behavior, victimization, PO)

- ## Outcomes
  - Aggressive behavior, victimization, positive outlook

Outcome Model

- Mixed-effects regression models
  - Random intercepts/slopes at the school level
  - *Cannot include RI/S at the individual level because students are not tracked over time*
- Comparisons between SBMH-Standard/Comp, SBMH-Expanded/Comp, and SBMH-Enhanced/Comp
  - Conducted four sets of outcomes analyses:
    - Unweighted with mean scores
    - Unweighted with CFA scores
    - **Propensity-weighted with mean scores**
    - **Propensity-weighted with CFA scores**

- ## Aggressive behavior

  - Compared to non-SBMH schools

    - SBMH-Standard schools saw reductions in aggressive behavior ($b = -0.22(0.11)$, $p = 0.054$, Cohen's $d = -0.18$)

- ## Victimization

  - Compared to non-SBMH schools

    - SBMH-Standard schools saw reductions in victimization ($b = -0.29(.09)$, $p = 0.002$, Cohen's $d = -0.29$)

    - SBMH-Expanded schools saw reductions in victimization ($b = -0.19(0.10)$, $p = 0.06$, Cohen's $d = -0.19$)

- Victimization
  - Compared to non-SBMH schools
    - SBMH-Standard schools saw reductions in victimization (b = -0.33 (0.11), p = 0.002, Cohen's d = -0.29)
    - SBMH-Expanded schools saw reductions in victimization (b = -0.23 (0.11), p = 0.04, Cohen's d = -0.20)

Results Summary

- Reductions in aggressive behavior and victimization were observed in SBMH-Standard and Expanded schools
  - Comparison schools saw significant parallel increases
- Effect sizes were larger for victimization
  - If perpetrators have multiple victims, and SBMH programming has impact on perpetrators, then a larger number of youth will report reduced victimization than will report reduced perpetration

Discussion

- Analysis of student outcomes within SBMH presented three specific challenges:
  - Semi-randomized design
  - Mix of longitudinal and repeated cross-sections
  - Potential differences in measurement within and across time
- Used propensity score weighting, CFA, and mixed-effect regression models to alleviate most (but not all) of the problems associated with these challenges
- Found that intervention effects were stronger in favor of SBMH programming and unconfounded with selection into SBMH with propensity score weighting/mixed effects regression