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Shelby County Schools Comprehensive School Safety Initiative

Report

Prepared for

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1. Introduction

Suspension and expulsion are the most common responses in discipline policies and are not effective in meeting the needs of students. In fact, these practices may exacerbate the very problems they are attempting to reduce. A tension exists within the American education system between the need to protect students from the realities of violence in and around the school building and the suspension/expulsion mandates associated with a school's disciplinary policies. There is an urgent need for solutions to this tension and for dissemination about what works to make schools safe.

1.1 Background of Shelby County School (SCS) District

According to the U.S. Census, the population of Shelby County, Tennessee, was 929,744 in 2020, with just over half of the population identifying as Black or African American and 19.1% of people living in poverty. Situated in this context, SCS is the largest school district in Tennessee and one of the 25 largest districts in the United States. As of 2021, there were 214 schools (26 of which were middle schools), 110,500 students (24,800 of which were in middle school), and 13,900 employees in the district. SCS has a student population that is majority Black or African American (74%) and has a 79% 4-year graduation rate.

SCS's partnership with RTI International presented an opportunity to conduct a randomized controlled trial of school safety strategies and contribute to the scientific literature on what approaches to school safety work. This study sought to build on a successful jail diversion program and successful gang prevention programs developed and implemented in high schools in Shelby County and expand to middle schools. Specifically, this study implemented a school-randomized design to evaluate the implementation, outcomes, and cost-effectiveness of two school safety strategies in Shelby County Middle Schools (SCMS): (1) student-focused school safety (SFSS), and (2) comprehensive school safety (CHSS) strategies compared to treatment as usual (TAU).

1.2 Overall Goals

1. Use a mixed methods design and a school-randomized intervention trial to evaluate the efficacy of SFSS and CHSS strategies.
2. Use economic analysis to assess the cost and cost-effectiveness of SFSS and CHSS strategies.

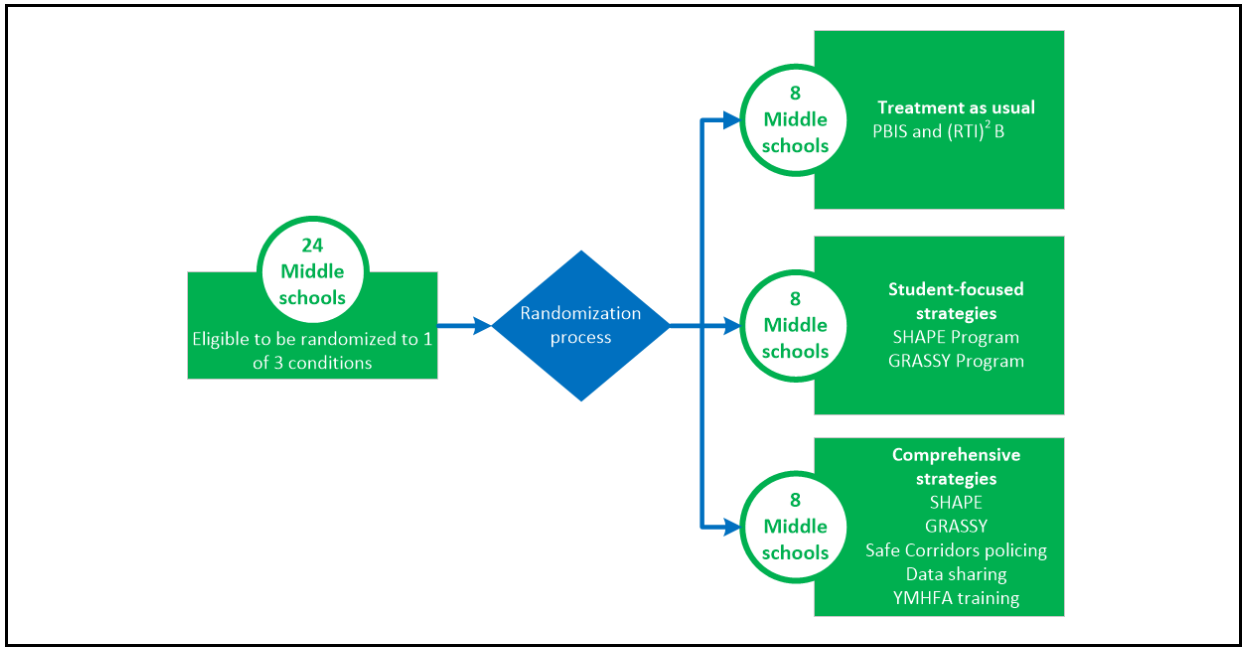
2. Method

2.1 Purpose, Goals, and Evaluation

The purpose of this study is to rigorously evaluate SFSS strategies and CHSS strategies that will reduce the reporting of violence and misbehavior of students while minimizing the severity of negative outcomes (e.g., out-of-school suspension, arrest); encourage positive

outcomes; and minimize costs to schools. Our school-randomized evaluation of school safety strategies included process outcomes and costs of three groupings of strategies implemented in 24 SCMS (See Figure 1). Eight schools were randomized to the TAU condition. Eight schools were randomized to receive two SFSS strategies: the School House Adjustment Program Enterprise (SHAPE), and the Gang Reduction Assistance for Saving Society's Youth (GRASSY). Lastly, eight schools were randomized to the CHSS condition. These schools received both SHAPE and GRASSY, the Safe Corridors program, Youth Mental Health First Aid, and data sharing (see section 2.2. for Intervention descriptions). RTI also evaluated the costs of the SFSS and CHSS strategies.

Figure 1. Randomization Process for SCS Comprehensive School Safety Initiative



GRASSY = Gang Reduction Assistance for Saving Society Youth; SCMS = Shelby County Middle Schools; SHAPE = School House Adjustment Program Enterprise; YMHFA = Youth Mental Health First Aid.

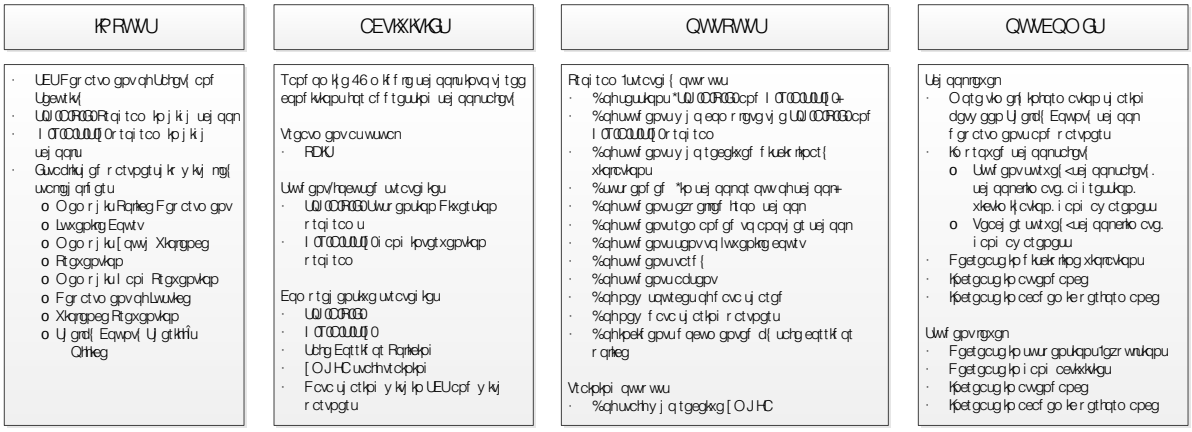
The specific goals of the study were the following:

- Use a mixed methods design and a school-randomized intervention trial to evaluate the efficacy of SFSS and CHSS strategies.
- Assess the cost and cost-effectiveness of SFSS and CHSS strategies using economic analysis.

2.2 Intervention Descriptions and Processes:

The activities column in the evaluation logic model (see Figure 2) depicts the interventions implemented as part of this study. These include treatment as usual programming, student focused strategies, and comprehensive strategies.

Figure 2. Evaluation Logic Model



GRASSY = Gang Reduction Assistance for Saving Society Youth; PBIS = Positive Behavioral Interventions and Supports; SCMS = Shelby County Middle Schools; SCS = Shelby County Schools; SHAPE = School House Adjustment Program Enterprise; YMHFA = Youth Mental Health First Aid.

2.2.1 Treatment as Usual: Response to Instruction and Intervention for Behavior (RTI²-B)

Program Description

At the start of the study, SCS implemented the Positive Behavior Intervention and Supports (PBIS) program district-wide as an alternative to traditional punitive measures in response to rising suspension and expulsion rates. PBIS is a set of tools and methods used to identify and support desired behaviors in the school setting. As the study progressed, SCS enhanced their approach to include the Response to Instruction and Intervention for Behavior (RTI²-B) program.. RTI²-B is the practice of providing high-quality instruction and interventions matched to student need, monitoring progress frequently to make decisions about changes in instruction or goals and applying child response data to important educational decisions" (Batsche et al., 2005). RTI²-B and PBIS are complementary programs with the RTI framework placing greater emphasis on academics and PBIS focused on behavior. SCS implements a unique version of the RTI model that integrates the principles of quality instruction and intervention, incorporating components of both PBIS (behavior) and RTI (academics) into one comprehensive program with the goal of increasing academic achievement and decreases in the number of office disciplinary referrals, suspensions, and expulsions.

2.2.2 Student Focused Strategies

The student focused strategies include individual level interventions designed to provide support to students who have been identified as at risk for suspension/expulsion or gang involvement.

2.2.3 The School House Adjustment Enterprise (S.H.A.P.E)

SHAPE Programmatic Description

S.H.A.P.E. is a diversion program. At the high school level, S.H.A.P.E. serves two functions, to divert youth from the criminal justice systems and reduce the number of minority youth who are transported and booked into juvenile detention for minor offenses. SHAPE is a 1-hour afterschool program students attend for 4 weeks (twice weekly) and is implemented by staff within their respective schools. *Figure 3* describes some of the different types of disciplinary infractions that could warrant a referral to SHAPE. In response to the growing number of suspensions and problem behaviors among middle school students, SHAPE has been adapted to serve as an alternative method of addressing suspensions and expulsions. SHAPE coordinators are SCS staff within the schools in which a SHAPE program is present. Coordinators are typically teachers, guidance counselors, or assistant principals. Other school staff such as coaches or behavioral intervention specialists were also reported as being SHAPE coordinators.

Figure 3. Infractions Warranting Referral to SHAPE

SHAPE Process and Implementation

SHAPE is conducted in group sessions and implements lessons that focus on teaching youth how to navigate difficult and stressful situations, anger management, and how to maintain awareness of others and their feelings, thus providing strategies to help youth select the best response to situations in which there are disagreements between students and staff.

Table 1 describes the general SHAPE process from when a student was referred through a student graduating from SHAPE.

Table 1. SHAPE Process from Start to Finish

Referral	▪ A student is identified as a potential SHAPE candidate and is referred to the SHAPE coordinator for participation in the program. A referral to SHAPE is mainly used as a response to behavior that would traditionally warrant a suspensions or expulsion and the student is given an ultimatum: participate in SHAPE, or receive a traditional punishment.
Parental Permission	▪ Before a student can participate in SHAPE, parental permission must be obtained and is traditionally done so either at the time of referral or after the referral is made. ▪ Seeking parental permission also is an opportunity to explain to the child and parents the purpose of the SHAPE program and why a student was referred; it also affords the opportunity to ask any questions they might have and outlines the expectations of SHAPE participation.
Intake/Entry into SHAPE	▪ SHAPE was designed in a way that allows a student to enter into SHAPE at any point in the curriculum. Since SHAPE uses a group-based approach to programming, youth can begin even if other students are ahead of them. Anything they missed will be filled in at the end of their programming. ▪ This time also serves as another opportunity to explain and introduce youth to the SHAPE program and also is an additional opportunity to reinforce the expectations of participation in SHAPE. ▪ Students take a pre-test upon entering SHAPE that serves as an intake, giving the SHAPE coordinator insight into the student and also serving as a baseline assessment to help track and monitor student progress.
Programmatic Delivery	▪ Upon completion of the pre-test and introduction, a student officially begins programming focusing on topics such as anger management, social skills, de-escalation, etc.
SHAPE Graduation	▪ Graduation from SHAPE occurs once a student has attended all sessions throughout the 4-week programming.

2.2.4 Gang Reduction for Saving Society's Youth (GRASSY)

Programmatic Description

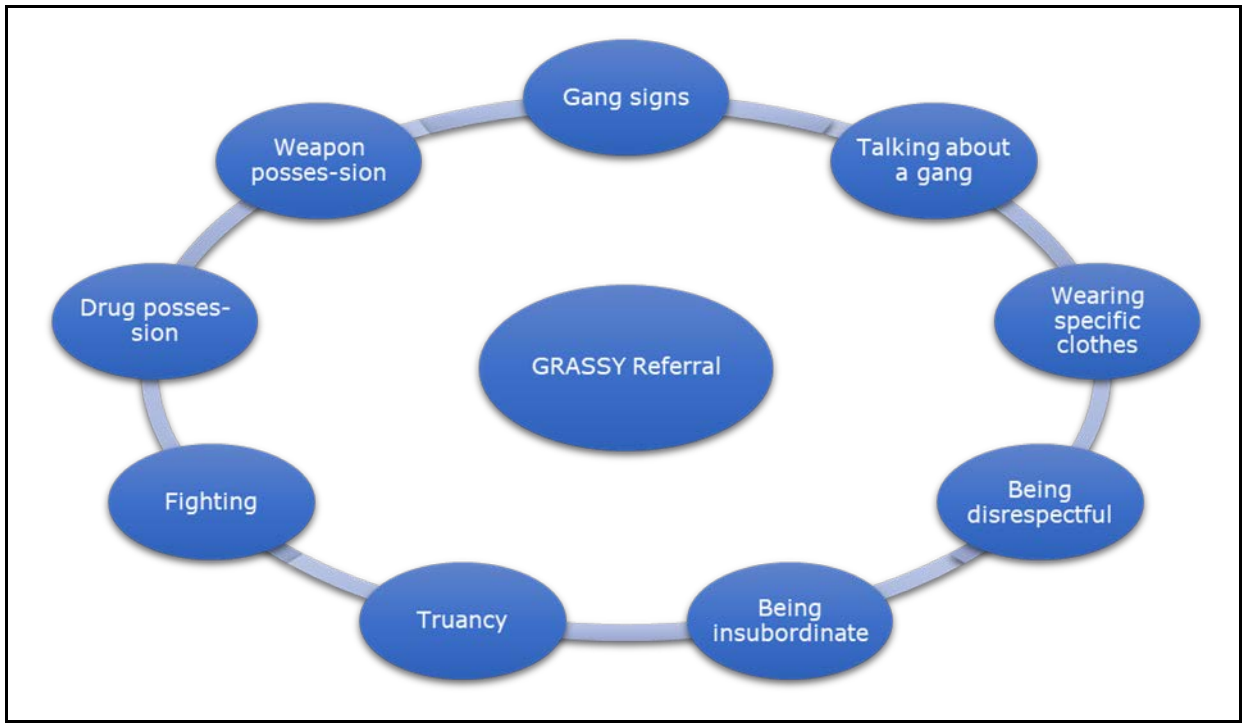
The GRASSY program is a school and community-based prevention and intervention program that works with students who are members of a gang and/or students identified to be at risk for joining a gang to reduce their involvement and help when feasible. GRASSY was derived from the evidenced-based OJJDP Comprehensive Gang Model. Specifically, SCS uses the OJJDP hybrid model which is designed to provide on-going assistance to specific students within their schools and help students to secure academic or social resources designed to prevent gang involvement. Additionally, outreach workers provide assistance to schools and staff on gang identification and prevention/intervention techniques.

Initially, SCS implemented the GRASSY program to address the needs of high school students at risk of involvement with or actively involved in gangs; however, because of the differences in development and maturity between high school and middle school students, it was necessary to adapt programming to be more relevant to middle school youth. The

program operates by using an SCS gang specialist along with outreach workers employed by various community-based contracting organizations. GRASSY Referral Pathways

There is no one specific way in which a student is referred and enrolled in GRASSY programming, and referral pathways can vary across schools. Students can be identified by the principal, assistant principal, teachers, other students, parents, or counselors. Figure 4 outlines some of the most common reasons youth could be referred to GRASSY.

Figure 4. Most Common Reasons for a GRASSY Referral



Overview of the GRASSY Process

Delivery of the GRASSY interventions generally uses a tiered or phased approach to working with youth, and although the content delivered to the student may vary, the broader processes tend to have core similarities. *Figure 5* summarizes the way in which GRASSY workers interact with youth upon a referral to the program.

Figure 5. GRASSY Student Referral, Intake, and Service Delivery Processes

2.2.5 Comprehensive Strategies

The comprehensive strategies include the SHAPE and GRASSY programs described in the student focused strategies above as well as the Safe Corridors program, Youth Mental Health First Aid, and Data sharing, which are described below.

2.2.6 Safe Corridors

The Safe Corridors program involves Memphis City police officers monitoring the routes that students travel to and from school to create a sense of safety for the students and families in the community. Officers also communicate with school staff to learn about any issues within the school that have a chance to carry over in the before or after school hours. This allows the officers to position themselves such that they can prevent actions that can escalate into violence or unlawful behavior.

Data Sharing. The ability to implement successful student-focused school safety programs requires data from different departments within the SCS. Data from the Department of Attendance and Discipline are critical in the management of student participation. This department regulates standardized processes for discipline, enrollment, transfers, homebound education, and school-wide interventions. For example, students enrolled in the SHAPE program have an attendance requirement as part of their enrollment agreement with the SHAPE program. In this study, a data coordinator facilitated data sharing with the SCS departments and partners responsible for programming in the CHSS experimental group.

Youth Mental Health First Aide. SCS offered training on Youth Mental Health First Aid (YMHFA) across their district. YMHFA is designed to teach teachers and school staff (among others) how to help a student (age 12-18) who is experiencing a mental health or addictions challenge or is in crisis. Youth Mental Health First Aid is primarily designed for adults who regularly interact with young people. The course introduces common mental health challenges for youth, reviews typical adolescent development, and teaches a 5-step action plan for how to help young people in both crisis and non-crisis situations. Topics covered include anxiety, depression, substance use, disorders in which psychosis may occur, disruptive behavior disorders and eating disorders on middle schools implemented several programs and strategies to meet the needs of its students throughout the district. The safety concerns at Shelby County high schools have commanded most of the programming attention; however, there is a growing need to address the school safety challenges present in SCMS. Currently, all middle schools in Shelby County have access to PBIS.

2.3 Process Evaluation Data

For the CSSI, the process evaluation aimed to answer the following research questions:

- To what extent are student-focused and comprehensive school safety strategies implemented as planned?
- What barriers to student-focused and comprehensive strategy implementation were encountered, and what solutions were developed to address them?
- How many students received student-focused school safety programs, and with what dosage?
- To what extent do comprehensive school safety strategies lead to enhanced collaboration and coordination across the SCS stakeholders?

In the following sections, we provide a description of our methods, a description of the programs, information on the environmental context for SCMS students, details about the implementation of the school safety strategies, and the facilitators of and barriers to program success.

