School Safety & School-based Mental Health

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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
- In partnership with Charlotte-Mecklenburg Schools (CMS) Student Services Department

Violence victimization and perpetration in schools

- Exposure to violence in schools can have significant concurrent and long-lasting impact on victims
  - Continuing victimization is associated with higher rates of internalizing and externalizing behaviors (Sullivan, Farrell, & Kliewer, 2006)
  - Can lead to depression and anxiety disorders (Greene, 2005)
  - Relates to lower academic achievement (Nakamoto & Schwartz, 2010)
  - Associated with skipping school/truancy (Gastic, 2008)

- A large proportion of disciplinary infractions and school safety problems are perpetrated by a small minority of students within schools (Hoagwood, Jensen, Acri, Olin, et al., 2011)

Universal programs

Socio-emotional learning (SEL) approaches dominate the literature

Bullying literature has developed separately as it represents a specific type of peer aggression (Bradshaw, 2015; Hymel & Swearer, 2015)

Efficacy of both SEL and bullying interventions decreases past elementary school (Wilson & Lipsey, 2007; Yeager et al., 2015)

SBMH interventions

- Addressing the needs of the small group of students perpetrating the most infractions can improve the climate of the school for the entire student body (Ballard, Sander, & Klimes-Dougan, 2014)

- Interventions are typically delivered by teachers
  - Teacher-delivered interventions have little-to-modest impact on externalizing behaviors (Franklin et al., 2017)

- Proportion of students in need of services outpaces available within-school resources

- PREVIOUS Studies have focused on the impact of **universal programs on school outcomes**,
- Or the effect of **selective or targeted interventions on specific individuals** at risk for violence perpetration and/or victimization
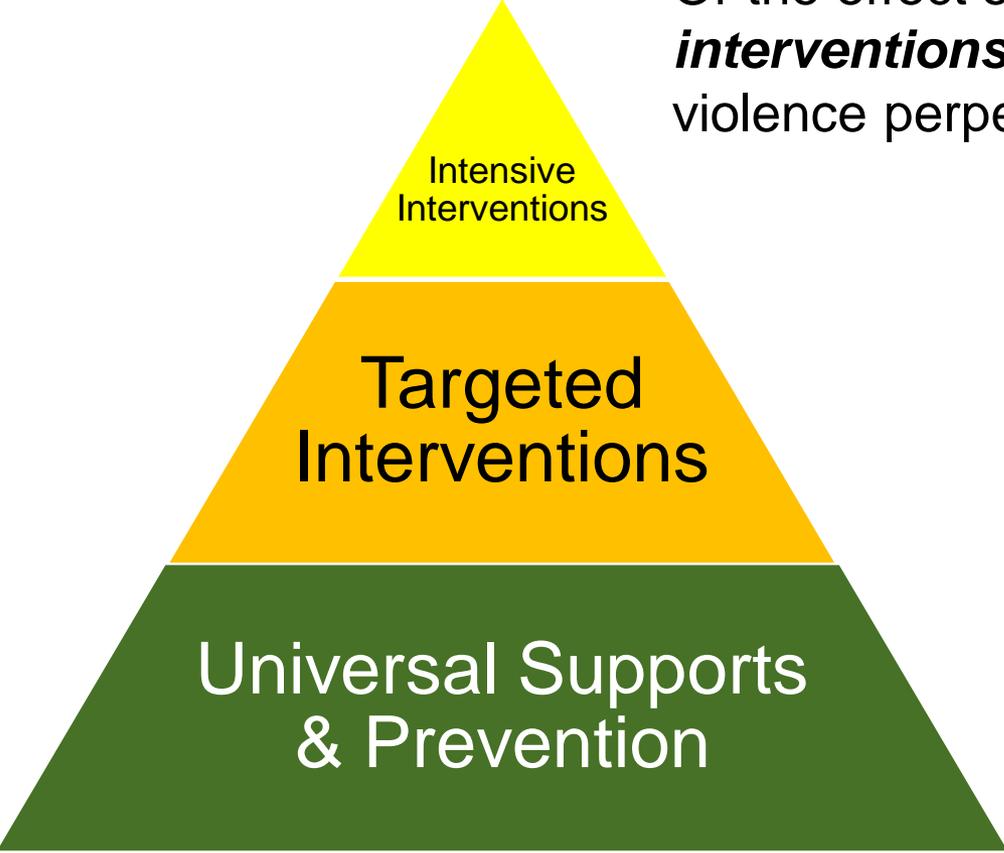
Intensive Interventions

