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Moving prevention into schools: The impact of a trauma-informed school-based intervention

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Abstract

Adolescents in disadvantaged communities have high rates of exposure to stress and trauma, which can negatively impact emotion regulation and executive functioning, increasing likelihood of school problems. This pilot study evaluated RAP Club, a 12-session school-based trauma-informed group intervention co-facilitated by a mental health counselor and young adult community member that utilizes evidence-based cognitive-behavioral and mindfulness strategies. Seventh and eighth graders at two urban public schools serving low-income communities were assigned to receive RAP Club ($n = 29$) or regular school programming ($n = 20$). RAP Club improved teacher-rated emotion regulation, social and academic competence, classroom behavior, and discipline. Higher program dose predicted improvements in several teacher-rated outcomes. Student self-report outcomes, however, did not vary by study group or dose. Even students with low baseline depression showed improvement in teacher-rated outcomes following program participation, supporting a model of universal program delivery to all students. Findings suggest RAP Club merits further study.

Keywords

stress; trauma; prevention; mindfulness; schools; mental health

Stress and trauma exposure is a serious U.S. public health problem (Listenbee et al., 2012), particularly for youth in disadvantaged urban communities (Breslau, Wilcox, Storr, Lucia, & Anthony, 2004; Buka, Stichick, Birdthistle, & Earls, 2001; Evans, 2004). Stress and trauma exposure impair emotion regulation and executive functioning (Compas, 2006; McEwen, 2005), negatively affecting students' ability to behave in class, pay attention, and retain material. These issues likely contribute to a preponderance of academic problems and school

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dropout among adolescents in low-resource, high-crime neighborhoods (Heckman & LaFontaine, 2010; Roderick, Nagaoka, & Coca, 2009; Wodtke, Harding, & Elwert, 2011).

The National Task Force on Children Exposed to Violence termed the cost of children's trauma exposure "staggering" and recommended delivery of evidence-based prevention and early intervention services for trauma-exposed youth through systems that serve them (Listenbee et al., 2012). Schools are a natural setting for prevention efforts, given their considerable influence on youth development (Atkins, Hoagwood, Kutash, & Seidman, 2010; Domitrovich et al., 2010; Masten, 2003). Researchers have advocated better integration of mental health and education in schools (Atkins et al., 2010), but few school-based interventions address mental health, particularly in upper middle school (Jagers, Harris, & Skoog, 2015). Most school-based programs, moreover, target aggressive and disruptive behavior (Hahn et al., 2007; Wilson & Lipsey, 2007); researchers have called for greater attention to internalizing issues, such as depressive and trauma symptoms (Greenberg, Domitrovich, & Bumbarger, 2001).

The RAP Club intervention targets school success by providing students with evidence-based skills for regulating emotions and making effective decisions. Our team adapted RAP Club from Structured Psychotherapy for Adolescents Responding to Chronic Stress (DeRosa et al., 2006; DeRosa & Pelcovitz, 2009), a trauma-focused treatment for adolescents exposed to chronic stress and trauma. One of the top three interventions disseminated through the National Child Traumatic Stress Network, SPARCS was found to improve various difficulties—including trauma, depressive, and anxiety symptoms, impulsivity, attention, and risk behaviors—among diverse adolescents (Briggs-King & Shaw, 2009; Habib, Labruna, & Newman, 2013; Kisiel, Villa, Maj, Labruna, & Habib, February 25, 2014; Weiner, Schneider, & Lyon, 2009).

RAP Club is a 12-session group intervention for upper middle school students, co-facilitated by a mental health counselor and young adult community member. We conducted a pilot study with 7th and 8th graders at two urban public schools to assess the program's promise for enhancing social, emotional, and academic functioning. We explored whether the program was associated with positive outcomes for students with varying baseline depression levels to evaluate its potential as a classroom-wide intervention. We also evaluated whether higher program dose was associated with better outcomes.

Method

Participants were 49 7th and 8th grade students attending two Baltimore City Public Schools serving disadvantaged neighborhoods. Students were not screened for trauma exposure or mental health issues prior to enrollment.