RTI conducted site visits from 2018 to 2021, which consisted of interviews with 64 participants across 45 individual interviews and 5 focus groups with grant and school staff across 18 schools in the SCSD. This included schools from each of the three treatment arms: TAU (i.e., PBIS); student-focused school safety programs (i.e., SHAPE and GRASSY); comprehensive school safety strategies (i.e., SHAPE, GRASSY, Safe Corridors policing, Youth Mental Health First Aid training, and data sharing).

Findings in this report are based on 30- to 90-minute, semi-structured interviews and focus groups conducted with 64 participants who were willing to discuss their experiences with CSSI (15 members of the SCS district administrators, 24 principals and assistant principals, 10 GRASSY workers, 4 Safe Corridors officers, and 11 SHAPE coordinators). SCS and RTI collaborated to identify participants by their role in the design or implementation of CSSI programs. The RTI Process Team worked with the CSSI Safety Team to recruit these participants for interviews or focus groups, with some participants interviewing multiple times throughout the project. RTI selected school and intervention staff based on their assigned treatment arm, the length of their school tenure, and any movement between schools. There were some principals who served as the principal for the same school but in different years. We held two distinct focus groups: one with principals that remained at the same school throughout the study period, and another group with principals that moved schools at least once during the study period. To avoid any judgment or criticism by their peers, the RTI team attempted to avoid grouping principals that moved schools and succeeded other principals who participated in focus groups with our team. If the RTI team was unable to avoid grouping principals who moved schools and succeeded another, RTI invited one of the principals to participate in an individual interview. RTI conducted individual interviews with 6 principals or assistant principals, and the remaining 18 participated in 1 of the 5 focus groups.

RTI used a semi-structured interview format to allow for conversational flexibility between subjects and interviewers while maintaining a level of consistency across interviews. Interview guides were primarily informed by the evaluation's research questions. The interviews and focus groups used common protocols that covered multiple topics related to the implementation of, and experiences with, CSSI programs. RTI conducted the first two rounds of in-person site visits in May 2018 and May 2019. Because of the COVID-19 public health emergency, RTI conducted the remaining site visits virtually in May 2020 and from June through August 2021. RTI staff audio recorded all interviews and focus groups and sent the recordings to a third party to be transcribed.

2.4 Outcome Evaluation Data

2.4.1 Student and Staff Survey Data and Data Collection

RTI's overall approach was to assign a group of schools to an RTI Site Coordinator (SC) and a locally based Field Data Collector (FDC) for the duration of the study. The SC coordinated data collection logistics in its assigned schools and oversee FDCs in the same schools. FDCs will work with schools on the parent permission process and ensure that data collection is completed. Each school was designate a School Liaison to work with the SCs and FDCs on all aspects of the study, including creating a survey administration plan and schedule for data collection, distributing and tracking consents for both students and teachers, and monitoring data collection activities.

RTI IRB was consulted prior to the start of the study and it was determined this study was exempt. RTI implemented best practices in data collection and adhered to each school's policy regarding parental consent requirements and procedures. Parents were given the opportunity to indicate whether they approve their child's participation. Consent forms were collected before each data collection. The preferred distribution method for consent forms included the forms in a packet that parents receive at the school's open house during enrollment or at the beginning of the school year. However, the timing of data collection activities may require classroom teachers to distribute consent forms to their students. SCs and FDCs will work with the School Liaison to track consent forms and ensure that only students with permission participate in the student survey.

We began baseline data collection at the beginning of the 2017–18 school year. Subsequent follow-up data collection time points will occur in spring 2018, spring 2019, and spring 2020. The student survey was administered to students using paper-and-pencil bubble sheets and took about 30 minutes.

Staff survey data were captured online. Similar to the student survey, we began baseline in fall 2017, spring 2018, and spring 2019. The 20-minute web-based staff survey was conducted over the course of 4 weeks at each survey administration. All staff employed at the school, both instructional and non-instructional, were eligible to participate. For the first three data collection time points, instructional staff and non-instructional staff in each school were randomly selected for the survey. The 2020 staff survey was not captured due to school closures caused by the COVID-19 pandemic. These surveys were scheduled once schools were closed; in light of initial pivots to virtual instruction, we did not want to burden staff with data collection.

As part of the outcome evaluation, RTI conducted staff and student surveys, which captured self-reported perceptions of school safety, interactions with antisocial peers, gang awareness, and student-witnessed violence. Tables 2 and 3 provide sample descriptives for staff and students who participated. Staff who participated spread evenly between grade 6

and grade 8. Most staff identified as Black or African American (67.5) and 26.6% self-identified as White. Students spread evenly between grade 6 and grade 8 from the 24 participating schools were randomly selected to participate in data collection. Most student respondents self-identified as Black or African American (79%), and 23% self-identified as Hispanic or Latino (see Table 3).

Table 2. Staff Survey Descriptives

	Staff Survey Administration Period		
School Term	Fall 2017	Spring 2018	Spring 2019
Characteristic	Time 1 (*n* = 1,166)	Time 2 (*n* = 955)	Time 3 (*n* = 944)
Sex (% male)	20.6	19.2	20.3
Staff type (% instructional staff)	68.3	67.3	71.0
Staff tenure (% less than 1 year)	6.0	4.9	8.4
Staff tenure (% 1–5 years)	20.7	22.4	23.1
Staff tenure (% 6–10 years)	17.1	18.3	15.4
Staff tenure (% 11–20 years)	34.0	33.5	29.2
Staff tenure (% more than 20 years)	17.5	16.9	16.9
Grade 6 (%)	15.3	15.3	15.3
Grade 7 (%)	11.0	11.5	13.0
Grade 8 (%)	12.3	13.2	14.1
Ethnicity (% Hispanic or Latino)	2.1	2.7	2.5
White (%)	29.7	26.1	24.0
Black or African American (%)	64.1	67.6	70.8
Asian (%)	1.8	1.6	1.8
American Indian or Alaska Native (%)	2.3	1.6	2.4
Native Hawaiian or Pacific Islander (%)	0.3	0.1	0.4

Table 3. Student Survey Respondents

School Term	Student Survey Administration Period			
	Fall 2017	Spring 2018	Spring 2019	Spring 2020
Characteristics	Time 1 (*n* = 3,628)	Time 2 (*n* = 3,409)	Time 3 (*n* = 3,421)	Time 4 (*n* =1,165)
Sex (% male)	48.5	49.6	47.4	49.3
Age, mean (SD)	12.3 (0.9)	12.7 (1.0)	12.7 (1.0)	12.6 (1.0)
Grade 6 (%)	36.6	37.6	33.4	32.1
Grade 7 (%)	31.6	30.7	31.5	35.3
Grade 8 (%)	31.3	30.5	33.8	31.8
Ethnicity (% Hispanic or Latino)	21.6	23.2	21.6	21.1
White (%)	13.9	15.1	14.0	7.1
Black or African American (%)	77.0	74.1	76.3	84.1
Asian (%)	2.7	3.8	3.7	1.5
American Indian or Alaska Native (%)	6.8	6.8	5.4	5.0
Native Hawaiian or Pacific Islander (%)	2.0	2.3	1.8	1.1
Household size, mean (SD)	2.7 (1.1)	2.6 (1.2)	2.6 (1.1)	2.6 (1.1)

SD = standard deviation.

2.5 Cost Evaluation Data

We used the principles of activity-based costing (Drummond et al., 2015) to estimate the costs required to implement SFSS and CHSS compared to TAU. Costs were estimated by (1) identifying the activities needed to implement the interventions, (2) identifying the resources used to execute each activity, (3) determining the quantity of each resource used, and (4) assessing the unit cost for each resource.

We identified the activities and the resources through semi-structured telephone interviews with the SCS grant coordinator. We conducted a first interview to identify the activities and resources for starting up SHAPE, GRASSY, and Safe Corridors at the study schools and then a series of ad hoc phone calls to resolve questions about the data being reported. On the basis of these discussions, we assembled a start-up cost questionnaire to collect the quantity and unit costs of the resources and asked the SCS staff to complete the guide.

We followed a similar process to collect ongoing costs in each of the 3 years of implementation. In the first year of implementation, we interviewed SCS staff to identify all ongoing activities and resources at the study schools and then followed up with a questionnaire to collect the quantity and unit cost data. We followed the same approach in the next 2 years of implementation. We used SCS administrative data on annual school

enrollment to apportion district-wide costs to schools and to generate cost-per-student estimates. The district-level resource types were time for district staff, any trainings they attended, and any materials purchased at the district level. Because the ongoing cost guide asked SCS for the average annual district-wide salary for school counselors, social workers, and psychologists, it did not account for any within-district wage differences. Activities and resources, along with the quantity measures and cost measures used to calculate intervention costs, are presented in Table 4.

Table 4. Measures for Resource Quantities and Costs

Activity	Resource	Measure[a]	
		Quantity	Unit Cost
Start-Up Costs			
Trainings	SCS district staff	Hours	Wage rates
	SHAPE staff	Hours	Wage rates
	GRASSY staff	Hours	Billed amount
	Police officers	Hours	Billed amount
	Materials	Count of materials	Cost per material
	Space	Square footage	Cost per sq. ft.
Hiring activities	SCS staff	Hours	Wage rates
Developing MOUs	SCS staff	Hours	Wage rates
Ad hoc meetings	SCS staff	Hours	Wage rates
Ongoing Costs			
Implementation	SCS district staff	FTE	Wage rates
	SHAPE staff	Billed amount	Billed amount
	GRASSY staff	Billed amount	Billed amount
	Police officers	Billed amount	Billed amount
	Space	Square footage	Cost per sq. ft.
	Materials	Count of materials	Cost per item
Ongoing trainings	See above list	Billed amount	Billed amount

FTE = full-time equivalent; GRASSY = Gang Reduction Assistance for Saving Society Youth; MOU = memorandum of understanding; SCS = Shelby County Schools; SHAPE = School House Adjustment Program Enterprise.

[a] Data sources for quantity and cost measures were interviews and questionnaires with SCS, study records, the Occupational Employment Statistics from the Bureau of Labor Statistics, and Loopnet.com.

When needed, we supplemented unit cost data from other sources, including project expense reports and Occupational Employment Statistics from the Bureau of Labor Statistics in the U.S. Department of Labor. Additionally, SCS was not able to provide us with a cost

per square foot of school space; we instead used the average cost of office space (from Loopnet.com) in Shelby County. We estimated the total startup costs to set up the intervention and per-student ongoing costs to implement the intervention.

2.6 Analytic Approach

2.6.1 Process

RTI used NVivo 12.0 to analyze the transcripts. The initial analysis process consisted of a deductive coding phase in which a codebook was developed with codes that map to topics from the interview protocol and process evaluation questions RTI developed explicit definitions and precise instructions for each code to ensure coding accuracy and consistency. The analysis team then initiated an inductive coding phase to organize codes into thematic categories and synthesize common experiences with CSSI implementation and program delivery. The team held regular debriefings to review and resolve coding inconsistencies. Tables 5 and 6 present the number of interviews conducted and the interviewees by role within the school system.

Table 5. Number of Individual Interviews and Focus Groups

Methodology	*N*
Individual interviews	45
Principal focus group	5

Table 6. Interviewees by Role

Role	Number of Interviewees
SCS district administrators	15
Principals	24
GRASSY workers	10
Safe Corridors officers	4
SHAPE coordinators	10
Total	63

GRASSY = Gang Reduction Assistance for Saving Society Youth; SCS = Shelby Country Schools; SHAPE = School House Adjustment Program Enterprise.

2.7 Outcomes

The randomized component was analyzed under an intention-to-treat framework to assess intervention effects under real-world effectiveness conditions for implementation. Power analyses were conducted for the cluster-randomized design of the study using Mplus Monte Carlo simulation facilities with the following parameters structured for a three–time point, three-level latent growth model: (1) school-level intraclass correlation of 0.10, (2) differences in the number of schools in the comparison (16 for pairwise intervention condition comparisons and 24 for comparisons between student-focused/comprehensive strategies and TAU), and (3) intervention effect sizes corresponding to a standardized mean difference in slopes of 0.20. Anticipating a 75% retention rate, power of 0.80 was achieved with within-school sample sizes averaging n = 151.

The analytic framework was structured to compare TAU, student-focused, and comprehensive strategies (at least eight schools per condition): (1) time point–to–time

point changes in outcomes (e.g., from baseline to first follow-up and, subsequently, from baseline to second follow-up), and (2) trajectories of outcomes across all repeated measures. We examined variance components models before model fitting to assess whether or not at least one level of aggregation can be eliminated from model fitting in order to simplify the analyses. Statistical approaches that account for (1) multiple levels of clustering (repeated measures, individuals, schools), and (2) potential imbalance on school-level balancing variables after randomization because of the small number of schools were used.

In our general analysis plan, initial checks were made for covariate balance across student-focused, comprehensive, and TAU strategies as part of randomization checks—specifically, propensity scoring to distill the school characteristics down to one number to stratify the schools for randomization. Next, a series of weighted multilevel latent growth models (for assessing trajectories of change across all repeated measures) will be fit for each focal outcome or implementation measure to determine (1) whether student-focused or comprehensive strategies showed incremental improvements in outcomes above and beyond TAU, and (2) whether all two SCMS conditions (combined) showed significant improvements over time compared with TAU schools.

The student and staff samples comprised serial cross-sectional samples each year. A cross-sectional sample collects data from a new random sample of students and staff at each timepoint. This approach is appropriate and commonly used when the focus is on whether the program effects change in a population of youth in intervention schools relative to a population of youth in control schools (TAU).

For student and staff surveys, Mplus (Version 8.7) (Muthén & Muthén, 1998-2012) was used to fit moderated nonlinear factor analysis (MNLFA) models under robust maximum likelihood estimation, accounting for clustering due to repeated measurements across schools for the generation of expected a posteriori factor scores (Asparouhov & Muthén, 2010). In a manner similar to IRT scores (Embretson & Reise, 2000), MNLFA scores take into account differences in the conditional prevalence of each behavior (i.e., item thresholds) and the strength of the association between each behaviors and all other variables (i.e., item factor loadings), which total scores do not (Bauer, 2017).

After tests for unidimensionality, an initial base single-factor MNLFA model was fit whereby the delinquency items were modeled assuming no differential item functioning (DIF) across time (T1–T4) or personal characteristics (race, ethnicity, or sex). Next, a series of 13 models were fit for each item, whereby thresholds and loadings were tested to see if they varied across time and/or personal characteristics (i.e., DIF).

For each model, including the final MNLFA scoring model, DIF predictors were centered so that the interpretation of the “main” item parameters was at the mean level across time and personal characteristics; the DIF parameters for each predictor, if present, were interpreted

as the deviation in the item parameter per one-unit difference in the predictor. The final MNLFA scoring model generated latent student delinquency scores that took into account any identified DIF across all items. This process was repeated for the school safety items and for both student survey and teacher survey outcomes.

2.7.1 Cost

The analytic perspective for the economic analysis was that of SCS, meaning that the analysis included costs accruing to the district: school staff time, trainer fees, materials and supplies paid for by the district, and school space. Costs accruing outside the district, such as the time costs for students and their families, were not included in this perspective. We chose the district perspective because it seems that future programs will most likely be considered and initiated at the school district level.

We collected cost data at the school level. Comprehensive school safety is not a specific intervention but rather a variety of programs within a school. Although an economic analysis at the student level would have allowed for student-level variation in the cost data, collecting these data would have been cost prohibitive for the study and highly burdensome for school staff.

2.7.2 Startup Costs

To estimate startup costs, we first estimated the cost of each activity by combining the unit cost (or price) and quantity of each resource; we then summed over all activities. The mathematical expression for start-up costs SC_{ar} is

$$SC_{ar} = \sum_{a=1}^{l} \sum_{r=1}^{k} P_{ar} Q_{ar} \, ,$$

where P_{ar} and Q_{ar} are price and quantity for activity a_{ar} and resource r_{ar}.

2.7.3 Ongoing Costs

To estimate the average ongoing cost per student in each study year, we used an approach similar to that for startup costs. The annual school-level cost per student $\overline{OC}_{sy}$ is the sum of the product of the unit costs (i.e., prices) for each of the resources, divided by the school enrollment:

$$\overline{OC}_{sy} = \sum_{a=1}^{l} \sum_{r=1}^{k} \frac{P_{syar} Q_{syar}}{E_{sy}} .$$

In addition to the terms defined above for startup costs, costs are at the level of the school, s, and study year, y; E_{sy} is school enrollment.

2.7.4 Cost-Effectiveness Analysis

We computed the relative cost-effectiveness for each treatment arm by combining cost estimates with predicted values of scores on suspensions. We used the random effects

model to predict at the level of the treatment arm and derived from the school-level marginal effects for each year. We did not compute confidence intervals because of the limited number of schools per treatment arm.

3. Results

This section includes an overview of results from our mixed methods approach that included a process, outcomes, and cost evaluation. Below, we discuss results from the process evaluation followed by outcomes and cost. The process evaluation finding provide the needed context to understand the outcomes and cost evaluation findings.

