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Improved Resilience and Academics Following A School-based Resilience Intervention: A Randomized Controlled Trial

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ABSTRACT

Enhancing resilience is valuable to youth from economically marginalized communities given that they often face greater challenges and hardships than their peers from more affluent communities. Efforts to increase resilience skills in these youth are hampered because they disproportionately encounter barriers in access to mental health interventions. Implementing school-based services may be optimal to address these inequalities. This project explores the effectiveness of a school-based group intervention (the Resilience Builder Program[®]) related to resilience and academic functioning in a sample of children from economically marginalized communities. Students ($N = 169$) with social-emotional difficulties were recruited from five elementary schools and randomly assigned to participate in the Resilience Builder Program[®] (RBP) immediately or following a semester delay. Participants, their parents, and teachers completed measures of resilience (BASC-2, RSCA) and academic functioning (ACES). Results found a significant relationship between resilience and stronger academic functioning (i.e., engagement and motivation). RBP participants, their parents, and teachers reported greater increases in resilience compared to the delay group. Teachers reported significant increases in students' study skills, academic engagement, interpersonal skills, and academic motivation compared to the delay group. RBP participants reported significantly greater study skills and academic engagement, compared to the delay group. Findings indicate school-based RBP effectively promotes resilience skills and academic functioning in children who often face significant barriers to accessing mental health care.

Introduction

Identifying ways to develop resilience skills is critically important, particularly for youth from economically disadvantaged communities. These youth often are required to overcome greater challenges and hardships than their peers from more affluent communities, stemming from a long history of economic marginalization and inequality (Motti-Stefanidi & Masten, 2017). Unfortunately, youth from low-income families often face greater barriers to accessing mental health services as compared to youth from higher-income families. In this study, we discuss efforts to implement a resilience skills intervention, the Resilience Builder Program[®], in schools serving primarily children from economically marginalized communities.

Resilience is a dynamic, multidimensional construct that describes the adaptive processes in which individuals overcome adversity (Luthar et al., 2000). Once thought to reflect positive response to extreme adversity (e.g., trauma), many now recognize that resilience also encompasses adaptation to more commonplace stressors, including social struggles, learning disabilities, neighborhood adversity, and mental disorders (Alvord & Grados, 2005; Sikorska, 2017). Resilience skills include self-regulation of emotion and behavior (e.g., appropriately modulating one's attention, mood, and actions), a proactive orientation (e.g., taking initiative, self-efficacy, self-confidence), adaptability (e.g., being flexible rather than rigid in one's behavioral and cognitive responses), and prosocial skills such as social competence and social

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connections (Alvord & Grados, 2005). Resilience can also be applied to educational attainment: the concept of academic resilience refers to the application of these skills in the school setting to cope with and overcome academic challenges (Martin & Marsh, 2009; Skinner & Kindermann, 2020).

There has been an increased focus on resilience in youth from economically marginalized communities; this likely reflects a recognition of the value of adding positive, strength-based intervention approaches to foster development with this population, rather than the deficit model that has traditionally dominated the field (Marks et al., 2020; Motti-Stefanidi & Masten, 2017; Richards et al., 2016). The specialization and sensitization hypothesis (Ellis et al., 2017) contends that harsh and stressful environments may enhance developmental adaptation through heightened skills in problem-solving and cognitive functioning. As community poverty is a primary threat to quality education (Skinner et al., 2020), there is an increased focus on promoting academic resilience such as engagement and motivation in children from economically marginalized schools (Henderson et al., 2016). Interventions that promote resilience may be of particular value to youth from economically marginalized communities who face chronic environmental stressors and are at-risk for future adversity (Richards et al., 2016).

Children living in poverty are exposed to greater stressors, often resulting from unsafe neighborhoods and poorer quality housing and education (American Psychological Association, Working Group for Addressing Racial and Ethnic Disparities in Youth Mental Health, 2017). Lower-income youth are also more likely to have reduced access to mental health services than higher-income peers, even though they have higher rates of mental health disorders (Wadsworth et al., 2018). Although nearly half of children in the United States will experience significant psychological symptoms each year, only 7.4% will receive mental health services (Centers for Disease Control and Prevention, 2015). These rates are even lower in youth from economically marginalized communities (Santiago et al., 2011). These youth often face barriers to accessing mental health services including economic constraints (Owens et al., 2002), lack of insurance coverage (Walker et al., 2015), and

limited access to treatment (Priester et al., 2016). These barriers are often encountered by racial/ethnic minority youth as well. African American and Hispanic youth are 2–3 times more likely to experience poverty than White and Asian American youth (American Psychological Association, Working Group for Addressing Racial and Ethnic Disparities in Youth Mental Health, 2017). This overlap between economic disadvantage and ethnic/racial minority status in part explains why children of color disproportionately receive lower levels of mental health care (Marrast et al., 2016; Wadsworth et al., 2016).