Measures

Table 1 displays the primary study measures.

Procedure

Participants were recruited using letters and phone calls to parents and classroom presentations. Students who provided assent and parental permission were enrolled in the study. Procedures were approved by the university Institutional Review Board and Baltimore City Public Schools Office of Achievement and Accountability.

Research staff randomly selected participants to be in the intervention or control groups, with somewhat more students assigned to the intervention versus control condition to ensure an adequate number of intervention participants in case of attrition. Assignment to study conditions, however, was not fully random, as there were a few instances in which teachers requested that certain students not be placed together in the same study condition. Students assigned to the intervention ($n = 29$) attended 45-minute RAP Club sessions twice per week over 6 weeks. Sessions were held during “resource period,” when students attended courses, such as gym, art, or music, which were not part of the core academic curriculum. Control group students ($n = 20$) attended their standard resource period activities. Participants and their homeroom teachers completed measures at baseline and post-intervention. It was not feasible to blind teachers to students’ study condition, but teachers did not participate in or have detailed knowledge of RAP Club.

Intervention

Like SPARCS, RAP Club incorporates psychoeducation, cognitive behavioral (CBT), and mindfulness strategies from three evidence-supported treatments: Dialectical Behavior Therapy for Adolescents (Miller, Rathus, & Linehan, 2007), Trauma Adaptive Recovery Group Education and Therapy (Ford, Mahoney, & Russo, 2004), and School-Based Trauma/Grief Group Psychotherapy (Saltzman, Pynoos, Layne, Steinberg, & Aisenberg, 2001). Table 2 summarizes program content. *Psychoeducation* addresses the nature and effects of stress. *Emotion regulation skills*--taught via mindfulness strategies, which encourage present-focused awareness, through experiential practices like observing the breath (Brown & Ryan, 2003)--include identifying emotions, responding thoughtfully rather than impulsively, and tolerating distress. *Problem solving* and *communication skills*, taught using CBT, help participants make positive decisions and communicate effectively. These program components promote self-regulatory abilities and decision-making, capacities often impaired as a result of stress exposure (Blair, 2010), which predict school success.

Each RAP Club group was co-facilitated by a mental health professional and by a young adult community member from a local employment training program. Our prior work implementing RAP Club at the employment training program suggested co-facilitation by young adults enhanced participant engagement [blinded]. Program facilitators received a day-long training in how to implement the intervention, as well as weekly supervision by the first or second author.

Statistical analyses

We compared the intervention and control groups on age and gender using *t*-tests and ANOVAs and explored whether school was associated with outcomes. Intervention effects were assessed using repeated measures ANOVAs with separate models for each outcome.

We also conducted two sets of secondary analyses. First, we selected participants with low baseline depression (SMFQ score < 8) and conducted paired *t*-tests to explore pre-post change scores for each outcome in the low depression group. This analysis was intended to evaluate whether participants without initial depression appeared to benefit from the intervention. Second, to explore possible dose effects, we stratified intervention participants by high (9–12 sessions) versus low (1–8 sessions) attendance and compared the two dose groups using *t*-tests with pre-post change scores for each outcome. In addition to testing statistical significance, we also examined patterns in our data visually in both sets of secondary analyses, given our small *n*.

Results

The sample included 23 7th and 26 8th grade students (range 12–15 years). More females than males participated (31 versus 18). Most students identified as African American (94%); the remainder identified as “other.” As the intervention and control groups did not differ on age or gender, and school was not associated with outcomes, we did not control those variables in analyses. The study groups also did not differ with respect to average baseline scores on the study outcome measures. The lack of difference between study groups offsets concerns about limitations in the randomization procedure.

Intervention outcomes

As shown in Table 3, compared with controls, intervention students improved on teacher-rated *dysregulation* ($F(1,43)=7.94, p < 0.01, d=0.85$), *social competence* ($F(1,43)=8.32, p < 0.01, d=0.87$), *academic competence* ($F(1,45)=6.65, p < 0.05, d=0.76$), and *authority acceptance* ($F(1,43)=5.43, p < 0.05, d=0.69$). The pattern of scores was in the predicted direction for all the other teacher-reported outcomes, except *attention*. Student-reported outcomes did not differ by study condition (data not shown).