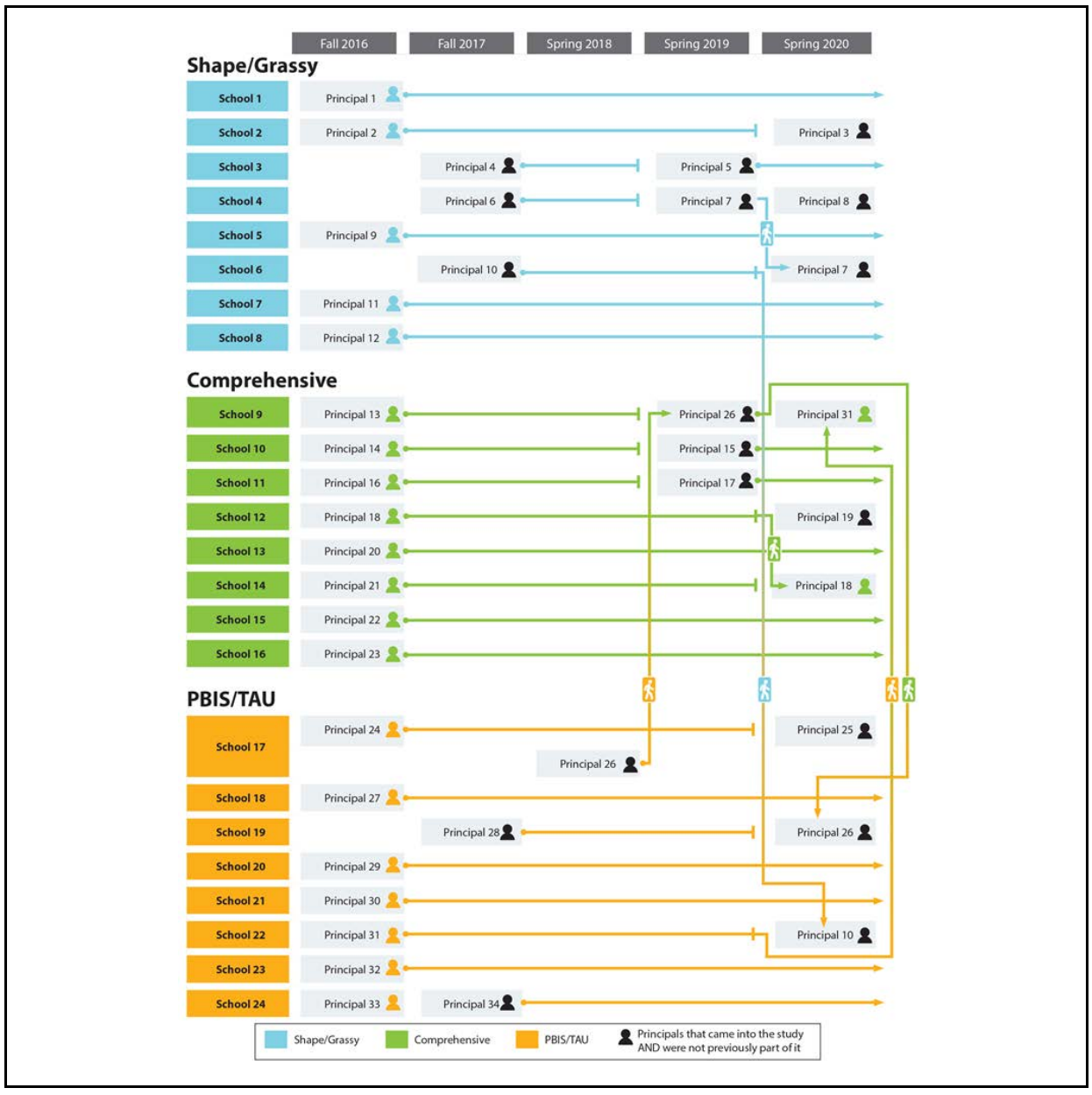
The study design included the randomization of 24 middle schools to assess what differences (if any) existed among the three study conditions (treatment as usual, student focused strategies, and comprehensive school strategies) on our outcomes of interests (i.e. reductions in suspensions and expulsions). As implementation began and progressed, the research team identified several key factors that made it challenging to ensure that the design was rigorous and that randomization was consistent across the study, thereby limiting any cross-contamination.

SCSD utilizes “fresh starts” for underperforming schools that fall within the bottom 5% of schools in the district. During a fresh start, a school receives 80-100% new staff. The underlying premise of a fresh start is to use a new principal/administration to improve the overall academic performance of the school. In addition to schools that were fresh started, the district experienced significant staff turnover, and principal/staff movement among various schools within the district. During the study period, participating schools experienced significant staff and principal movement. Although we are unable to account for staff movement, Figure 6 displays principal movement among the different treatment groups. Of the schools that participated in this study, only 10 school maintained consistent leadership throughout the study.

The significant amount of principal movement combined with a school losing staff due to a fresh start and general staff turnover within schools made it challenging to ensure that staff turnover would not result in contamination. In addition, one of the differentiators for the comprehensive condition was the addition of the Safe Corridors program, the YMHFA, and data sharing. While all staff at the 8 schools assigned to the comprehensive condition were supposed to be trained on the YMHFA curriculum; the implementation team at SCS was unable to secure adequate coverage of teacher’s time during the school day or incentivize all staff to complete the 8 hours of training on the weekends. As a result, this implementation strategy was not implemented with fidelity and we will not report findings on this strategy. These implementation realities influenced how we are able to present the findings from the study and significantly impact our ability to generate interpretations from the process evaluation. As a result, we are unable to present the results from the process

evaluation by each treatment condition; rather, the process evaluation results are presented below and follow the same order in Sections 3.1–3.3 (when applicable): Overall grant-wide results, SHAPE-specific results, GRASSY-specific results, and Safe Corridors.

Figure 6. Principals' Mobility among Treatment Groups



GRASSY = Gang Reduction Assistance for Saving Society Youth; PBIS = Positive Behavioral Interventions and Supports; SHAPE = School House Adjustment Program Enterprise; TAU = Treatment as Usual.

3.1 Barriers and Challenges

This section describes the barriers staff that encountered while implementing GRASSY and SHAPE. The barriers were broken up into two broad categories: *external barriers*, or barriers that impacted implementation but were outside of the CSSI program and SCS district (e.g., environmental- or community-level factors); and *internal barriers* (e.g., factors specific to the intervention). These identified external and internal barriers were synthesized via an inductive thematic analysis to identify themes that were reported to have a large enough impact on implementation of the CSSI grant. External barriers were generally out of the control of intervention staff; however, the external barriers identified are important to consider as something that can impact implementation and can be accounted for when planning similar programs. On the contrary, internal barriers were identified as impacting implementation but can be mitigated with various strategies or can be accounted for prior to implementation with concrete strategies in place to address them as they arise.

3.2 External Barriers Identified Grant-Wide

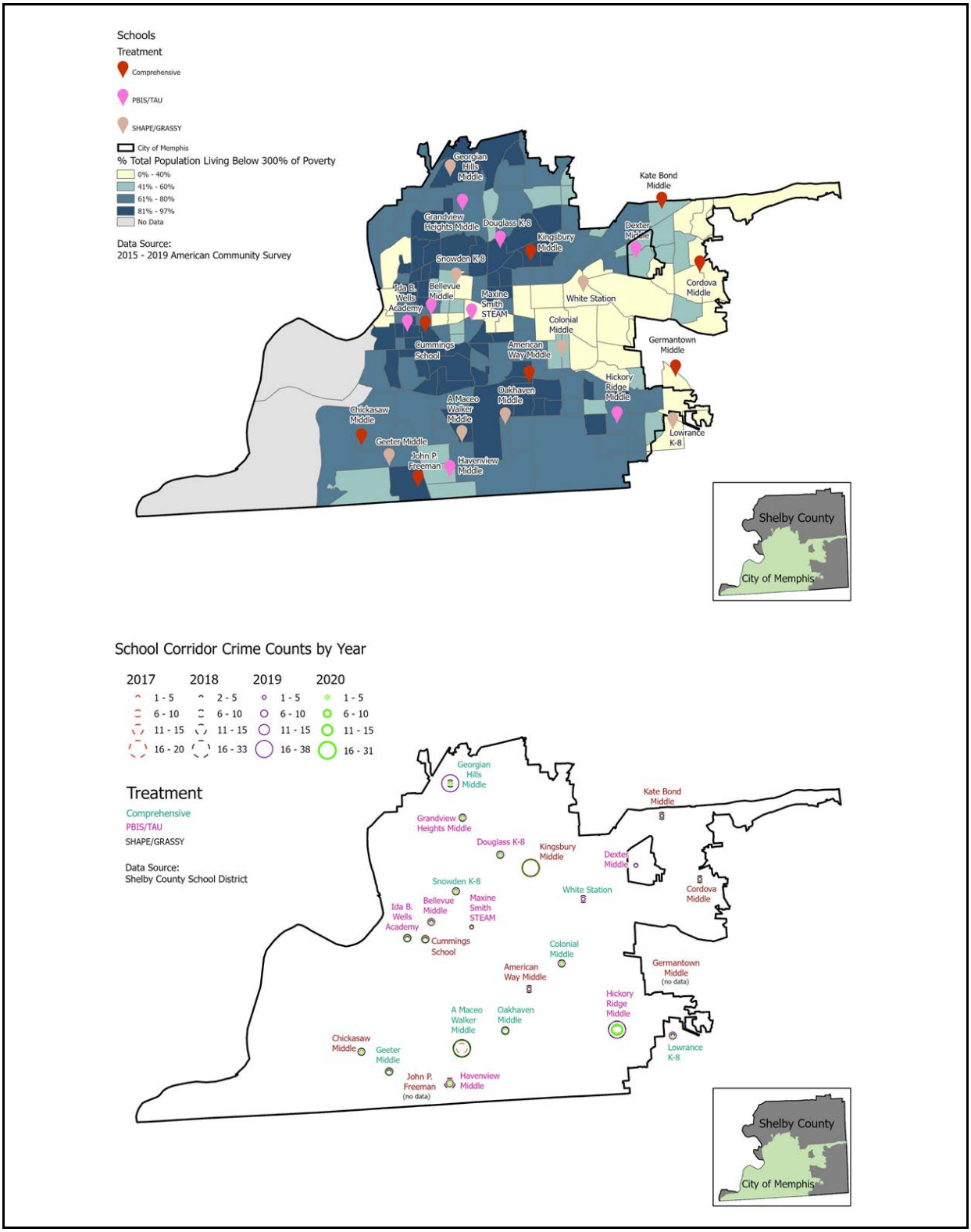
3.2.1 Schools Face a Myriad of Challenges at the Student, Teacher, and Parent Levels

Schools were trying to implement SHAPE and GRASSY while dealing with a myriad of challenges across students, staff, and parents: (1) large numbers of low student test scores, (2) high number of office referrals, (3) high student absenteeism, (4) violence in the communities surrounding the schools. Families managing an overwhelming amount of social stressors. One interview participant remarked that even schools with the highest levels of SHAPE and GRASSY program implementation may not see the expected student gains in communities with high poverty rates and violence.

"[Shelby County Schools] have implemented everything that I have asked them to, but we have to take into consideration the culture, the community culture.... I mean, they're doing everything.... As far as I know, the students come from an impoverished area, so they would be your 80% free or reduced [price] lunch school. I know that there's been, I think, maybe some shootings in the community in that area ... that I've heard from staff members, some things that have gone on in the community, maybe some fights that have happened in the community that have rolled over into the school."

4-11_CSSI_MCraig_7.21.21: "when they went back to school and you're dealing with some of the kids virtually, it wasn't always the suspension part of it. It wasn't always the juvenile court part of it. It was, What's going on with this person at home? And what's going on with this person that they cannot learn or they're not able to do what they need to do to complete their schoolwork?' It was more [about] those social needs."

Figure 7. Total Population Living Below 300% Poverty and Crime Counts in the Shelby Count School District Communities



This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

3.3 Internal Barriers Identified Grant-Wide and Barriers Unique to Specific Programs

3.3.1 District-Wide Internal Barriers Impacting All CSSI Initiatives

Management of CSSI

The district and specifically CSSI experienced changes through the project period. Management of CSSI activities at the district level experienced its own challenges that hindered implementation. Staff turnover was prevalent throughout the course of the project, which at times made it difficult to maintain consistency with respect to implementation. Several staff implemented their program independently of one another with little collaboration between the interventions. He went on to say that communication was "fractured," with some district staff having had adversarial relationships and/or were just left out of meetings and communications; instead of district staff sending a report of activities to the CSSI district project coordinator along with regular progress updates, everyone was reporting individually to RTI at the monthly meetings. Also, no one was getting the precincts to submit evaluation data to RTI, although they were submitting invoices. As one staff member commented: "You have to be cohesive. Because the problem is this: the number one goal of this grant is the children. You have to service the children. The only way that you're going to be able to serve the children and to make sure that that service is being provided accurately, appropriately, and documented, that you have to have a team.... I can have the best offense in the world. But if I don't have the players to implement it, I don't have no line blocker, I don't have the guys doing what they need to do to make the program work, it's not going to work."

> *"I think before everybody was kind of on their own island as far as information, so one person would know something, but the other person wouldn't, and then we get on the call [with RTI] and be surprised, and ... so we wanted to be able to have information on the table, so everybody knows what's going on, especially her, because usually with our grants, the program advisor is supposed to be the main contact, no matter how many of the programs are involved.... [The new program advisor] was able to be very strict and put our foot down about the things that she needed and time frames and things of that nature, to be sure that she was able to give it to [RTI] in an organized and structured fashion."*

"We hope to continue to have working relationships with all those people involved.... We will need them in an aspect as in making sure that we are providing feedback amongst one another to make sure we're not overlapping services and things of that nature. And just making sure and getting feedback actually from one another, like, hey, maybe we need to do something different with this. Or if we see something with RTI^2-B, it's not quite working or we don't think it's right.... Hey, can you look at this and see if this is appropriate?"

By the time the grant was ending, the director felt they had built a team that understood what was expected of them and were being held accountable. This was accomplished through training and continual improvements in effective communication and clearly stated expectations. The director started by sitting down and getting feedback and buy-in from the

people that were doing the work and then moving on to the management staff. He also held group luncheons to help build relationships among staff. Both the director and project manager said another important piece was having a district team meeting prior to the monthly call with RTI. This was an opportunity for everyone involved in both grant management and program leadership at the district level to receive updates on the status of grant activities and problem solve any issues that may have come up, albeit with the ultimate decision-making power resting in the hands of the director, project manager, and project coordinator.

Communication

Communication was a theme broadly synthesized across the CSSI initiative that has been prevalent since the initiation of the program in SCMS. Toward the beginning of the grant, school administrators were unaware that CSSI programs were being implemented in their schools, were unsure of what the programs' purpose and use were, or both. Administrators stated that they only received bits and pieces of information about the programs and not the entirety of information that could have prevented the pushback reported by school administrators. Similarly, schools were not informed that the CSSI grant was a randomized control trial, and in order for the programs to be rigorously evaluated, randomization was needed. Of the selected school, some reported not understanding why the programs were being implemented in their schools because they had low disciplinary referrals and suspension/expulsion rates. The same principals felt that having GRASSY and SHAPE programs added a certain stigma related to gang and behavioral problems that they did not want associated with their schools.

> *"There should have been more ground training for principals around, 'Hey, you've been selected to have this program, let me tell you what this program can really do,. Yeah, I just felt like, You have SHAPE and you have GRASSY.' I'm learning as I'm going. I remember thinking, Man, my discipline rate could have been probably cut in half if I would have used this....' I don't remember anything other than getting an email summary*

Another challenge related to communication was the lack of a continual stream of information to principals regularly reminding them that CSSI programs were an additional resource that could help them achieve positive outcomes with their students. This was very evident when schools had administrative staff turnover and new staff who may have been unfamiliar with CSSI interventions.

Within SCS, this lack of communication around programmatic objectives and the CSSI study resulted in pushback from principals and other school staff that could have been mitigated early on or avoided altogether. For example, one principal stated that she wished there was more "on-the-go training" for principals about GRASSY so as to help them better understand why their school was selected, what the program can really do, and how to maximize its benefits as well as provide data on how GRASSY can help address discipline rates, chronic absences, and other behaviors. This principal also did not remember receiving much

introductory information on the SHAPE program from the district. Similarly, another principal said that when she joined the school, she was surprised to learn that GRASSY was at her school: "I think it's important to have those high expectations on the onset, you know, with anybody who is providing a service in your building, it's important that they are linked to data. So, my experience with GRASSY is great right now, [but] my first day experience was not so great, right. So I had somebody pop up in my building and say, 'Hey, I work here, I was here last year, I was mentoring,' and immediately I'm like, 'I don't, you know, who, you know, what's, what's happening?' So, you know, I really had to have a meeting with folks, say, 'Hey, folks, just don't pop up in my building and, and, you know, kind of tell me what was going on, I need to know.'" As the principal notes, however, her initial misgivings gave way to a positive view of GRASSY, and she indicates that advance notice about the programs to newer school staff might head off a surprise introductions to GRASSY and SHAPE and their staff.

Stigma Associated with CSSI Initiatives

Numerous respondents mentioned a social stigma surrounding participation in GRASSY and SHAPE, a challenge that stemmed from a lack of communication regarding the purpose of CSSI initiatives in schools during early implementation. Several respondents mentioned that principals from multiple schools did not want to be branded as schools where "bad things are going on," with some principals mentioning that having CSSI programs in their schools gave a perception to students, staff, and parents that their school had a gang problem. This was viewed as problematic for schools because school staff felt that the stigma could damage their school's reputation. Other respondents mentioned that some parents did not think their children needed such intensive services, with some parents viewing a referral marking their child as having gang involvement, leading to parental frustrations with the school and concerns about why, and how, their child was referred in the first place. Additionally, respondents indicated a level of stigma among students around being in a disciplinary program and an initial distrust that GRASSY staff in particular were law enforcement sent to monitor them. Many of these respondents indicated that school and parental attitudes typically changed once they understood the programs aimed at preventing major disciplinary issues by targeting lower-level student offenses. A SHAPE coordinator said that helping the general population of students in understanding what SHAPE is may help to combat the stigma among students as opposed to focusing only on students enrolled in SHAPE.

Referrals to CSSI Programs

GRASSY and SHAPE staff expressed the need for more clarity and guidance around what behaviors or infractions would warrant a referral to GRASSY/SHAPE. Many intervention staff found themselves being asked to identify students to refer to the program as corroborated by several school administrators. Although there were commonalities around how students

could be referred to CSSI programs, referral pathways varied from school to school, ranging from schools in which only the principal would decide whether a student would be granted approval to institutions in which a referral was made whereby virtually anyone, including students, could make referrals to CSSI programs, at which point intervention staff could evaluate youth to determine if the student was a candidate for participation.

Similarly, there was no consistency among the types of behaviors or disciplinary infractions that would warrant referrals to SHAPE or GRASSY, with some schools reserving CSSI programs for the most serious offenses and others using the CSSI programs for minor behaviors or for youth who they deemed at-risk individuals. In addition, respondents reported variations as to at what point in the disciplinary process a referral would be made. For example, some schools would proactively use SHAPE or GRASSY if a student was identified as at risk, usually resulting from a pattern of minor, repeated infractions not serious enough to suspend, while other schools would wait until after the first suspension to make a referral. Similarly, some school staff reported discrepancies around behaviors that require a mandatory suspension, with one staff member stating he had to suspend a student for being in possession of drugs but another staff member stating that he would refer students to CSSI programs for the same incident.

Support/Buy-In

Both SHAPE and GRASSY programs faced resistance from administrations during early implementation for varying reasons. The lack of support directly impacted implementation by hindering the recruitment of students into the programs and limited the facilitator's ability to deliver the intervention as it was intended. Both programs reported opposition by school administrations' acceptance of the program, especially during the early stages of implementation. Some principals thought they did not have a need for the interventions, while others saw it as an additional burden to have to manage. However, support improved for all CSSI programs throughout the grant period as school administrators began to see the added value of having CSSI initiatives and the additional support and resources that helped to address student disciplinary problems, teach youth conflict resolution skills, and contribute to student academic improvements.

> *"Principal support has vastly improved so much to the particular schools that I work in personally. Before they even discipline a child, they will consult with me versus when we first started I would have to get with the client, or this child, after they come off of suspension. It's now a total difference. 'Hey, before I give them ISS, in-school suspension, or OSS [out of school suspension], I would like for you to talk with them.'*

One GRASSY vendor described how school administrations' support for GRASSY "vastly improved" over time. Initially, schools would wait until after a student was suspended before bringing in GRASSY services, but then over time schools brought GRASSY into the process much earlier, before suspension (both in-school and out-of-school suspensions). GRASSY staff and principals alike said that because schools did not want to be branded as having a

gang problem, there was an initial level of distrust toward someone perceived as being sent by the district to "look over their shoulders." The entire GRASSY team purposefully meets not only with the principal but also with counselors and police officers who work at the school, and they also introduce themselves at faculty meetings to help all staff understand that GRASSY is there to help and support the school. The presentation includes visual aids to show how effective GRASSY has been for students.