Targeted Interventions

Universal Supports & Prevention

- The CURRENT STUDY examines the impact of targeting selected youth and the subsequent impact on the entire school population
  - Preventive intervention may include more intensive supports and programs for those identified as a bully or a victim

Study Design and Research Questions

Research Design: Two Components

- Experimental: For the 25 middle schools (grades 6–8) and K–8 schools that had SBMH programs, we randomly assigned schools to condition (stratified on school violence & disciplinary infractions)

- Non-experimental: Used propensity score matching to select 9 non-SBMH comparison schools that were most similar to SBMH schools
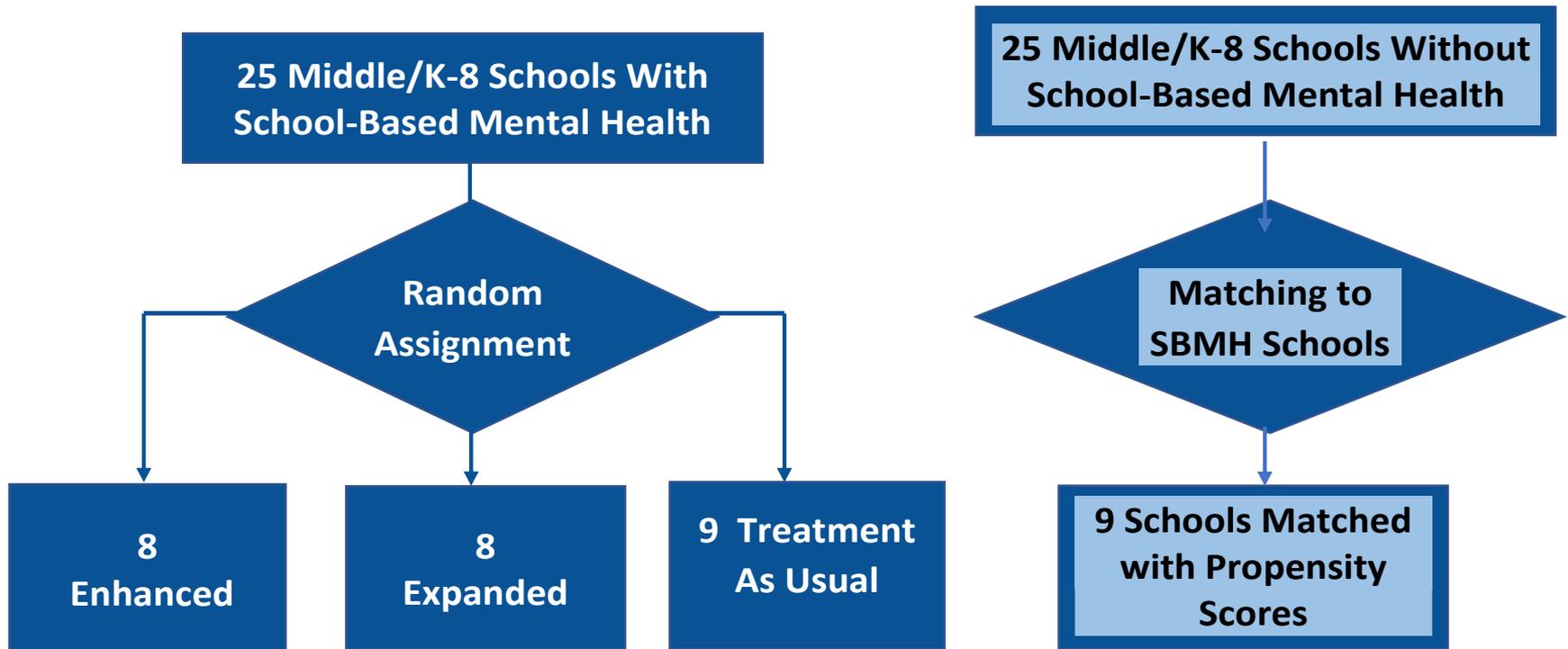
Summary of Treatment Conditions–with some movement…