Baseline distress

Five of 29 intervention students (17%) had elevated baseline depression; all displayed a pattern of reduced posttest symptoms. Twenty-four intervention participants (83%) reported low baseline depression; compared with control participants with low baseline depression, these students showed improved teacher-rated *dysregulation* ($t(39)=2.9, p < 0.01$), *social competence* ($t(38)=-2.57, p < 0.05$), *academic competence* ($t(40)=-2.27, p < 0.05$), *authority acceptance* ($t(39)=2.53, p < 0.05$), and *disciplinary sanctions* ($t(39)=2.28, p < 0.05$).

Dose

Higher program dose was associated with greater improvement than low dose on teacher-rated *academic comparison* ($t(1,25)=2.93, p < 0.01$), *discipline* ($t(1,25)=2.24, p < 0.05$), and *conduct problems* ($t(1,25)=2.4, p < 0.05$).

Discussion

RAP Club improved teacher-reported outcomes important for school success, the magnitude of effects was relatively large, and several outcomes were enhanced with higher program dose. Student-reported outcomes, however, did not differ by study condition or dose.

Discrepancies in ratings of youth mental health and functioning across informants (e.g., youth versus teacher reports) are common (De Los Reyes & Kazdin, 2005). It is unclear, however, how to interpret the lack of group differences in self-reported outcomes in this study. It is possible that this pattern of findings reflects limitations in our assessments measures, in youth comprehension, or in youth willingness to self-disclose information regarding their social and emotional functioning. Alternatively, despite group facilitators' impression that students were positively engaged during the RAP Club sessions, the intervention may not have produced changes in youth perceptions of the domains we assessed. Focus groups or interviews should be conducted in future studies on RAP Club to explore students' perspectives on the intervention and how it affected them. Qualitative methods would provide a more nuanced perspective on student experiences and may suggest outcome measures that more fully capture those experiences, as well as potential modifications to the intervention.

Even intervention students with low baseline depression showed improvements in teacher-reported social, emotional, and academic outcomes, suggesting RAP Club may be helpful even for students without apparent symptomatology. Although future research should also assess implications of baseline trauma and anxiety symptoms, these findings provide preliminary support for a model of universal program delivery, in which students are not selected on the basis of trauma exposure or initial mental health issues. A universal approach is compatible with *classroom-wide program delivery*, a potentially more sustainable delivery model than pull-out groups (Atkins et al., 2010).

Classroom-wide delivery has potential to benefit many students, improve classroom climate, and reduce burden on schools' limited resources for addressing mental health. For instance, in a study of elementary schools serving impoverished communities ($n = 1,099$ students), 56% of students were identified as having mental health needs (Baker, Kamphaus, Horne, & Winsor, 2006). The public education system is under-resourced to address this level of need using "pull out" models, such as indicated programs (Atkins et al., 2010; Baker et al., 2006).

Co-facilitation by community members is another promising intervention component, as it embodies an effective model for behavioral change (Cuijpers, 2002a, 2002b) and can also offer workforce development opportunities for young adults. This model has promise for dissemination, as most U.S. urban settings have employment training programs, or similar organizations.

Methodological limitations of this pilot study include small sample size, a volunteer sample, limitations to the randomization process, and no long-term follow-ups. Study groups, however, did not differ on demographic factors or initial scores on outcome measures. Teachers who rated students were not blind to study condition but had limited knowledge of the program.

Despite these limitations, the study suggests RAP Club is a promising intervention meriting further study. The program has potential to provide upper middle school students with tools and supports to promote a successful transition to high school. A growing body of research highlights the importance of early intervention with disadvantaged children, in order to reduce the negative impact of stress and trauma on cognitive, emotional, and behavioral capacities that are critical for future social and occupational success (Knudson, Heckman, Cameron, & Shonkoff, 2006; Shonkoff, Boyce, & McEwen, 2009). Twenty-nine states allow students to leave school at age 16 or 17 (Zapana & Wagner, 2012). Eighth grade may be the last, best opportunity to reach large numbers of adolescents at risk for emotional, behavioral, and academic problems before they become disconnected from school and require specialty services.