Another GRASSY worker appreciated how the CSSI grant allowed the same vendor to work with the school throughout the grant, which allowed consistency in vendors and helped avoid pushback that can come up from principals during the transition from one GRASSY vendor to the next. As with any changes in leadership in the school, a change in GRASSY workers involved understanding the school culture. One principal remarked on the importance of maintaining the same GRASSY worker to provide stability. With that said, even with consistency in GRASSY vendors, one principal pointed out that there can still be issues transitioning from one GRASSY coordinator to another.

> *"We've had the same SHAPE coordinator, but with the GRASSY coordinator, every year that has changed since we've been in the GRASSY program; it's kind of difficult because it depends on the age of the person, like [another principal] was saying, you have some that are younger, and they want to come in and they want to be the children's friends, and then there are others who are older who come in, so the age gap plays a part in it. And then people learning your school culture, so you have to re-teach and then you have to go back and help them to understand the importance of the instructional time because we don't want the instructional time to be impacted, pulling children out of core content classes, so you're trying to help work around the parameters of this program but also needing the program to be a little bit more flexible within your instructional day. But that has been one of the biggest struggles—you get a different person every year, and then you have to go back and reiterate, and then you [have] got to spend time working out the kinks and scheduling and different things of that nature."*

3.3.2 SHAPE-Specific Internal Barriers to Implementation

In addition to the barriers experienced by all CSSI initiatives, several barriers specific to SHAPE were identified from interview participants.

Finding the Right Fit for a SHAPE Coordinator

A barrier within SHAPE that persisted throughout the course of the project was ensuring that the right person within a school was selected to implement SHAPE. Several respondents discussed the importance of having the right person serve as the SHAPE coordinator. Respondents identified the following characteristics that SHAPE coordinators should possess:

- someone dedicated to the program,
- someone who has time to implement the program,
- someone who is willing to keep up with the paperwork and documentation to track student progress, and
- someone who is not a teacher.

It can be difficult at times for existing school staff—especially teachers—to take on this role. Because teachers are teaching during the day, they are unable to be present during important disciplinary meetings that often take place during school hours with administration and other staff such as counselors or behavioral intervention specialists. As a result, teachers miss out on important information relying on secondary accounts of the discussion and the possibility of missing key information. Teachers are also limited in discussions with a student at the time of an infraction. Similarly, other school staff such as coaches or those with afterschool commitments were identified as not being the best implementors of SHAPE. Lastly, a principal discussed how a guidance counselor may not always be the best choice simply because of the counselor's caseload. However, this was contradicted by other principals, who indicated that their counselors were a strong fit for SHAPE implementation. This contradiction may in part be due to school size; counselors working in schools with 200–300 students will likely have significantly less of a caseload than counselors with more than 700 students. Additionally, respondents recommended that the staff member in charge of discipline within a school was a strong candidate and should discuss the possibility of that staff member taking on the role of a SHAPE coordinator.

SHAPE utilizes existing school staff as implementors; to incentivize staff members to volunteer as the SHAPE coordinator, they are compensated for their time. Although SHAPE coordinators are remunerated for their efforts, one drawback and important consideration is that, occasionally, the staff member who volunteered to implement SHAPE may do so for the additional paycheck as opposed to someone who volunteers with a genuine desire to make a difference in a student's life. In Shelby County, this often led to issues with consistent and effective implementation and the participation of a SHAPE coordinator who was not the most effective at delivering SHAPE to youth. This resulted in the need to re-identify, re-hire, and re-train staff, thereby detracting from the overall goals and impact of SHAPE on youth. However, it is important to note that sometimes schools do not have a choice and are often required to take the first volunteer to fill the SHAPE coordinator role because of little or no interest from others.

> *"I need someone who was going to be able to devote that time to SHAPE to understand the program and how the program was going to work.... The program … really hinges on someone really being devoted to living out the tenets of the program, and it was very difficult. I couldn't just come over and pass it to my counselors because their scope of work in a school that was so large, is completely different. I'll give you an example: at my old school, I did all of the scheduling, I only had 300 hundred kids. So here, when I come to a building with 850–900 [students], you know, your counselors have to take a lot of that load, you know, so their scope of work is a lot different. I was able to input certain things into my former counselor's scope of work that I'm just simply not able to do here. So I, so it's hard for me, it's been difficult for me to find someone who can make the program work effectively."*

It can be difficult for a new principal to oversee SHAPE as they are becoming familiar with and managing an entire school. This problem can be exacerbated if the SHAPE coordinator is not the right fit for the program.

One new principal described being a hands-off administrator after appointing the SHAPE coordinator:

> *"they kind of ran it, and they communicated, you know, the district and whatever it was that we needed. I was at a distance. Again, there was so much going on and so many other needs, you know, you just then trust people to kind of get that done.... The process is going to be seen through.... But I just don't think the program was done with, you know, justice, if you will, to really curb things the way it should have.... If I was probably more experienced with it, I could tell them exactly [what to do] and, you know, hold them accountable for, like, the turnaround on things.... With GRASSY, I had those representatives come in, so it was just much more vibrant, if you will, and I just almost forgot about SHAPE. I was like, 'Oh, oh, we have SHAPE, I forgot about that,' you know."*

Timing of SHAPE Programming

SHAPE is an afterschool program that requires parents or guardians to approve of their child's participation. This served as a major barrier to SHAPE, specifically with youth participation in afterschool programming. Many students rely on buses to transport them home after school, and their parents or guardian do not have the ability or means to pick them up, let alone twice weekly. This is usually the result of either not having a consistent and reliable method of transportation or because of prior conflicts such as work. This is an even more important consideration when accounting for the poverty rates of Shelby County, which could force a parent to choose between their child participating in SHAPE to avoid a suspension or taking time off of work, losing wages and potentially being unable to make bill payments or afford basic necessities such as groceries. This causes parents to make challenging decisions about whether or not their child can participate in SHAPE. Similarly, if a parent allows their child to participate in SHAPE, but a youth does not have transportation for a certain number of sessions, it could result in disenrollment and a reinstatement of the initial punishment (i.e., suspension or expulsion). Furthermore, many students within SCSD live in close proximity to their schools and walk home every day. This becomes a safety concern, especially during late fall, winter, and early spring, when night falls earlier in the evening. Many areas around SCMS are not the safest areas for students to be walking alone in the evening, and the safety concerns are exacerbated when it is dark or becoming dark. Parents who are unable to pick their child up at the end of a SHAPE session may not want their child walking home alone, especially if it is dark. It is important to note that one principal identified this as a barrier to SHAPE early on in implementation. This principal tried to brainstorm strategies that would allow students who were previously unable to attend SHAPE after school to be able to attend. Ultimately, the school decided to use students'

elective class period for them to participate in SHAPE programming. It is important to note, however, that this would likely not be possible if a teacher was implementing SHAPE.

3.3.3 GRASSY-Specific Internal Barriers to Implementation

GRASSY programs experienced less program-specific barriers to implementation than other CSSI initiatives. This was in large part likely due to GRASSY vendors being contractors with SCMS as opposed to being SCS staff. Although they were subject to many of the same policies and procedures as school staff, GRASSY programmatic design and implementation within schools were largely left up to the individual vendors, with some oversight from schools and the CSSI District Team. School administration could oversee the logistical aspects of GRASSY but generally left GRASSY staff to deliver the program as they intended within their respective schools. Although the individual programmatic barriers to GRASSY were largely minor, they still present important considerations for similar work.

Scaling Up GRASSY Services within Schools

> *"We find ourselves not just dealing with our caseload but [also] cultivating the whole school. There's been in time past a lot of our kids, not just the kids on our caseload …, [who] had the opportunity to be rewarded with these incentives, but the whole school. So it starts off with a caseload where even now for the last past 2 or 3 years, we've been able to be the keynote speaker for the honors program, and a lot of it's because we're not just dealing with our kids but [because] we re presenting this to everyone. And once word gets out that, 'Hey, oh, man, these guys, they really care,' you, you know, you get kids from everywhere."*

The ability of a GRASSY worker to build relationships with students is one of the most significant components of the program, and much of its success depends on GRASSY coordinators' ability to establish rapport with youth. What may start out as building a relationship with just one student can turn into building relationships with a caseload of 30 students, and if these coordinators are not prepared for an influx to their caseload and are unable to establish rapport with youth, this overload could impact their ability to work successfully with students.

It is important for GRASSY programs to consider the time they allot coordinators to establish rapport with youth in their caseload prior to bringing on additional youth and, if coordinators and programs get to a point where they are overwhelmed, to communicate any needs they may have.

Increasing Awareness of GRASSY among Students, Parents, and Teachers

One principal desired more training from the district to introduce GRASSY to the entire student body, parents, and teachers in order to build greater awareness of the supports available and different routes and options students have that deviate from traditional forms of punishment used in the disciplinary process. Doing so helps to ensure that youth are afforded the opportunity to participate, contributes to the desired outcomes, and

> *"The other barriers would be introducing it in a way to the entire student body so that they even know*

encourages parental involvement, especially if a parent advocates for GRASSY over the use of traditional punishments.

> *that those options are available and that our parents know. Because with me not knowing, I didn't communicate that to parents, they didn't know that was an option, and I feel like they would even advocate for those programs if they knew, and they knew that there was an opportunity for them to kind of take this route as opposed to that route.... [The school district] can do a better job of just training the leaders on those programs so that we can effectively communicate to our teachers, 'Hey, y'all, when you send them, we're just not suspending them, we have these programs that are really going to help curb the behavior.... It just wasn't presented in that way."*

Measuring Outcomes among GRASSY Participants

One common theme the RTI team identified was the lack of outcomes data for youth participants. Many principals discussed how great GRASSY was anecdotally, but there was nothing they could pinpoint to say that GRASSY is achieving the intended outcomes. Although not directly related to implementation of GRASSY, administrators not having concrete objective outcome measures detracts from a school's ability to advocate for the program. Lacking outcome measures also undercuts the broader CSSI goals, thereby making it harder to complement and support anecdotes gathered from interview participants. Many staff stated that they can physically see a difference among students who participate in GRASSY but are unable to fully attribute it to the GRASSY program.

3.3.4 Safe Corridors–Specific Barriers

Implementation of the Safe Corridors program struggled from the beginning for various reasons, some of which were unknown until new CSSI grant staff who had pre-existing relationships bridged the gap between CSSI and the Memphis Police Department (MPD).

Precincts' Limited Capacity

A major barrier that was only discovered toward the end of the project was the limited capacity of the MPD. The MPD has been struggling to fill officer positions throughout the course of the project, with some precincts unable to find enough officers to volunteer for Safe Corridors. One respondent said it took a long time to get the contract between the district and MPD signed. Another respondent described that what at first appeared to be a lack of cooperation by MPD later turned out to be a misunderstanding of the times of day when officers would or would not be receptive to volunteering to work in Safe Corridors. CSSI staff learned that leveraging strong ties between CSSI staff and MPD was helpful in making connections with local precincts to help resolve issues around dedicating manpower to schools, encourage buy-in from all of the precincts, and get the contract signed.

> *"One precinct where I don't think they had all of the manpower to do it at 100[%] ..., it wasn't that they didn't want to do it. They just didn't have the manpower to do it. But next thing with her [Maxine] comment [coming] from the police department, she got 100% participation, so that was good."*

Length and Timing of the Safe Corridors Program

Another barrier that significantly hindered implementation of Safe Corridors was the timing of when officers were required to report to schools for their Safe Corridors detail. The program was initially designed so that an officer would be present in the morning and afternoon for 2-hour shifts. This was to provide coverage for when students would be coming to and from school. The purpose was to have MPD officers with a visible presence in and around schools so that any issues could be stopped from happening, or an officer could intervene before misbehavior (e.g., fights, vandalism, drug use) took place. In theory, the timing made sense and provided additional support immediately before and after school; however, in practicality, this was not the case, largely due to the length and timing of the detail. Safe Corridors details were voluntary and paid overtime pay to officers, which is attractive to police who want to pick up additional work and pay. However, the challenges were the length and timing of these assignments. Very few officers wanted to come in for a short 2-hour shift, especially in the early hours of the morning. Put simply, it was worth neither the time nor the effort for officers to volunteer for Safe Corridors shifts. This created challenges in filling Safe Corridors positions due to a lack of interest and desire to participate. Similarly, Safe Corridors had to compete with other volunteer overtime opportunities, many of which offered better timing and more hours. These competing opportunities were viewed favorably over Safe Corridors as a result.

Facilitators

Interviewees identified various internal and external facilitators to successful program implementation.

> *"If the principal hasn't bought into this program, then the staff definitely aren't going to buy into it. I noticed a change…. More students seem to know the school wide expectations. What do you attribute that to? And [a student] said, 'Well, the principal has now made it a priority. The principal announces it every day over the intercom. So now, teachers understand that it's just not me saying, 'We got to do this.' Now, the principal is saying, 'We have to do it.' And so they have more buy-in." —CSSI Staff*

Interviewees discussed the importance of *support from school staff*, and they specifically emphasized support from principals as a main facilitator for implementation. Interviewees noted that supportive principals are usually more involved in discussions about students' behaviors and situations and implementation of the initiative. Ultimately, this increased involvement allows students to receive more visibility and positive attention from school staff. Moreover, interviewees explained that if principals support the initiative, they are more likely to communicate with school staff to ensure that everyone is on board and utilizing the program properly. For example, one interviewee described how when a new principal was placed in the school, implementation of the initiative proceeded unaffected because of the principal's strong support. A few interviewees (x2) mentioned that *keeping principals accountable* for effectively implementing the initiative has helped. These accountability checks were executed through the use of ILDs, who ensure everything is in line academically and disciplinarily.

> "We all can be on one accord, and we all understand what's going on.... If you talk to both entities and get on the same page and both of us know what we need to do, then I think it'll be a better outcome of the program."

Additionally, interviewees reported that buy-in from principals helps staff obtain the necessary resources for program implementation. Interviewees reported that *up-front communication and education regarding the initiative* facilitated school staff buy-in because clearly explaining the initiative allowed staff to better understand the programs and know what to expect (x5). Moreover, one interviewee discussed how *familiarity with the initiative* was a facilitator for staff support because staff become accustomed to and more supportive of the initiative with its consistent presence in the schools over time.

Interviewees described how *extra help* from GRASSY and SHAPE workers relieved some pressure and reduced the burden of responsibilities from school staff (x4). Many schools are short staffed, and so interviewees reported that extra sets of eyes and ears around the school are beneficial in handling student misbehaviors. Additionally, interviewees noted that GRASSY is an alternative approach in that it addresses root causes of students' academic struggles (i.e., students cannot thrive academically if they are struggling socially). Thus, having GRASSY workers who can set aside the time to address these social issues seems to work well.

Interviewees discussed the benefits of *strong relationships among initiative partners* (x3). Relationships among SHAPE coordinators, GRASSY workers, and law enforcement are helpful for the implementors. Additionally, some officers and SHAPE coordinators have worked in schools for a long time, so they are knowledgeable about the students and school resources. Strong relationships between GRASSY workers, SHAPE coordinators, and law enforcement help staff identify and enroll students into the program. Moreover, a few interviewees mentioned an external facilitator was being able to leverage pre-existing relationships that implementors and staff had (e.g., with MPD) (x2).

A few interviewees mentioned *incentives for students* (e.g., snack backpacks, cash prizes) as an internal facilitator for program success in that the students enjoy the incentives, thus improving their engagement (x2).

One interviewee noted that the *type of school*—and, subsequently, the specific demographics of parents and students that attend this type of school—can positively impact program success. This interviewee stated, "These are optional schools. And so you have to have certain qualifications to even get into those schools…. These are schools that parents want their children to go to. These are parents who value education…. So, that may be more of the truth as to why they are more successful [behavior wise]." – CSSI Staff

One interviewee described *advanced technology*, like smartboards, as a facilitator—specifically, for virtual SHAPE implementation and for students who are visual learners—noting that "Some students are, especially students who are not really in love with learning

in the first place, they tend to be visual learners, they need to see it…. The advances we've had with technology, that's certainly helped with SHAPE." – SHAPE Coordinator

One interviewee discussed the importance of obtaining *up-front parent buy-in*. Explaining the initiative in detail to parents allows them to be on the same page as implementors. Up-front explanations tend to increase parental support of the program because parents have a better understanding and know what to expect, and this knowledge ultimately decreases extraneous challenges during implementation. This interviewee noted, "The thing that you have to do to avoid issues is to do a very thorough job on the front end of implementing the program. That involves having conversations with the parents, making sure that they get all of the correct documentation, make sure you answer any questions about what [it] is, what this program is about, what are you trying to accomplish, why should I enroll my child after school to be in this program…. If you do a really good job of going over all of that information at the front end, problems during the program are pretty much nonexistent."- SHAPE Coordinator. Another interviewee reported that virtual implementation has actually facilitated relationships with parents, stating that "It's just a different way and actually has brought the parents closer to people with the program because you'll hear a kid on there and then their parents just jump in the conversation…. Some of them started participating in the online games and stuff with playing with them…. Those are the positive things that I see."

One interviewee described *peer-to-peer learning* as something that helped with implementation because students would lead by example, and their peers would follow suit. This interviewee stated, "We can use the kids that are doing well as part of the role models because peers listen to peers…. At [one] school, they want us to [also] work with the students that are doing outstanding, and it actually worked."

Characteristics of Effective Implementors

Interviewees identified various characteristics that constitute an effective implementor for the CSSI programs. The most common theme that emerged from interviews was the importance of *relationship building*. This includes building relationships across partners (i.e., law enforcement and school staff), with parents, as well as with students. There were three categories of relationship building that interviewees mentioned. First, effective implementors are those who are able to build strong relationships and rapport with students, which first requires *building trust* (x9). Second, the effectiveness of an implementor relies on their *relatability to students* (x6). Relatable implementors can more easily build relationships with students, and students usually trust them more. This includes implementors who are young or who have past gang experience or other relevant lived experience (i.e., from same neighborhood, similar economic background, similar family structure). Some interviewees also noted that relatability relies on sex in that male implementors are seen as more effective because many referrals are male.

Interviewees also emphasized the importance of an implementor who has the *time or availability to execute the initiative* (x6). Because of this, they reported that teachers and coaches generally do not make for effective implementors. Moreover, having a dedicated person is important so that the same implementor can be retained over time for stability. One interviewee emphasized the importance of having a proactive, dedicated SHAPE coordinator who reminds school staff to utilize the initiative when the appropriate situation presents itself. Similarly, interviewees discussed how effective implementors are those who *make time to get to know students and make themselves accessible to the students* (x5). Essentially, an effective implementor is someone who will make the effort to listen and show empathy. Additionally, interviewees noted that implementors should have the *appropriate training and knowledge base* (x4). Knowledge acquired from resources like mental health trainings allows implementors to implement the program more successfully because it helps them to better understand the students and learn how to handle each individual case. CSSI and principal interviewees noted that the right fit for implementors was a behavioral health specialist or someone with a similar background and formal training.