- To prevent denial of SBMH services to students in need, CMS started SBMH in 2 comparison schools - after we had randomized schools

Condition at Randomization	Comparison (n = 7)	Formerly Comparison Now TAU (n = 2)	Treatment As Usual (n = 9)	Expanded Treatment (n = 8)	Enhanced Treatment (n = 8)
School Counseling, School Psychology, & Social Work	X	X	X	X	X
CMS standard SBMH program (therapists)		X	X	X	X
Added *pro bono* time for SBMH therapists		**X**	**X**	**X**	**X**
Student Services Facilitator				**X**	**X**
Added School Psychologists & Increased Coverage				**X**	**X**
Training in Evidence-Based Treatments (SPARCS, DBT)					**X**

Evidence-Based Treatments Added in Enhanced Condition

Tier 3 Tertiary Prevention (Intensive)

Tier 2 Secondary Prevention (Targeted)

Tier 1 Primary Prevention (Universal)
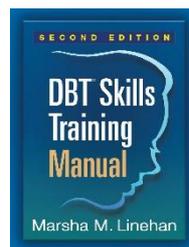
Dialectical Behavior Therapy (DBT; Linehan, 2014)
- Suicide/self-injury
- Aggression and anger
- Emotion regulation problems
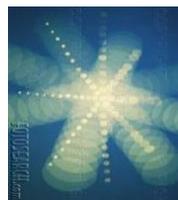
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)
- Trauma response
- Aggression, anger, disruptive behavior

1. Do non-SBMH schools and schools in each experimental arm (TAU, Expanded, Enhanced) differ on changes in outcomes (student self-reported aggression and victimization)?

2. Do schools in one experimental arm (TAU, Expanded, Enhanced) differ from schools in another arm on changes in outcomes?

3. What are the barriers and supports to implementing various levels of School-Based Mental Health with high fidelity and dosage?

Data Collection Timeline

Instrument	Respondents per school (34 schools)	Mode	2016–17 school year		2017–18 school year		2018–19 school year	
			Fall [T1]	Spring [T2]	Fall	Spring [T3]	Fall	Spring [T4]
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	✔	✔		✔		✔
Qualitative Interview Data	1-2 Providers per school	Individual phone interview				✔		✔

Student Survey Results

- ## 32 schools

  - Removed 2 schools that changed conditions
  - Student N = **4025** at baseline (Fall 2016); N = **3588** at 1st follow-up (Spring 2017); N = **2600** at 2nd follow-up (Spring 2018); N = **2471** at 3rd follow-up

- ## Covariates (in propensity score modeling)

  - 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

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.

Response options: 0 times, 1 time, 2 times, 3 times, 4 times, 5 times, 6+ times

Design and Analysis Challenges

- Pre-evaluation differences in school-level factors (e.g., suspension rates, crime rates) between SBMH and non-SBMH 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
- Random assignment and implementation measures are at the school-level but outcomes measured at the student-level – but not linked over time at the student-level
- Typically, school safety & climate worsen from Fall to Spring; T1 -T2 changes should be interpreted accordingly

Internal Consistency and Confirmatory Factor Analysis 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)

Propensity score weighting successfully adjusted for differences between SBMH & Non-SBMH schools

- Students within Non-SBMH schools that more closely resembled SBMH schools received greater weight

- Cohen's d Effect Sizes ("Balanced" ≤ |.10|)
  - Before propensity score weighting, schools were dissimilar
  - After propensity score weighting, schools were balanced (similar)

Weighting Condition	SBMH Standard v. Non-SBMH	SBMH Expanded v. Non-SBMH	SBMH Enhanced v. Non-SBMH
Unweighted			
T1 aggression	0.29	0.38	0.33
T1 victimization	0.21	0.24	0.15
Propensity Score Weighted			
T1 aggression	−0.03	0.02	−0.01
T1 victimization	0.07	0.1	0.01

Outcome Model

- **Mixed-effects regression models**
  - Fixed effects: school-level treatment condition
  - Random intercepts/slopes at the school level
  - *Cannot include RI/S at the individual level because students are not tracked over time*