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Table 1

Teacher and Student Measures

Measures	Constructs (# Items)	α
<i>Teacher-Reported Measures</i>		
Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997)	SDQ Total Score (25 items)	.78
Academic Competence Evaluation Scale (ACES) (DiPerna & Elliott, 1999) – reduced version	ACES Academic Competence (9 items)	.97
	ACES Academic Comparison (1 item)	--
	ACES Disciplinary Sanctions for Misbehavior (3 items)	.95
Social Competence Scale (SCS) (Kam, Greenberg, & Walls, 2003)	SCS Dysregulation (6 items)	.79
	SCS Social Competence (7 items)	.94
	SCS Attention (3 items)	.96
	SCS Authority Acceptance (6 items)	.86
Student Internalizing Symptoms (Achenbach, 1991; Achenbach & Edelbrock, 1986)	Internalizing Symptoms (5 items)	.75
<i>Student-Reported Measures</i>		
Short Mood and Feelings Questionnaire – Child Version (SMFQ) (Angold et al., 1995)	Depressive Symptoms (13 items)	.74
Adolescent Self-Regulatory Inventory (Moilanen, 1997)	Regulation Strategies (13 items)	.68
Children's Coping Strategies	CCSC Cognitive Decision-Making (4 items)	.70
Checklist (CCSC) (Ayers, Sandler, West, & Roosa, 1996) – reduced	CCSC Support for Actions (5 items)	.60
Emotional Awareness Questionnaire (Rieffe et al., 2007)	Emotional Awareness (30 items)	.76

Note. All measures have acceptable psychometric properties. The SDQ Total Score includes items assessing emotional symptoms, conduct problems, hyperactivity, and peer problems. The ACES Academic Comparison item assesses academic performance relative to peers. The SCS Authority Acceptance scale includes items assessing classroom behavior.

Table 2

RAP Club Components, Skills, and Strategies

Core Intervention Component	Skill	Session #	Evidence-Based Strategy
Identifying stress	Stress and the Body	2	Psychoeducation
Awareness of emotional states	States of Mind	3	Mindfulness
Using a mindful approach	Path to Wise Mind	4, 5	Mindfulness
Communication skills	MAKE A LINK	6, 7	CBT
Problem solving skills	LET GO	8, 9	CBT
Distress tolerance skills	Distract	10	Mindfulness/CBT
	Self-soothe	11	Mindfulness

Note. The first and last intervention sessions, not listed above, are an introduction and review/graduation.

Table 3
Two-Way Repeated Measures ANOVA Comparing Study Groups on Teacher-Rated Outcomes

Outcome variables	Intervention <i>M (SD)</i>	Control <i>M (SD)</i>	<i>F</i>	<i>p</i>	Cohen's <i>d</i>
SDQ Total	-1.48 (4.66)	-0.31 (3.66)	0.86	0.36	0.27
SCS Dysregulation	-3.04 (4.71)	0.50 (3.41)	7.94	0.007	0.85
SCS Social Competence	2.04 (5.50)	-3.11 (6.44)	8.32	0.006	0.87
SCS Attention	-0.56 (3.02)	0.65 (2.58)	2.07	0.16	-0.42
SCS Authority Acceptance	2.89 (4.59)	0.05 (3.39)	5.43	0.02	0.69
ACES Academic Comparison	0.67 (0.88)	0.45 (0.83)	0.74	0.40	0.25
ACES Academic Competence	1.15 (8.20)	-4.90 (7.59)	6.65	0.01	0.76
ACES Disciplinary Sanctions	-0.26 (1.83)	0.79 (1.78)	3.74	0.06	0.58
Internalizing	-1.03 (2.52)	-0.75 (3.09)	0.12	0.73	0.10

Note. Means and standard deviations in the table reflect change scores between pre- and post-test scores. Actual pre- and post-test scores were used to calculate the repeated measures ANOVA.