Lastly, interviewees reported that effective implementors were those who were *flexible and innovative* in that they could tailor the curriculum to their students' needs (x6). The implementors that interviewees described were able to pivot quickly to fit the interests of the students, to be flexible with meeting with students outside of instructional time, and who adjusted the curriculum to be both educational and entertaining (edutainment). Examples of innovative additions to the curriculum include "Simon Says," the "Keep Talking" game, and "Deal or No Deal." In contrast, one principal thought that implementors should be structured and follow the curriculum (e.g., not act like friends to the students). Similarly, one interviewee reported that the best program leader is someone with authority (e.g., assistant principal or administrator) as opposed to a teacher because it allows for a more cohesive team and incentivizes involvement among school staff, given the authoritative power of the implementor.

Measuring Success

A few interviewees noted that success is hard to measure because it *looks different* for every student or school. For example, one interviewee described that for one student, success was defined as obtaining a job at a grocery store; for another student, success was marked by attending college.

Some interviewees measured success in a more *holistic* way in that they took increased attendance, decreased referrals, improved grades, and improved emotions (e.g., emotional intelligence) into consideration in addition to behavior and suspension changes (x5). One interviewee noted, "We look at the whole child, we don't just look at behavior. We look at academics, we look at the social intelligence, [the] emotions of the kids. We look at the attendance, we try to look at the child as a whole besides just behavior."

Some interviewees described assessing the impact of CSSI on *certain outcomes*, including

- improved behavior;
- decreased suspensions, expulsions, or gang activity;

> *"We brought suspension down to like 93% or 98%, where there were no kids getting suspended after working and being in our program. I was just very excited about that." —GRASSY worker*

- decreased criminal acts or afterschool fights (x4) (as one interviewee stated, "The effectiveness would be no crimes happened at [school] during the times [law enforcement] were there within a mile radius"); and
- reduced incarceration or entry into juvenile justice system (x2).

Some interviewees described the importance of taking *qualitative data and anecdotal evidence* (x10) into account, while others emphasized using *quantitative data* (x8) to measure success. On the qualitative side, success stories consisted of students that increased their positivity, were able to improve their listening and learning skills, were more engaged, and were able to realize that there are different life paths available to them. One interviewee noted that students said, "This is not what I want to do for the rest of my life, I really want to be different, I want to change,' and they kind of express why they're doing certain things." Interviewees described success as students' growth, willingness to change (e.g., student giving up a gang-affiliated bandana), showing emotions, and communicating openly. A few interviewees also mentioned the importance of positive changes in coping mechanisms, self-control, and emotional processing and regulation. Although these are things that cannot be measured quantitatively, they can be reported on or observed by students, teachers, and implementors. For example, one school measured success (e.g., increased responsibility and respect) by having students relay examples of how they showed these values; staff then documented this testimony, and students obtained points that ultimately led to rewards. On the quantitative side, interviewees reported utilizing pre- and post-survey assessments and other systematic data collection methods such as formal or informal school walkthroughs, annual reports, and tiered fidelity inventory scores. The survey assessments are completed by students, parents, and teachers over the length of program participation. Implementors also reported entering notes into Footprints after every session.

> *"Success to me is measured on a daily basis of seeing that child grow because we know it's a process. My personal success rate is based upon the changes that I see the child make immediately. There have been incidents where we [were] at a session and a [GRASSY outreach worker] who was just talking to [a student] , and the guy came in and dropped his flag, he brought us his bandana and said he didn't want to be a part of [a gang] no more. So I would say for me, personally, on a daily basis is what I judge the success on because we have tracking methods, we have data, but to see a child wanting to change even if it's not showing up on the demographic that most people may look at and judge a success, that's a success for me."*

3.4 Outcomes Analysis

Our focus in this report is on outcomes of the three conditions for the student and staff surveys on school safety and school climate, youth aggression, and negative peer affiliation. These were the main constructs assessed within the respective student and staff surveys. Staff and student survey data were used to answer Outcome Evaluation Questions 1 and 2. Administrative data that captured total counts of disciplinary infractions were used to answer Evaluation Question 3.

Outcome Evaluation Questions

- Do students who received SFSS programs and CHSS strategies have better behavior outcomes than students who received SCMS TAU?
- Are there differences in school climate outcomes as a function of the type of services their school received (e.g., TAU, student-focused, comprehensive strategies)?
- Do differences in school-level outcomes (school climate and school safety) vary as a function of experimental group assignment (i.e., TAU, student-focused, comprehensive strategies)?

3.4.1 Student Survey Results

The student survey asked participants about their (1) feelings of safety in the school environment, (2) aggressive behaviors, (3) negative peer affiliation, and (4) adverse childhood experiences. The survey was repeated across four time points, on an approximate yearly basis, ranging from fall 2017 to spring 2020. Of note, spring 2020 results were omitted from the linear model due to extenuating circumstances related to the COVID-19 pandemic but are presented in descriptive tables for context. Below, we present findings from the student survey by treatment group and time point.

Table 7 shows demographic information for students who participated in the survey. Across time points, more than two-thirds of students identified as Black or African American, which is representative of SCS. Samples were also well-balanced with respect to age, grade level, sex, and self-reported Hispanic ethnicity, although the student sample was predominantly Black or African American.

Table 7. Student Survey Sample Characteristics by Time Point

	Student Survey Administration Period			
	Fall 2017	Spring 2018	Spring 2019	Spring 2020
Characteristic	Time 1 (*n* = 3,628)	Time 2 (*n* = 3,409)	Time 3 (*n* = 3,421)	Time 4 (*n* =1,165)
Sex (% Male)	48.5	49.6	47.4	49.3
Age, mean (SD)	12.3 (0.9)	12.7 (1.0)	12.7 (1.0)	12.6 (1.0)

(continued)

Table 7. Student Survey Sample Characteristics by Time Point (continued)

Characteristic	Student Survey Administration Period			
	Fall 2017	Spring 2018	Spring 2019	Spring 2020
	Time 1 (*n* = 3,628)	Time 2 (*n* = 3,409)	Time 3 (*n* = 3,421)	Time 4 (*n* =1,165)
Grade 6 (%)	36.6	37.6	33.4	32.1
Grade 7 (%)	31.6	30.7	31.5	35.3
Grade 8 (%)	31.3	30.5	33.8	31.8
Ethnicity (% Hispanic or Latino)	21.6	23.2	21.6	21.1
White (%)	13.9	15.1	14.0	7.1
Black/African American (%)	77.0	74.1	76.3	84.1
Asian (%)	2.7	3.8	3.7	1.5
American Indian/Alaska Native (%)	6.8	6.8	5.4	5.0
Native Hawaiian/Pacific Islander (%)	2.0	2.3	1.8	1.1
Household size, mean (SD)	2.7 (1.1)	2.6 (1.2)	2.6 (1.1)	2.6 (1.1)

SD = standard deviation.

3.4.2 Effects of Intervention Treatment on Student Survey Outcomes

We first examined the student survey data for differences in outcomes among the school treatment groups. Using a multilevel model with group by time interactions, we performed pairwise group comparisons of the outcomes reported by students in each school treatment group (e.g., SFSS vs. CHSS; CHSS vs. TAU). The following sections summarize the content and findings for each subscale within the survey.

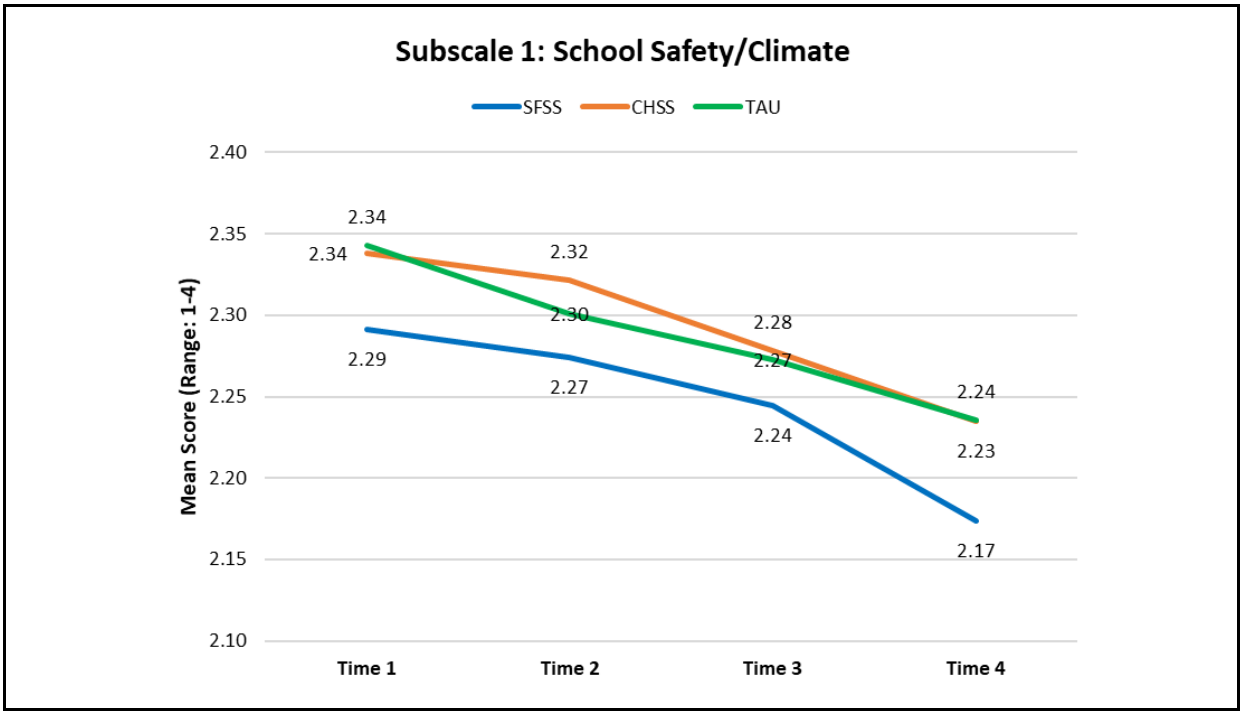
School Safety and Climate (Subscale 1). Students were asked about the extent to which students feel safe in the school environment. Response options were on a 4-point scale ranging from *1 ("Definitely true")* to *4 ("Definitely NOT true")*, including the following seven items:

- Items: 7, 14, 15, 17, 18, 19, 20
  - 7. I feel safe at my school.
  - 14. The school usually looks clean.
  - 15. I feel safe standing in front of my school building.
  - 17. I feel safe at after school activities at my school.
  - 18. I feel safe in the restrooms at my school.
  - 19. There are teachers in my school who can tell when a student is going through something or having emotional problems like sadness, worry, or anger.

- 20. There is an adult who works at my school that I trust and can talk to if I am having problems.

The group means on the School Safety and Climate Scale are presented in Figure 8. Across Times 1, 2, and 3, students felt less safe as the study progressed through the study periods, regardless of the treatment condition. Moreover, within the Student Focused and Comprehensive conditions, students reported feeling less safe over time relative to students in the TAU/PBIS group.

Figure 8. Mean Scores on Self-Reported School Safety and Climate by Condition



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Youth Aggression (Subscale 2). Students were asked about how often they have witnessed peer aggression in the school environment. For these items, response options were also on a 4-point scale ranging from *1 ("Definitely true")* to *4 ("Definitely NOT true")*, including the following five items:

- Items: 8, 9, 11, 12, 13
  - 8. Students spend a lot of class time just talking to each other.
  - 9. School equipment is often deliberately damaged by students.
  - 11. Teachers spend a lot of time in class trying to get students to behave.
  - 12. There is a lot of fighting between students in or around the school.
  - 13. Students don't do what the teacher has told them to do.

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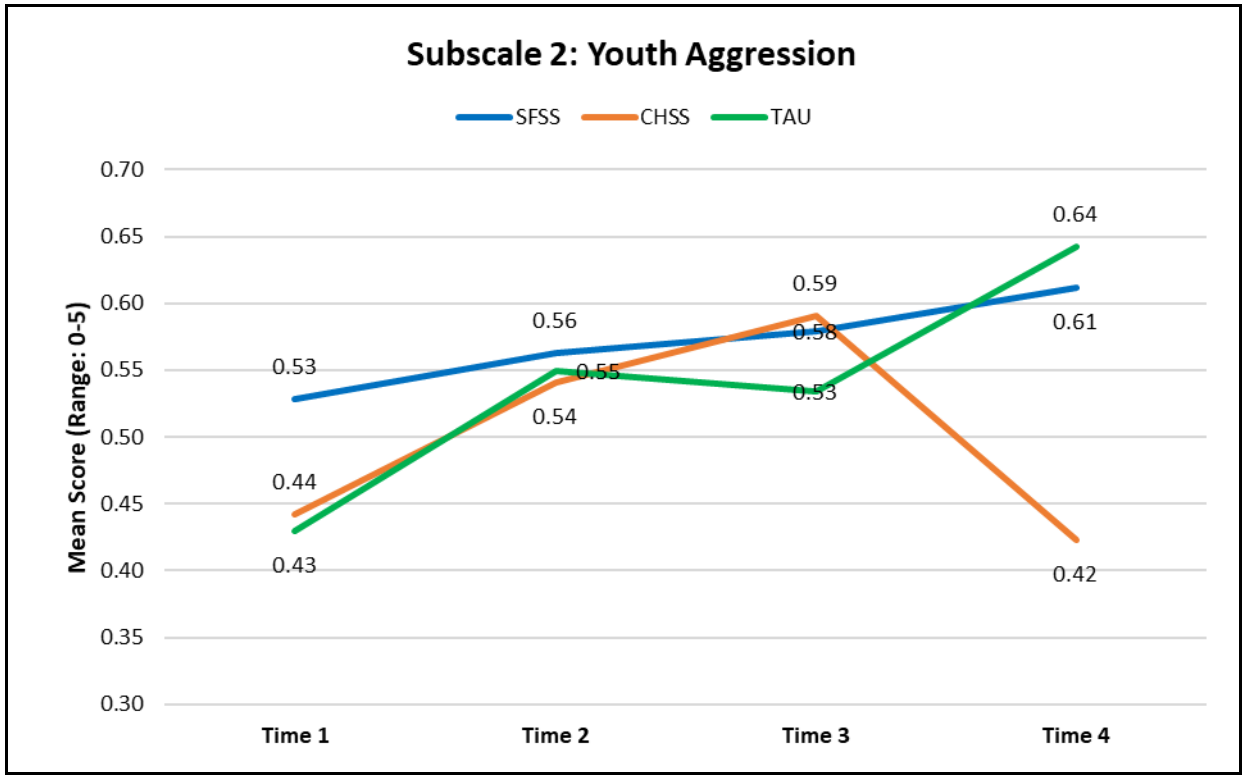
The group means on the Youth Aggression Scale are presented in Figure 9. As with the first factor (i.e., School Safety/Climate), students reported greater youth aggression as they progressed through the study period, regardless of treatment condition. In addition, both groups receiving an intervention (i.e., SHAPE/GRASSY and Comprehensive) reported witnessing greater youth aggression by Time 3 than students receiving treatment as usual.

Figure 9. Mean Scores on Self-Reported Youth Aggression by Condition



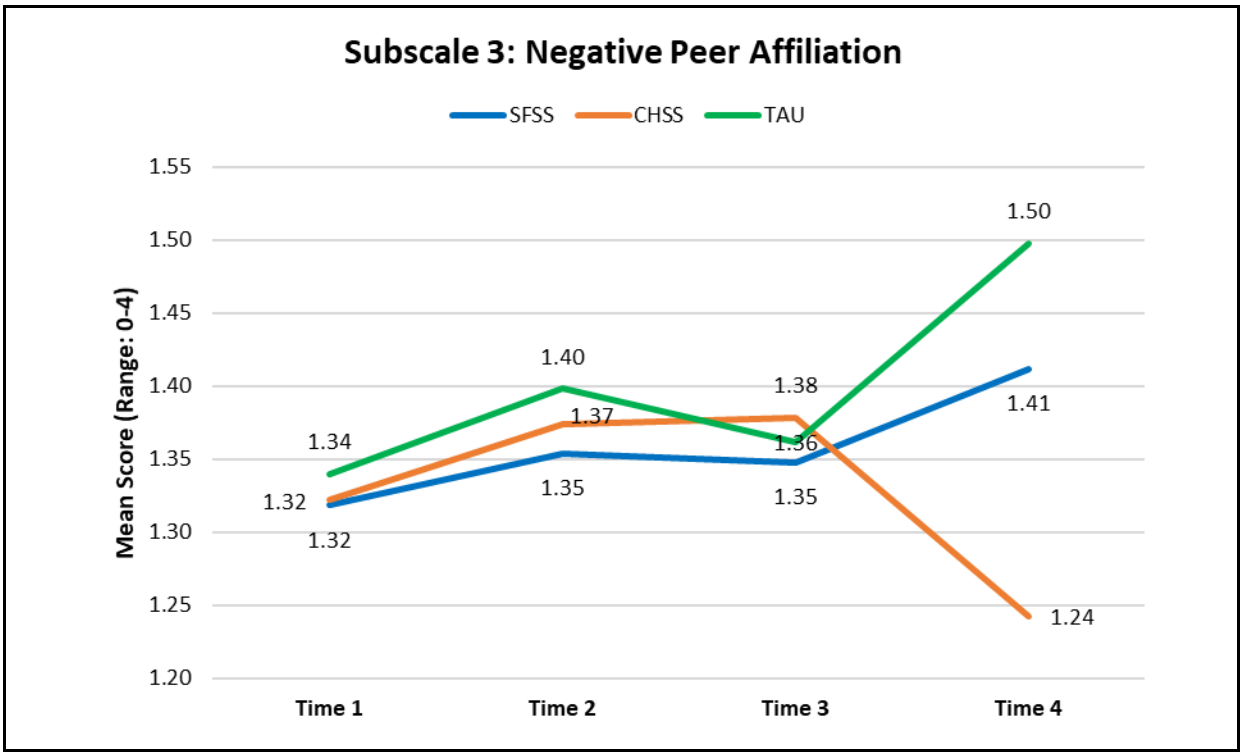
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Negative Peer Affiliation (Subscale 3). Students were asked how often they have witnessed secondary signs of negative peer affiliation such as gang-related content in the school environment. Response options were also on a 4-point scale ranging from *1 ("Definitely true")* to *4 ("Definitely NOT true")*, including the following four items:

- Items: 10, 16, 21, 22
  - 10. Teachers are often late for class.
  - 16. There is a lot of graffiti (spray painting or scribbling on the walls) in and around the school.
  - 21. There are students at my school who are members of a gang.
  - 22. Gangs members have been involved in the sale of drugs at my school in the past 6 months.

The group means on the Negative Peer Affiliation Scale are presented in Figure 10.

Figure 10. Mean Scores on Self-Reported Negative Peer Affiliation by Condition



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

For this third factor, students also reported greater negative peer affiliation as they progressed through the study period, regardless of treatment condition ($p < 0.00001$). In addition, both groups receiving an intervention reported witnessing greater negative affiliation by Time 3 than students receiving treatment as usual ($p < 0.00001$ and $p < 0.00001$ for Shape/GRASSY and Comprehensive, respectively).