- **Comparisons between each pair of conditions**
  - SBMH-TAU & Non-SBMH
  - SBMH-Expanded & Non-SBMH
  - SBMH-Enhanced & Non-SBMH
  - SBMH-TAU & SBMH-Expanded
  - SBMH-TAU & SBMH-Enhanced
  - SBMH-Expanded & SBMH-Enhanced
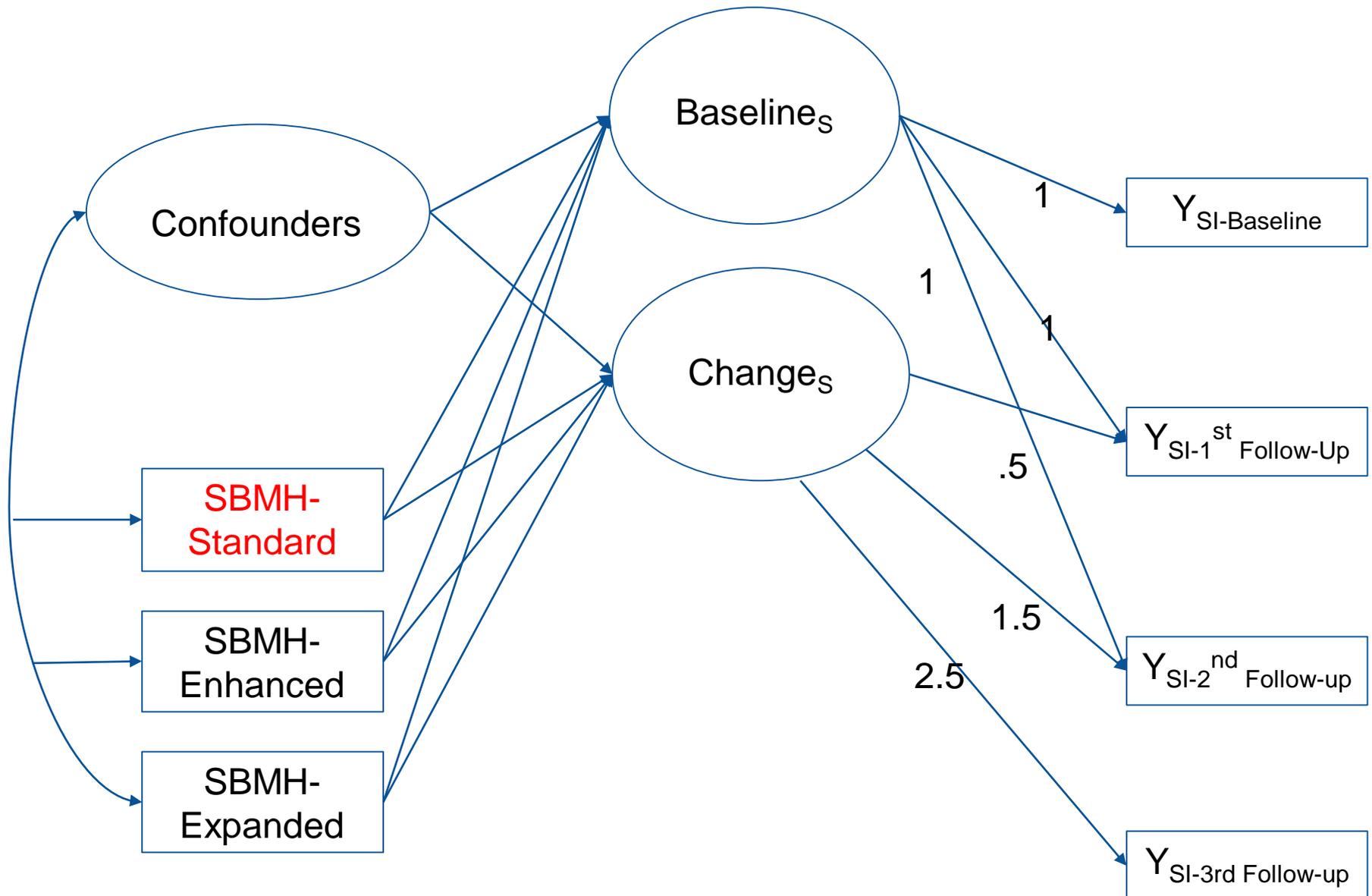
- # Aggressive behavior

  - Compared to non-SBMH schools

    - SBMH-Expanded schools saw reductions in aggressive behavior (b = -0.12(0.05), p = 0.018, Cohen's d = **-0.29**)