Addressing inequity in mental health services can target broad socioenvironmental factors, or more focused factors such as the family or the individual (Zolkoski & Bullock, 2012). Socioenvironmental-targeted approaches include changes in policy and emphasize broader neighborhood variables and civic engagement. Family-targeted approaches typically address parenting skills, fostering positive parent-child attachment, and improving family cohesion (Richards et al., 2016). Individual-level approaches aim to enhance skills and develop strategies within each youth that will better equip them to cope with the chronic stressors associated with economic disadvantage (Fergus & Zimmerman, 2005), such as the self-regulation, proactive orientation, adaptability, and prosocial skills that comprise resilience. Targeting individual-level factors may have longitudinal value by improving skills to reduce the likelihood of future mental health difficulties.

One of the most powerful tools for addressing disparities in access to care is implementing mental health interventions in schools (Evans & Weist, 2004; Owens et al., 2014). Schools are an optimal setting to improve equity in meeting the mental health needs of economically disadvantaged youth by increasing access to mental health interventions (McCrea et al., 2016). Schools limit disparities by reducing barriers including cost incurred by families, transportation demands, caregivers' demanding schedules, and limited insurance coverage, and because students are familiar with the setting and school personnel, thus reducing stigma of receiving mental health care (American Psychological Association, Working Group for Addressing Racial and Ethnic Disparities in Youth

Mental Health, 2017; Fusick & Bordeau, 2004; Owens & Murphy, 2004). Thus, implementation of mental health services in schools increases access for youth who otherwise would not receive adequate psychological treatment, particularly those from economically marginalized communities (Marrast et al., 2016; Schachter et al., 2008).

Prior study of resilience-based interventions in schools with racially/ethnically diverse youth from economically marginalized communities is limited. While many interventions target social-emotional learning skills, few explicitly target the collection of skills traditionally thought to comprise resilience. Among the exceptions, these interventions report improvement in domains including sense of belonging (i.e., problem solving and peer relationships; Kuperminc et al., 2020), resilience, problem solving, and empathy (Ijadi-Maghsoodi et al., 2017), resilience (Felter et al., 2018), and Afrocentric values (Graves & Aston, 2017). Of note, these studies have been conducted with high school students, and the impact on academic functioning was either not reported or nonsignificant. Thus, the potential value of resilience-based interventions in elementary-aged youth and for academic functioning warrants further examination.

In an effort to address this gap in research and promote equity in access to care, we administered the Resilience Builder Program® (RBP; Alvord et al., 2011) in schools serving economically marginalized communities. RBP is a manualized group intervention designed to improve resilience-based skills in youth with difficulties in social competence and self-regulation. Prior studies of RBP, conducted in a private clinical practice setting, found the intervention to significantly improve functioning across varied clinical domains. Transdiagnostic pre-adolescent youth with prominent psychosocial deficits had significant improvements following participation in RBP in child-reported (Alvord et al., 2014) and parent-reported resilience (Goolsby et al., 2018), parent-reported social skills (Goolsby et al., 2019, 2018), and parent-reported emotional regulation (Goolsby et al., 2018). The generalizability of these results is limited given that participants were primarily from middle to high-SES families and White. Further, participants were not randomized to condition, and there was no nonintervention comparison sample. This limited our ability to

determine if RBP intervention is the mechanism behind the documented positive changes. To transport RBP to a school environment, a study examining a subset of the current sample (47 of the 169 current participations, i.e., 27.81%; Rich et al., 2019) was the first to randomize participants to either RBP intervention or a delayed intervention group within a more limited number of schools. This study indicated that RBP intervention significantly improved children's ability to regulate their emotions and provided evidence of RBP effectiveness when implemented in the school setting using randomized assignment. However, the study was limited in its generalizability given its smaller sample size and targeted assessment of affective regulation.