Adverse Childhood Experiences (Subscale 4). Students were asked the frequency in which they had experienced specific adverse childhood experiences within the past school year. Response options were on a 6-point scale ranging from *0* through *5*, indicating the number of times students recalled having such experiences, including the following 13 items:

Items 33–45
During the past school year, how many times have you:
33. Shoplifted from a store?
34. Damaged or marked up public or private property?
35. Lied to a teacher to cover up something you did?
36. Stayed out all night without permission?
37. Lied to your parents or guardians about where you have been or who you were with?

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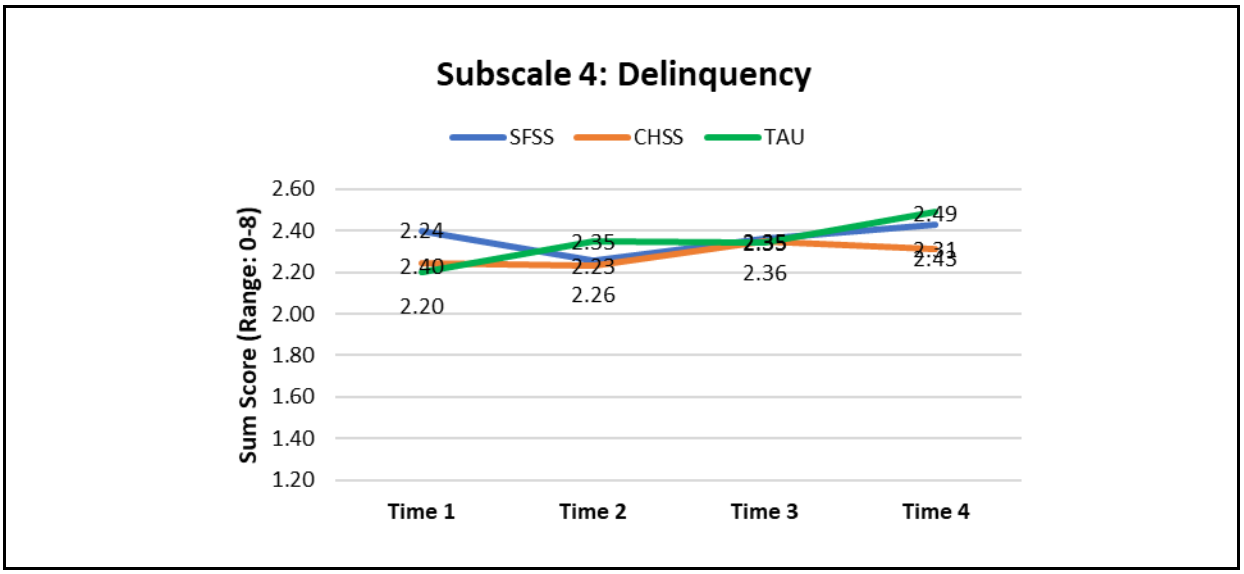
38. Skipped school without permission?
39. Been arrested by the police?
40. Started a fist fight or shoving match?
41. Carried a gun?
42. Been involved in gang fights?
43. Carried a blade, knife, or gun in school?
44. Been suspended from school?
45. Been sent out of the classroom for doing something wrong?

The group means on the Delinquency Scale are presented in Figure 11. Overall, students endorsed engaging in more frequent delinquent behaviors as the study progressed ($p = 0.00432$). However, this effect was driven by students in the Comprehensive condition, who were the only group to report more frequent delinquency by Time 3 ($p = 0.00141$)—a time by condition interaction that was not significant among students in the other conditions.

Figure 11. Mean Scores on Self-Reported Delinquency by Condition



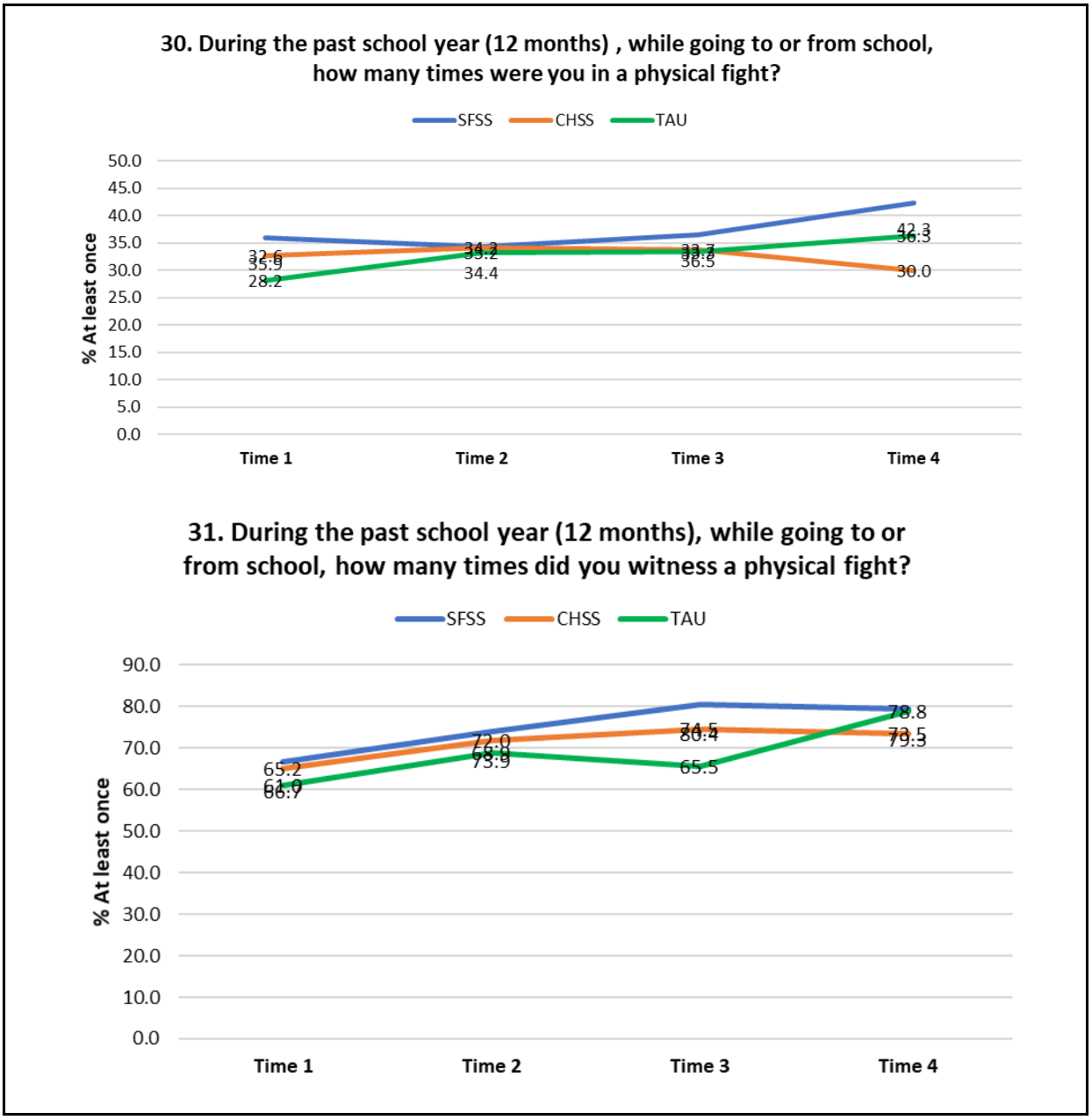
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Self-Reported Experiences with Physical Fights (Individual Count Items; See Figure 12). In addition to count variables, three binary items captured student survey participants' experiences with physical fights, including the following three items to which participants answered on a 7-point scale from *0 ("0 times")* through *6 ("About every week")*:

Items 30, 31, 32
30. During the past school year (12 months), while going to or from school, how many times were you in a physical fight?
31. During the past school year (12 months), while going to or from school, how many times did you witness a physical fight?

32. During the past 12 months, while going to or from school, how often have gangs been involved in fights, attacks, or violence?

Figure 12. Mean Scores on Student-Reported Experiences with Physical Fights (Binary Items) by Condition



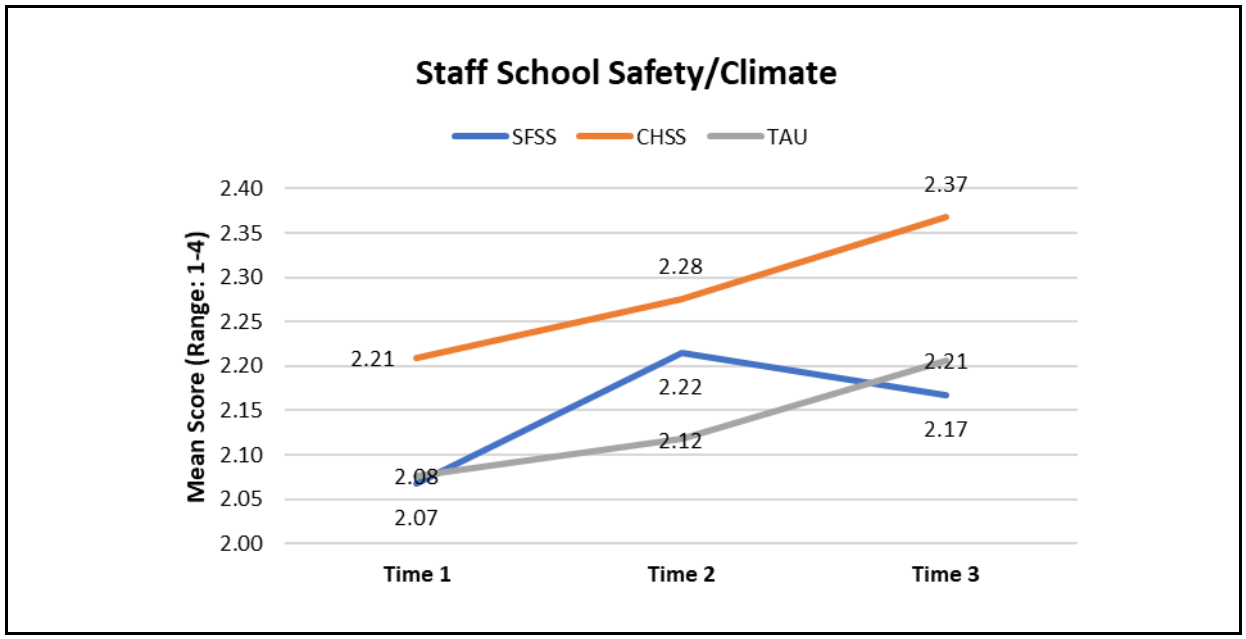
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

3.4.3 Staff Survey Results

The staff survey asked participants about their (1) feelings of safety in the school environment, (2) gang awareness, and (3) student behaviors. Staff respondents were asked about various aspects of school safety and student behavior, including their own feelings of safety and personal experiences at school and their observations and perceptions of student behavior (similar to the student survey items discussed above). The survey was repeated across three time points, on an approximate yearly basis, ranging from fall 2017 to spring 2020. Of note, spring 2020 results were not captured due to extenuating circumstances related to the COVID-19 pandemic. Below, we present findings from the student survey by intervention group and time point. Overall, staff reported continual improvement in school safety and climate across the study period, rating schools more positively at each subsequent data collection. Similarly, staff reported continual improvement in student behavior across the study period.

Figure 13 shows that for school safety and climate, subscales stayed in similar range for the three time points and were not statistically significantly different from each other.

Figure 13. Staff Perceptions of School Safety and School Climate



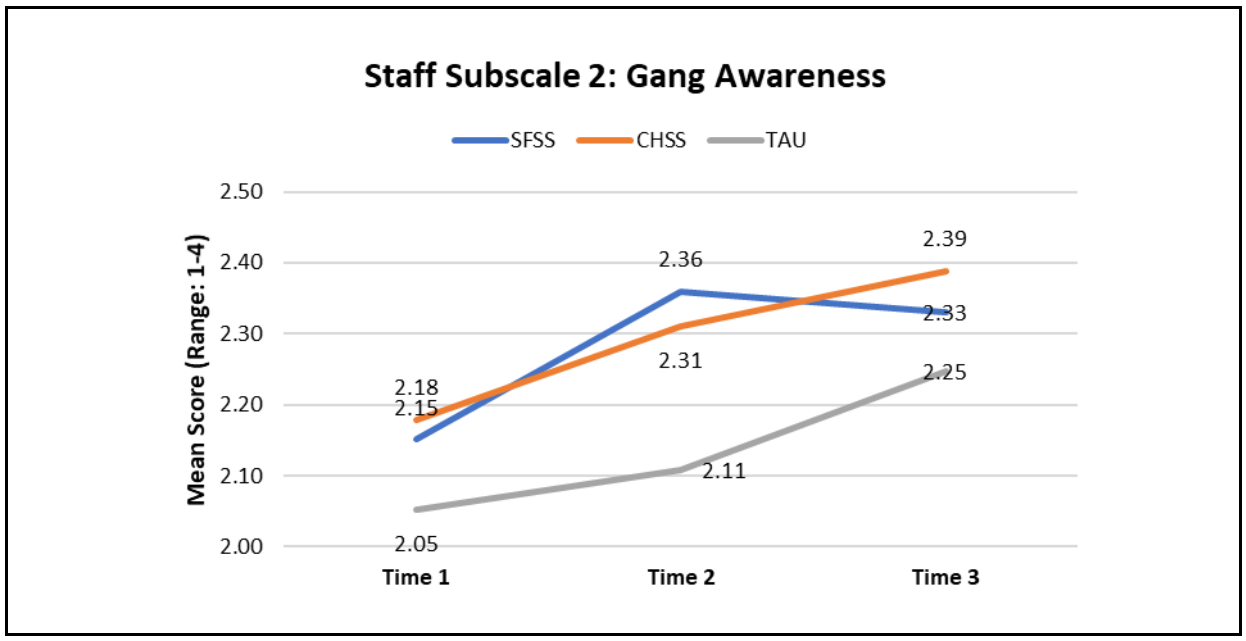
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

For staff reported overall gang awareness, the were no statistically significant changes over time or by condition (see Figure 14).

When examining individual gang awareness items, there were changes over time for some gang awareness questions. For example, for all three conditions, there were increases in Time 2 awareness of gangs being a problem in the schools. For the SFSS and CHSS

conditions, perceptions of gang problems in schools increased for Time 3. For perceptions of gangs being a problem, the TAU condition did not change over time and remained lower than the SFSS and CHSS.

Figure 14. Staff Gang Awareness: Overall Subscale Means by Condition



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

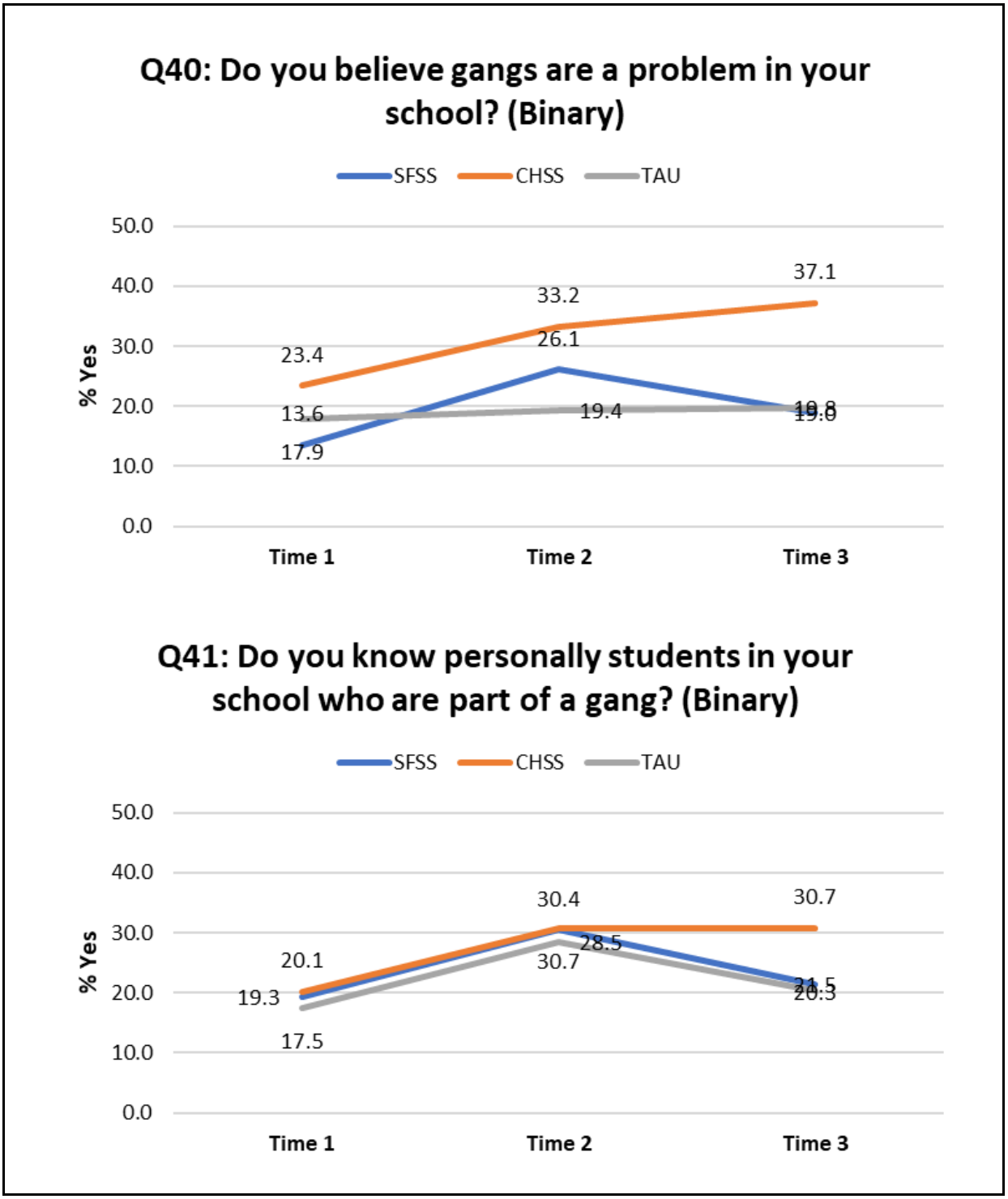
When staff were asked if they personally knew students in their school who were part of a gang, all three conditions were similar to each other for the first two time points. However, for Time 3, CHSS had staff who reported higher percentages relative to the other two conditions (see Figure 15).

When asked about gang members who are not students coming around the school, there were no time differences for any of the conditions (see Figure 16).

When asked about whether gangs have been involved in fights, attaches, or violence at the school, staff members from CHSS reported higher percentages of these incidents relative to the other conditions (see Figure 17).