- # Victimization

  - Compared to non-SBMH schools

    - SBMH-Expanded schools saw reductions in victimization (b = -0.05(0.03), p = 0.08, Cohen's d = **-0.16**)

- Aggressive behavior
  - Compared to SBMH-Standard schools
    - SBMH-Expanded schools saw reductions in victimization ($b = $ -0.07(0.03), $p = $ 0.02, Cohen's $d = $ **-0.17**)

- Victimization
  - Compared to SBMH-Standard schools
    - SBMH-Expanded schools saw reductions in victimization ($b = $ -0.06(0.03), $p = $ 0.03, Cohen's $d = $ **-0.18**)

Staff Survey Results

Staff Survey Outcome Models

- Multilevel regression models
  - School-level analyses with staff nested within school
  - Fixed effects for school-level treatment condition
  - Random intercepts/slopes at the school level
  - Focused on change from Time 2 to Time 3 (Fall 2016 to Fall 2017)
- Comparisons of slopes between each pair of conditions
  - SBMH-TAU & Non-SBMH
  - SBMH-Expanded & Non-SBMH
  - SBMH-Enhanced & Non-SBMH
  - SBMH-TAU & SBMH-Expanded
  - SBMH-TAU & SBMH-Enhanced
  - SBMH-Expanded & SBMH-Enhanced

- Instructional staff in TAU and comparisons schools reported decreasing outreach. Decrease was statistically significant for TAU.
- Staff in Enhanced and Expanded schools reported a steady level of outreach.
- Changes in TAU schools were significantly different from those in Expanded and Enhanced schools (Effect size = .85 and .62, respectively).

Change Time 2 to Time 3, ESMHCI outreach
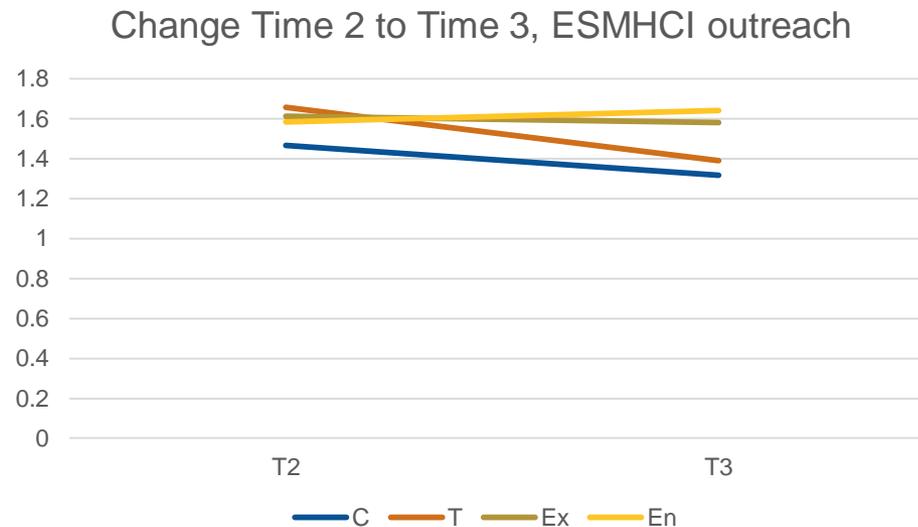
Changes in Disruptiveness (ISC) from Time 2 to Time 3

- Instructional staff in comparisons schools reported significantly increasing disruptiveness.
- Staff in Enhanced reported the smallest increase.
- Rates of change in Enhanced vs Comparison schools was of considerable magnitude, with an effect size = 0.57.