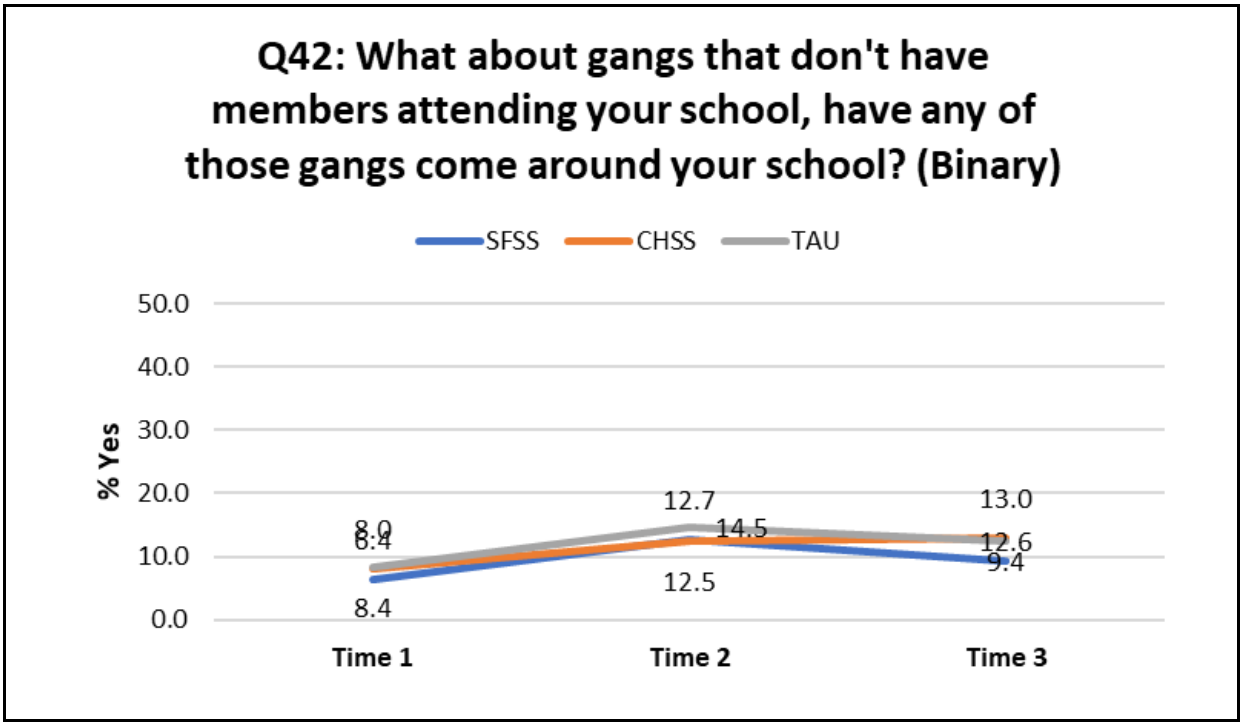
When asked whether any gangs brought guns to school, staff from SFSS condition reported significantly lower percentages relative to the other two conditions (see Figure 18).

Figure 15. Staff Survey: Gang Awareness Individual Items by Condition



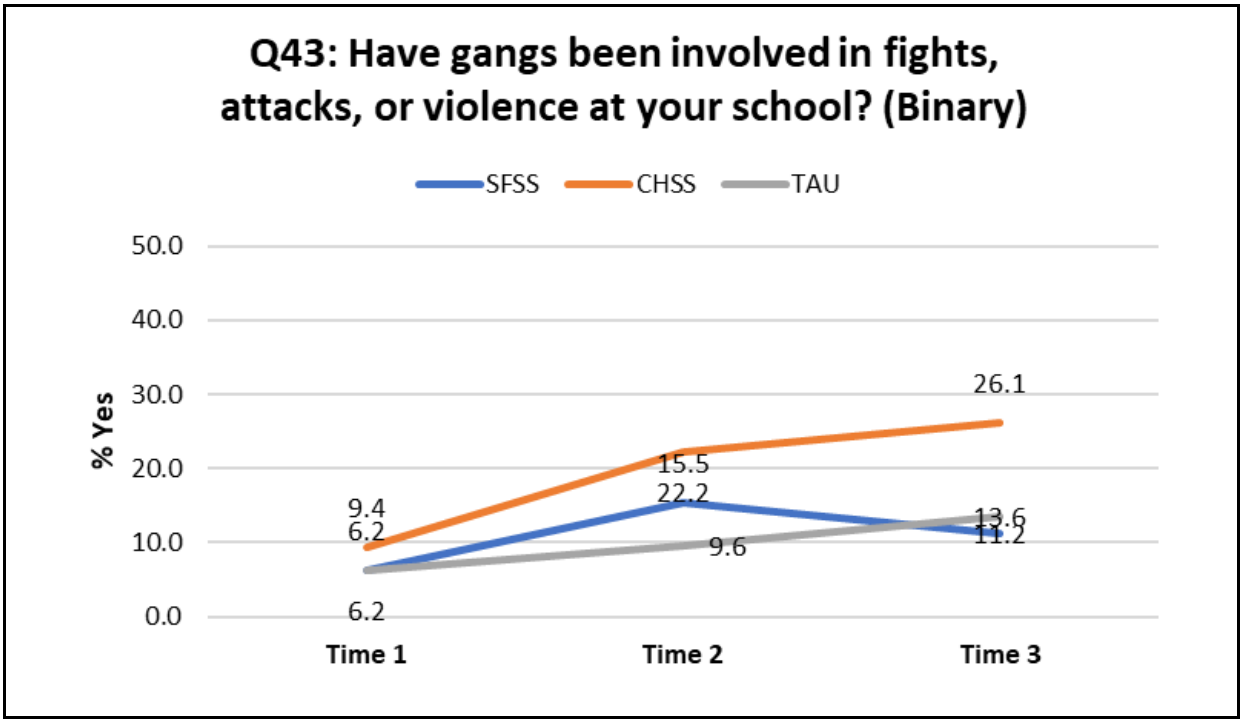
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Figure 16. Staff Survey: Reports on Outside Non-Student Gang Members in School



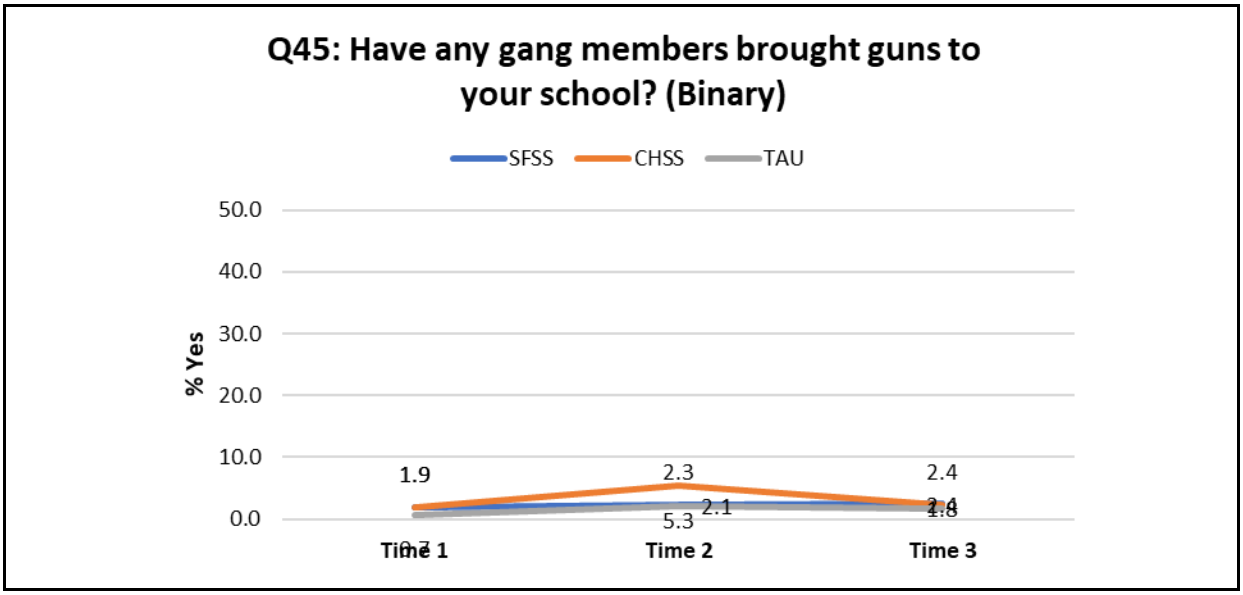
CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Figure 17. Staff Survey: Reports on Gang Involvement in School



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

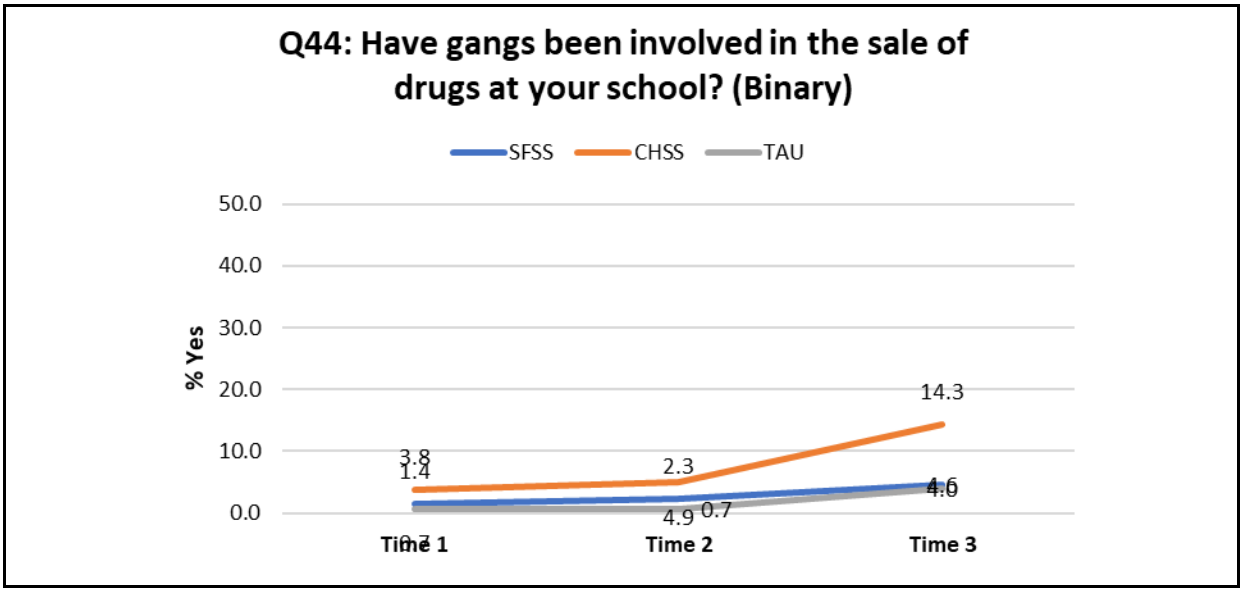
Figure 18. Staff Survey: Reports on Gang Members Bringing Guns to School



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

When asked in gangs have been involved in drug sales at their school, staff members from the SFSS and CHSS scored lower than TAU schools (see Figure 19).

Figure 19. Staff Survey: Reports on Gang Members Involvement in Drug Sales at School



CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

Administrative Data for School-Level Disciplinary Outcomes

Suspensions. There were statistically significant reductions in the rate of per year suspensions in control (PBIS) schools [b = -54.92 (17.89), t = -3.07, p = .005]. However, differences in the rates of changes over time in suspensions between PBIS schools and schools in the SHAPE/GRASSY condition [b = 5.35 (25.30), t = .21, p = .83] and the comprehensive condition [b = 44.67 (25.30), t = 1.77, p = .08] were not statistically significant.

Expulsions. There were non-significant reductions in the rate of per year expulsions in control (PBIS) schools [b = -.48 (1.20), t = -.40, p = .68]. Differences in the rates of changes in expulsions between PBIS schools and schools in the SHAPE/GRASSY condition [b = -1.48 (1.70), t = -.87, p = .38] and the comprehensive condition [b = .20 (1.70), t = .12, p =.90] were not statistically significant.

Remands. There were no reductions in the rate of per year remands in control (PBIS) schools [b = 0 (0.93), t = 0, p = 1]. Differences in the rates of changes in remands between PBIS schools and schools in the SHAPE/GRASSY condition [b = -.55 (1.31), t = -.42, p = .67] and the comprehensive condition [b = .20 (1.31), t = .15, p = .87] were not statistically significant.

3.5 Cost Analysis

- What are the costs of providing TAU, student-focused, and comprehensive strategies?
- How do the costs compare to improvements in individual- or school-level outcomes?

In this section, we first discuss the results for the startup costs of the SFSS and CHSS approaches and then the value of resources, such as training, used before any student is engaged with the approaches. We follow by describing the ongoing costs and show how they are used in the cost-effectiveness analysis (CEA). We estimated costs required to implement the SFSS and CHSS, compared to TAU, by (1) identifying the activities needed to implement the interventions; (2) identifying the resources used to execute each activity; (3) determining the quantity of each resource used; and (4) assessing the unit cost for each resource. Information on activities, resources, quantities, and unit costs were obtained from study records and SCS staff interviews and questionnaires. We also used data from the Occupational Employment and Wage Statistics program (U.S. Bureau of Labor) to supplement wage data and used Loopnet.com to obtain information on the average cost of office space in Shelby County. We estimated the total startup costs to set up the intervention and per-student ongoing costs to implement the intervention. Costs are reported from the perspective of SCS and expressed in 2020 dollars. Table 8 presents startup costs per school for the SFSS and CHSS conditions.

Startup costs could only be calculated at the district level by intervention group, so per-school estimates were obtained by dividing total costs by the number of schools in each

group. Total per-school costs between SFSS ($5,578) and CHSS ($5,709) are comparable because the only difference between the interventions is Safe Corridors policing, and police officers attended trainings at no charge to SCS. TAU did not participate in the startup activities of the SFSS or CHSS interventions (i.e., SHAPE, GRASSY, or Safe Corridors policing); therefore, TAU startup costs are assumed to be zero.

Table 8. Average Startup Costs Per School (2020 $)

	N = 8	
Activity	SFSS	CHSS
Training	$4,240	$4,240
Hiring activities	$333	$333
Administrative responsibilities	$541	$672
Materials	$463	$463
Total	$5,578	$5,709

CHSS = comprehensive school safety; SFSS = student-focused school safety.

3.5.1 Ongoing Costs

Table 9 presents the average ongoing cost per student for each of the three conditions for each year and averaged across the two years. TAU did not deliver any element of the SFSS or CHSS interventions and therefore incurred no costs during the 2017–18 school year. A few TAU schools reported staff that delivered the SHAPE intervention during the 2018–19 school year, and that minimal cost is reflected in the table. In the first year, the difference between the SFSS cost per student ($26.13) and the CHSS cost per student ($27.45) was minimal because of implementation issues with Safe Corridors policing; the difference in cost in 2018–19 reflects the increased Safe Corridors policing implemented in CHSS. In further analyses, we found that the majority of the costs comprised personnel (SCS and contracted staff) salaries. During the 2017–18 school year, SCS and contracted staff costs were relatively balanced between SFSS and CHSS, but during in 2018–19, contracted staff costs more than doubled across SFSS and CHSS, due to the late implementation of Safe Corridors policing.

Table 9. Average Ongoing Cost per Student (2020 $)

	2017–18 School Year			2018–19 School Year			
Group	*N*[a]	Mean	Std Dev	*N*[a]	Mean	Std Dev	Average Annual
TAU	8	$0.00	-	8	$0.40	$0.91	$0.20
SFSS	8	$26.13	$15.14	8	$39.09	$23.82	$32.61
CHSS	8	$27.45	$8.20	8	$65.97	$28.76	$46.71

CHSS = comprehensive school safety; SFSS = student-focused school safety; TAU = treatment as usual.

[a] *N* reflects the number of schools in each treatment arm. We first estimated total ongoing costs for each school, divided by enrollment counts to generate per-student estimates, and then averaged across schools.

Startup and ongoing costs reveal the cost of the treatment as expected: substantial yet not inhibitive resources are required to initiate the intervention; when implemented in full, CHSS is about twice as costly as SFSS, which is driven by higher Safe Corridors policing. Districts considering either intervention can use the data presented here to determine if their budgets can cover the anticipated costs.

Cost-Effectiveness Analysis (CEA)

CEA combines the cost estimates presented in Table 9 with predicted values of suspensions from the outcomes study. The predicted average annual suspensions by treatment group are presented in Table 10. These were calculated by generating predicted values from the outcomes study by year and then taking the mean across the three study years: 2017–18, 2018–19, and 2019–20. A lower value represents a better outcome (i.e., fewer suspensions). Results show that CHSS was lower than TAU, while SFSS was higher than TAU.

Table 10. Predicted Suspensions

Group	Average Annual
TAU	174.0
SFSS	231.7
CHSS	169.9

CHSS = comprehensive school safety;
SFSS = student-focused school safety;
TAU = treatment as usual.

To compute the CEA, we combine the estimates for costs and suspensions. Table 11 ranks the three treatment groups in ascending order of suspensions, and then each group's associated cost. SFSS is considered economically dominated because it is both more costly and less effective than the TAU group. CHSS yields about 4 less suspensions per year, while costing about $42 per student per year. The final column shows the incremental cost-effectiveness ratio (ICER), which divides the difference in cost by the difference in suspensions for the two non-dominated groups. The ICER reflects the per-unit trade-off of the higher costs of CHSS and reduced suspensions compared to TAU: achieving a one-unit decrease in suspensions costs the Shelby County district about $10 per student per year.

Table 11. Cost and Effectiveness of Treatment Groups Ranked in Order of Suspensions

Group	Suspensions	Cost ($)	Incremental Cost-Effectiveness Ratio (ICER)
CHSS	169.9	42.25	-$10
TAU	174.0	0.23	
SFSS	231.7	29.37	Dominated

4. Discussion

This study sought to build on an already successful diversion program and successful gang prevention programs developed and implemented in high schools in SCS and expand these programs to middle schools in this school district. Toward this aim, this study implemented

a school-randomized mixed methods design to evaluate the implementation (via a process evaluation), outcomes, and cost-effectiveness of three types of school safety strategies: (1) middle school TAU, which consisted of PBIS; (2) SFSS programs, which include a suspension diversion program and gang prevention/intervention (SHAPE); and (3) comprehensive school safety strategies(CHSS), which include the suspension diversion program, gang prevention/intervention, police officer presence on the routes kids travel to and from school, and data sharing with other school district departments and local partners. The outcomes associated with the SFSS program were focused on examining reductions in school disciplinary violations, violence, aggression, and gang-related behaviors and positive changes in their outlook to life, and attachment to school. The school-level outcomes include better school climate, improved perceptions of school safety, increased perceptions of gangs at school, and enhanced collaboration and communication.

Results of the present study are mixed, and there were several implementation challenges noted. That said, the measurement and design issues related to the comparison group mentioned might have driven most of the results. The present study is important in that it reveals the complexities in large school settings such as SCS. Below, we provide discussion of outcomes observed for the three intervention conditions. In addition, outcome measurement and design-related considerations are discussed. This is followed by implementation successes, challenges, and considerations for future implementation for each of the programs examined are presented. Finally, implications for cost are presented. Lessons learned and recommendations for future research also are discussed. Overall, results from this evaluation will allow for actionable knowledge about what works in improving student and school-level safety, including resource allocation. Our results have the potential to improve decision-making by state and local agencies, school and community service providers, and policymakers who work to improve student and school climate outcomes. Several factors warrant consideration and are discussed below.