Change Time 2 to Time 3, ISC Disruptiveness
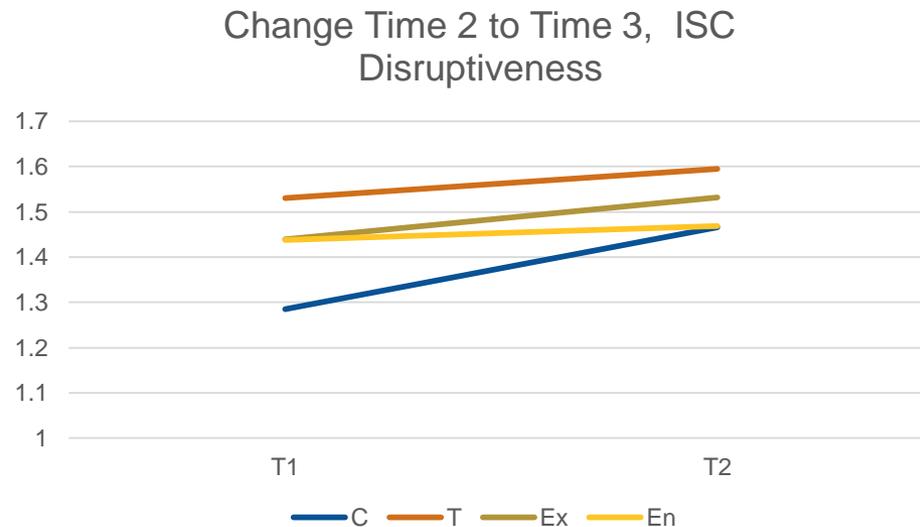
Provider Interview

Interview Respondents

Round	Student Services Role				
	Counselor	Psychologist	Social Worker	Therapist	Total
Round 1	6	3	3	1	13
Round 2	2	1	2	2	7
Total	8	4	5	3	20

Round	Treatment Condition				
	Comparison	TAU	Expanded	Enhanced	Total
Round 1	3	4	0	6	13
Round 2	0	1	2	4	7
Total	3	5	2	10	20

Interview Themes

		Treatment			Total
		Enhanced	Expanded	TAU	
SBMH Implementation Effect on Student Services	Count	28	15	9	**52**
	% within Construct Code	53.8%	28.8%	17.3%	**100.0%**
SBMH Impact on School Safety	Count	30	2	5	**37**
	% within Construct Code	81.1%	5.4%	13.5%	**100.0%**
How SBMH can be Improved	Count	5	3	4	**12**
	% within Construct Code	41.7%	25.0%	33.3%	**100.0%**
Level of Need for SBMH	Count	34	12	8	**54**
	% within Construct Code	63.0%	22.2%	14.8%	**100.0%**
Barriers to SBMH	Count	34	3	26	**63**
	% within Construct Code	54.0%	4.8%	41.3%	**100.0%**
Fidelity of Implementation of SBMH	Count	36	1	3	**40**
	% within Construct Code	90.0%	2.5%	7.5%	**100.0%**

"It's actually more about that our time to do it—and it has been very, very helpful—we have the Student Services Facilitator, and she's been wonderful. She's helping us a whole lot with 504's, however, there's the two of us, and we have an intern, and so for a thousand kids, we're each supporting 500, …. that's why I come back to I think SPARCS is awesome and I think it's making an impact, however, when we look at it as the whole school, it's almost like it would have been better to learn a guidance curriculum that would have impacted a larger group."

"So when you drill down into that, and you're tapping just a little bit of the student body, and you realize it's not a handful of kids that are struggling with traumatic issues, it's almost the whole school, whether the trauma of living financially on the edge, moving a lot, high percentage of incarcerated parents, on and on and one. You know, that's not the way schools are supposed to be where everybody is in need of social work services"

"I will say I do feel really supported by the [district] department in terms of like they equip us with snacks and supplies. That's really nice, because sometimes that is a barrier, and so that has been provided for us, which oftentimes we either have to come out-of-pocket or request funds from the PTA. That has been very, very helpful."

"I think for SPARCS what's worked well is the group session with the kids. I think the students, based on what the counselors say, really seem to like it, and the counselors feel like that the kids want to come to sessions, that they enjoy it, that they are able to learn some skills that they would not have gotten anywhere else."

Results are Preliminary

We are conducting similar analyses on other types of data – treated student mental health data, administrative data

We are also considering different approaches to modeling the relationships between implementation (dosage) & outcomes

- With 2018-2019 dosage data, we will have 4 rounds of outcomes and 3 rounds of implementation data, making additional approaches possible (e.g. lagged effects of services on outcomes)
- We are exploring whether and how to examine the relationship between aggregated (rather than individual) services and outcomes

Initial Implications

School-based mental health programs are effective in:

- Reducing aggressive behavior and victimization
- Observing lower levels of disruptiveness

Barriers to School-based mental health implementation

- Expansive student need
- Limited provider time

Supports to School-based mental health implementation

- Leadership buy-in and support

More Information

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