4.1 Changes in Outcomes as a Function of Treatment Group

The study examined school safety outcomes as reflected in staff and student personal experiences, feelings of safety, and perceptions of the school. We also examined administrative data on student infractions, cognizant that those data likely reflect not only actual student behaviors but also differences in reporting (e.g., which behaviors are seen as rising to the level of an infraction that should be reported). For the most part and for many of the indicators (e.g., student behaviors, school climate/safety and gang awareness), for both student and staff reports, there are more similarities than differences between the conditions. However, some of the school safety indicators actually increased over time in SFSS and CHHS schools relative to the TAU schools that received only PBIS. Specifically, in the staff survey, gang awareness increased for the CHHS condition relative to the other two conditions.

4.2 Challenges in Design and Measuring Outcomes

Study Design. Unfortunately, our study design was restricted to a cross-sequential design. Thus, for student, staff, and administrative data, we were not able to make use of the longitudinal nature of the infractions data and instead conducted serial cross-sectional analysis by assigning each student to the school that he or she attended the most days each school year but not tracking individual students across time, which avoided many of the problems associated with students changing schools across school years in the longitudinal analyses. Under the serial cross-sectional framework, the analysis that we applied to the infractions data was very similar to the analysis of the staff and student survey data, which helped to standardize interpretation of results across the different data sources.

The primary challenge in our design and outcome measurement was that we used a repeated cross-sectional design to measure staff and student outcomes at the school level. This differed from a longitudinal design in that individual students and staff were not tracked over time to see individual changes in outcomes. Students are often not tracked over time because it can be very challenging to follow students, obtain parental consent to follow students, and obtain a large enough sample size to adequately power school-level models (Trudeau, 2005; Trudeau et al., 2010). This design of repeated cross-sectional measurement is therefore common among school-level studies. However, it does not account for the fact that some of the same students and staff are likely surveyed across time points, making an unknown portion of samples include the same individuals across time. The problem with this is that lagged models do not account for this repeated measures variability and instead treat it as unexplained variability, leading to larger standard errors and lower statistical power (Kwok et al., 2007). Also, the inability to track individual students or staff over time also means that an essential piece of information about our theory of change is missing, which is whether those students most in need of specific student-focused programming improved based on their receipt of services.

Another measurement challenge came in the administrative data available from SCS that included student infractions. Many students changed schools, and often treatment conditions, within and across the years of the study. This number is not atypical, especially for middle school years. However, there is evidence that students who change schools are often the students who are most transient and in need of services due to environmental stressors like homelessness and housing instability, parental incarceration, and caregiver changes (Orpinas, 2009; Welsh, 2016) As such, the students who changed schools and changed treatment conditions could be some of those most likely to receive infractions—and, therefore, most likely to affect school climate. There is also the possibility of contamination, but that is unlikely. This movement between schools is challenging for school-level designs in that multiple membership models and other statistical solutions are extremely challenging with only 24 schools. These considerations led us to not examine administrative infraction data at the individual level but instead assigned students to the

first school they attended that school year, even if they changed school later in the school year. This made interpretation challenging.

Measuring school climate and gang awareness. For questions about school climate and gang awareness, we noted, especially in the student focused and comprehensive conditions, increases in perceptions of not feeling safe in schools and gang awareness (Center for Social and Emotional Education, 2007). As noted above, the nature of our design did not allow us to explore the longitudinal nature of these results at the individual level. It is also important to consider the possibility of assessment reactivity. Assessment reactivity refers to the finding in the health behavior literature that that the action of having a behavior or awareness queried, monitored, or become a focus of attention during a research study independently can affect the expression of that behavior regardless of other interventions or manipulations used in the study (Schrimsher & Filtz, 2011). Further, information from surveys and questions can serve as an opportunity for learning; thus, completing a questionnaire can make an individual more aware of what to look out for when it comes to school climate and gang awareness. This increased awareness and knowledge of a problem can artificially inflate subsequent scores. Future research should word subsequent questions that help disentangle this. For example, now that the individual has more awareness of the problem, the stem of questions can be altered to capture how current reports differ from baseline assessment. As an example, one of the gang awareness questions is: *Have gangs been involved in fights, attacks, or violence at your school?* From the process evaluation, it became clear that early in the study, many staff were not aware of gang activity in the schools and started to "learn the signs" when receiving training for referring youth to the GRASSY and/or SHAPE program. It is possible that increases noted for both SFSS and CHSS were related to assessment reactivity and responses might not necessarily note increases in activity but instead more awareness of activity not noted previously. This is difficult to disentangle in this study.

Program Comparator Type. Another challenge that directly influenced outcome results was the treatment as usual comparison. At the outset, the TAU condition was PBIS. Since this award was granted, PBIS was upgraded to evidence-based practice status and continues to show strong results in middle school settings. In a recent study and with a similar demographic population, (Elrod et al., 2021) reported school-wide PBIS in 288 middle schools showed strong effects on school climate and fewer office discipline referrals. Kazdin (2015) cautions in interpreting studies where strong comparators were used. For most of our outcomes, it seems PBIS outperformed both conditions. Additional research disentangling this effect is needed but was beyond the scope of this study. Measurement and design challenges aside, it is promising and important to note that for most outcomes, youth as a group in each of the conditions showed reductions in many of the variables of interest despite continued challenges and increases in violence faced by the SCS district.

In the next section, we discuss implementation results from process evaluation. Implementation of the CSSI programs proved to be incredibly nuanced and complex as a result of numerous competing demands and priorities among SCMS. Future research should work to understand their relationship and impact on implementation of gang prevention and intervention initiatives. Notwithstanding the complexities and significant challenges experienced during implementation, there are several important implementation considerations these programs offer schools that should not be overlooked; rather, future efforts should expand on how to maximize the benefits of similar programs. This section will center on programmatic implementation and how the qualitative data from this study can be used to both build on the successes and also to prepare for (or avoid) challenges experienced during implementation of school safety programs within large, complex school districts. Recognizing that anecdotes offer limited utility without the support of quantitative data, it is important to consider the implications and future considerations that can be learned from the experiences of this study.

Schools and their administrations have numerous priorities, all of which are constantly competing with one another. As a result, principals/administrators are forced to identify which will be the main focus, with poor overall school academic performance often taking priority. Schools that have poor academic performance typically are focused on one goal, academic improvement, with other goals—such as disciplinary infraction reductions, programs, and initiatives—taking a back seat with little effort diverted toward making improvements. Although a school may have poor academic performance that shifts their priorities toward academics, CSSI programs should not be ignored; rather, they should be utilized as a resource to help achieve positive student outcomes. Recognizing that administrators are likely under immense stress and pressure in these scenarios, CSSI programs can complement efforts to improve a school's academic performance by helping to curb consistent problem behaviors that often detract from a teacher's ability to teach and students' ability to learn. Referring students to participate in CSSI provides teachers with supports that help limit the need to divert time and effort away from teaching to respond to behavioral incidents, allowing CSSI interventions to address and teach youth the strategies that will help them redirect their emotions, solve problems, resolve conflicts, and participate in class with little disruptions.

Despite initially struggling to obtain support and buy-in among individual schools, GRASSY and SHAPE were overwhelmingly well received and desired by administrators within their schools. The initial lack of support among schools was likely due to lapses in effective and consistent communication. Inadequate communication led to confusion around why the interventions were being implemented, the intended programmatic objectives, the different reasons a student could be referred, and the added benefit of using CSSI programs. The communication inadequacies resulted in little support and buy-in during early implementation. Once support or buy-in was obtained, the majority of schools favorably

viewed GRASSY and SHAPE as offering additional layers of support and alternative tools to help improve youth academic and disciplinary outcomes and also overall school safety. Although building support for CSSI ultimately strengthened implementation, CSSI still experienced significant problems with staff turnover. It is well known that high rates of staff turnover can negatively impact programmatic implementation; within CSSI, the turnover resulted in low referrals and little programmatic participation in CSSI initiatives having the greatest effect on SHAPE. Similarly, for schools that received a "fresh start," significant staff turnover generally accompanied it. With staff turnover comes a lack of consistency with respect to implementation of CSSI interventions that can manifest as a myriad of challenges ultimately creating a cycle that reverts back to needing to obtain support and buy-in and the challenges associated with it in addition to challenges that result from regular staff turnover. This may include having to re-advertise the purpose, availability, and use of CSSI programs like SHAPE/GRASSY to staff; having to re-identify, recruit, and retrain SHAPE coordinators and others involved with the interventions; the possibility that new administrators will not recognize the value and additional layer of support the programs provide, leading to administrators not buying into the program and thus resulting in resistance to CSSI programs and low student referrals for students that would likely benefit from participation.

Although not a direct reason for but rather a contributor to staff turnover, SHAPE utilized school staff to deliver the intervention. This placed additional responsibilities on principals requiring them to identify a candidate to implement SHAPE often picking the first person who volunteered. Consequently, this often resulted in hiring coordinators who were neither prepared nor committed to implementation. Combined with SHAPE sessions taking place after school, this created a twofold problem: conflicting schedules of SHAPE coordinators with other afterschool responsibilities, and parents declining a student's participation because their child had no transportation home for various reasons. Although these issues are unique to SHAPE, there are stark differences between SHAPE and GRASSY that allow for a strong comparison and concrete suggestion for future programming. GRASSY held sessions during school hours, utilized external vendors with lived experience that were committed, and required little involvement from school administrations. As a result, participation in and use of GRASSY were significantly higher due to the differences in design and implementation.

This comparison highlights some crucial considerations as well as exposes concerns about equity and access to programming when adopting and implementing school safety interventions. These considerations and concerns are (1) the need to identify and use coordinators who are committed to implementation, (2) the value of using external vendors to deliver an intervention rather than school staff, and (3) the timing of programming. The person selected to deliver and implement an intervention can have a significant impact on both fidelity and achieving the intended outcomes. This becomes even more important when

an interventions priority is school safety and discipline with an emphasis on middle school–aged youth. Although it can be challenging to find a suitable candidate to implement and deliver a program like SHAPE or GRASSY, future programs should devote a substantial amount of time toward identifying the best candidate and, when able (budget permitting), external vendors whose sole focus is implementation and delivery. These strategies should cut down on the possibility of scheduling conflicts if a program is held after school. As discussed in the results, the timing of the program created challenges for youth attendance, thus raising concerns about equity and access. Many of the areas surrounding SCS schools experience violence and poverty. This led to concerns from parents about how their children would get home after SHAPE programming. Many students walk to school and do so with other parents and/or children around. Given that SHAPE is an afterschool program, parents did not want their children attending sessions because they may have to walk home alone, sometimes after dark and through unsafe neighborhoods. These same neighborhoods often experience high rates of poverty, thereby forcing parents to choose between lost wages to pick their child up or lead them to decline SHAPE participation and thereby reverting to the original punishment (i.e., suspension, expulsion, etc.). The scheduling of SHAPE sessions within SCS highlighted some important inequities that should not be ignored in programming. Parents in these situations face challenging decisions that ultimately have the opposite effect of SHAPE, so rather than encouraging reductions in student disciplinary issues, these inequities result in increased suspensions and expulsions when the youth that was referred likely needs, and would benefit from, the intervention.

Figure 6 above highlights principal movement throughout the study period. These same principals were commonly discussed as key stakeholders who could significantly influence how well a program was implemented in a school. There were four types of principal movement:

- principal movement from a CHSS/SHAPE and GRASSY (S&G) school to a TUA school;
- principal movement from a TUA school to CHSS/S&G group;
- principal movement from a TUA, CHSS, or S&G school to schools not included in the study; and
- principal movement from outside of the study to either a TUA, CHSS, or S&G school.

Each principal has a unique approach, with his or her own ideas, visions, and goals about how to improve student discipline and academic performance and within SCS has the flexibility to achieve them. Similarly, principals choose the tools, resources, and methods to make progress toward achieving those goals. Principals have numerous competing priorities related to academics and discipline in regard to steering a school's approach to achieving the intended objectives that ultimately dictates the culture of a school that trickles from the top down, starting with a principal, and slowly making its way to the students. Within the context of CSSI, principals hold an enormous degree of influence with respect to the use,

support, and implementation of SHAPE and GRASSY. Without a principal's support, the interventions struggled to function as intended, resulting in SHAPE and GRASSY being underutilized as resources to help curb student behavior/discipline. This was especially present early on during implementation, when the programs lacked support and buy-in. Combined, the early challenges with support/buy-in and principal movement made it challenging to establish and build successful SHAPE/GRASSY programs within a school that resulted from inconsistent implementation. Although the majority of principals eventually bought into the programs, the late adoption and constant movement had a lasting impact that also made it challenging to ensure true randomization. As principals move schools, they often take with them strategies and tools they have identified as working from their previous school to the new one. Apply this concept to principals who moved from an intervention school to a TUA, and it is possible that they brought strategies learned or observed from SHAPE/GRASSY and implemented them in their new schools. We know this is true from our discussions with principals who stated that when they moved to a TUA school, they pleaded with the CSSI team to allow them to have SHAPE/GRASSY or to implement similar strategies. Additionally, not all schools within SCS implement SHAPE/GRASSY; in an instance in which a principal moved from a TUA school (or from outside of the study) to a SHAPE or GRASSY school, the programs are required to re-establish themselves and gain the support/buy-in necessary from the new administration, thus setting implementation back. And if the support or buy-in is not obtained, the likelihood that the interventions will be utilized as intended are low.

When thinking about the significant challenges discussed in this section and their relationship to implementation of SHAPE/GRASSY, it is prudent to incorporate that context when comparing the various treatment groups and the lack of different outcomes among SHAPE/GRASSY relative to PBIS/RTIB^2. When this grant was written, PBIS/RTIB^2 was only just being evaluated for effectiveness due to SCSD just beginning adoption of the program. We now know that PBIS/RTIB^2 is an evidence-based program that has a proven history of reducing suspensions and expulsions while improving academic outcomes. A stark difference between PBIS/RTIB^2 and SHAPE/GRASSY is their adoption by schools. PBIS/RTIB^2 had the full support of the district with progress being routinely monitored requiring schools to achieve specific milestones within a given time frame. A school's administration, teachers, staff, and students were regularly assessed by the district to ensure compliance to the objectives of PBIS/RTIB^2. Although how a milestone was achieved could differ from school to school, PBIS/RTIB^2 was designed and implemented to allow for easy transitions in the event of school administrator or staff turnover. This was done through a multidisciplinary, team-based approach that designated individuals who were responsible for designing, implementing, and creating a PBIS manual for their school. This ensured that in the event of individual or full staff turnover, implementation would not be significantly impacted, and the new members could continue with little disruption to implementation. Although SHAPE and GRASSY were supported by the district, their requirements were not nearly as strict. Unlike

PBIS/RTIB^2, principals had significantly more authority to dictate the use of SHAPE/GRASSY and could ultimately impede their use. Although principals ultimately bought into these programs, the initial resistance had a lasting impact on SHAPE/GRASSY. Additionally, principal movement and staff turnover limited the effectiveness of SHAPE/GRASSY. It was easier for staff to transition to and from PBIS/RTIB^2 because of the team-based approach, district support, uniformity across the district, and the guidance manuals each school created. On the contrary, SHAPE/GRASSY were not as easily transferable and could run into numerous hurdles resulting from staff turnover or principal movement.

Understanding that post-randomization, there was possible contamination between conditions, along with the complexities of implementing school safety interventions in middle schools and nuanced relationships between these complexities, we think there is value in utilizing programs like SHAPE/GRASSY. It is undeniable that school administrators and teachers recognized the tremendous value these programs offer schools as extra support and additional resources. We propose that future research should incorporate SHAPE and GRASSY programming into PBIS/RTIB^2 as resources and interventions that can complement those in PBIS. The goals and objectives of each are the same: reduce suspension/expulsions and increase school safety while improving academic outcomes. GRASSY brings external vendors into the school who look, act, and talk like middle school youth, thus providing a level of relatability, mentorship, and expertise unlikely to be found with school staff. The GRASSY staff also have lived experience, thereby adding an extra layer of credibility and providing youth with the perspective of someone who has “been in their shoes” and from whom they can learn and grow. The students typically do not view them as school staff and are able to quickly form relationships and build trust with GRASSY staff, adding that additional layer of support to PBIS. SHAPE offers students a unique opportunity that can further build on PBIS. Since, at its core, SHAPE is a diversion program aimed at diverting youth from the criminal justice systems, SHAPE can help close the school-to-prison pipeline; once youth enter into SHAPE, those SHAPE coordinators can tap into GRASSY and PBIS/RTIB^2 resources to engage students while ensuring that they receive appropriate services to help achieve positive student outcomes.

4.3 Implications for Criminal Justice Policy and Practice

Results of the study found several factors that contributed to or inhibited implementation and adaptation of the school safety strategies in middle schools, including changes in school administration from year to year, getting buy-in from the school administration, finding program facilitators with lived experience, and getting buy-in from law enforcement.

Study findings revealed that the role of the person(s) implementing a school safety strategy is critical. In the current study, an effective implementer is also someone who is willing and able to communicate with parents about what is happening with the student. Implementers from all interventions indicated they would have liked more opportunities to share

information across programs and schools. Idea sharing would have been useful to understanding the landscape around different schools, disciplinary issues they were seeing, and strategies to use when working with youth. In general, the use of multiple modalities is important to keeping youth engaged.

4.4 Implications for Cost

Results from the CEA can help administrators in choosing whether to adopt the SFSS or CHSS approaches and anticipate what those changes may cost. The CEA was performed at the per-student level, but scaling results to per 100 students eases the interpretation. Moving from TAU to CHSS costs about an additional $42 per student annually, with a decrease in about four suspension events. An administrator would not choose SFSS because it is both more costly and less effective than TAU.

Whether a TAU school should adopt the CHSS approach at all depends on the district's willingness to pay for reducing suspensions—that is, the maximum amount that a district considers would be a worth a one-unit reduction in the outcome. The ICERs presented in the cost-effectiveness results can be interpreted as follows, for example. If a district is willing to pay $10 per student for each reduced suspension, then adopting the intervention is worth the investment. Whereas other literatures, such as in the healthcare field, have accepted willingness-to-pay estimates for common outcomes, we are unaware of any such estimates for suspensions. District administrators and other decision-makers must therefore determine whether these outcome improvements outweigh their associated costs.

This economic analysis faces several limitations. The small number of study schools limits the variability of costs across schools within treatment conditions and the degree to which potential confounding differences between schools could be adjusted for in analyses. As for the main outcomes analyses, these results may have limited generalizability beyond the sample of schools for the years for which data are available in the current study.

Overall, understanding the best ways to implement school safety programs in middle schools is important because evidence increasingly demonstrates the effectiveness of starting violence intervention programs earlier than high school. Additionally, school safety strategies that focus on the young people within the school and the community context around the school are needed.

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