The current randomized controlled trial explored the impact of RBP on resilience and academic engagement when administered in schools from economically marginalized communities, and with students who were from primarily underrepresented ethnic/racial groups. We focused on resilience given its centrality to the intervention and its importance in our sample (Marks et al., 2020; Motti-Stefanidi & Masten, 2017). That is, we targeted these youth in an effort to enhance resilience skills given their social, emotional, and behavioral problems and their heightened risk for chronic exposure to stressors due to their community characteristics. We also focused on academic outcomes because children from low-income families and those of racial/ethnic minority groups have been found to be at disproportionate risk for academic failure (Reardon & Portilla, 2016), which has been linked to psychosocial deficits at a greater level than in White youth and those from higher-income families (American Psychological Association, Presidential Task Force on Educational Disparities, 2012; Epstein et al., 2008). We also targeted these two domains given that the resilience skills of self-efficacy, positive social relationships with others, and self-regulation are thought to be associated with enhanced academic functioning (Martin & Marsh, 2006). We predicted that we would find a significant relationship between resilience and academic engagement and motivation. Further, we predicted that children who received RBP, as compared to those in a delayed intervention

group, would demonstrate greater increases in the resilience domains of mastery (i.e., self-efficacy), sense of relatedness (i.e., relationships with others), and emotional reactivity (i.e., self-regulation), along with the four domains of academic enablers: academic motivation, engagement, study skills, and interpersonal skills.

Methods

Study procedures

School personnel (i.e., counselors, administrators) referred students for participation in the study. We provided school personnel a document that described the inclusion and exclusion criteria and met with school personnel to review these criteria in an effort to operationalize these impairments and discuss how they typically present in classroom and social settings. Inclusion criteria included the presence of prominent social and/or emotional impairment, such as difficulty forming friendships, problematic interactions with peers, emotional dysregulation, excessive over-reaction to stressors and frustration, and significant withdrawal, shyness, and isolation. While students with defiance, oppositionality, and hyperactivity were enrolled, students with extreme disruptive behaviors (i.e., students with a history of aggressive and/or violent behavior with peers or school staff), or students with documented autism diagnoses known to school personnel were excluded from this program. We relied on teachers' and school counselors' familiarity with their students to identify students who met these inclusion and exclusion criteria. A structured clinical assessment using standardized interviews and/or observations to obtain clinical diagnoses and/or verify the extent of diagnostic symptomatology was not logistically feasible within the school setting. Further, such a formal assessment was not deemed necessary given that the intervention aims to augment resilience skills regardless of diagnostic status. After being identified by the school staff and parents expressing interest to the school, research personnel provided information about the study to parents and obtained informed consent. Researchers hosted meetings at the school for families to explain the study and answer questions and were available by

telephone for families that could not attend in person. The Institutional Review Board approved the study and allowed families to consent who could not be present in person.

We randomly assigned all participants to participate in the intervention immediately or after a one-semester delay using a random number generator. Randomization occurred at all schools, and at all schools there was equal distribution in the immediate and delayed sample. Students in the delayed condition received no RBP intervention during the semester delay and thus served to control for natural improvements over time and regression to the mean. As with students assigned to the immediate RBP intervention condition, students in the delayed condition were not restricted in their receipt of other services. Participants, their parents, and teachers completed a battery of questionnaires at two time points: Time 1 (T1)- prior to the randomization and Time 2 (T2)- directly following the intervention or period of delay. Parents were given the option to complete questionnaires in English or Spanish. Spanish versions, created by the publishers themselves, were provided to 27.2% of the participants' parents. Thirty teachers provided data on our 169 participants, meaning some teachers provided data for multiple students across the five years of data collection. Students received a \$20 gift card for completing the questionnaires.

Participants

Our study sample of 169 youth were recruited from five elementary schools in a large metropolitan area including three public schools, a public charter school, and a tuition-free private school. Each public school had a high proportion (70% to 100%) of students receiving free or reduced lunch, and the private school specifically recruited students of families with low incomes. Participants were students in grades four through six. Of the 214 participants who were referred for the study, 180 consented (see [Figure 1](#)). Eleven students moved away during the course of data collection, providing the final sample of 169. Beyond the 11 participants who moved away, missing data reflected students who completed the program but did not complete select measures due to being absent the day of data collection and/or not returning

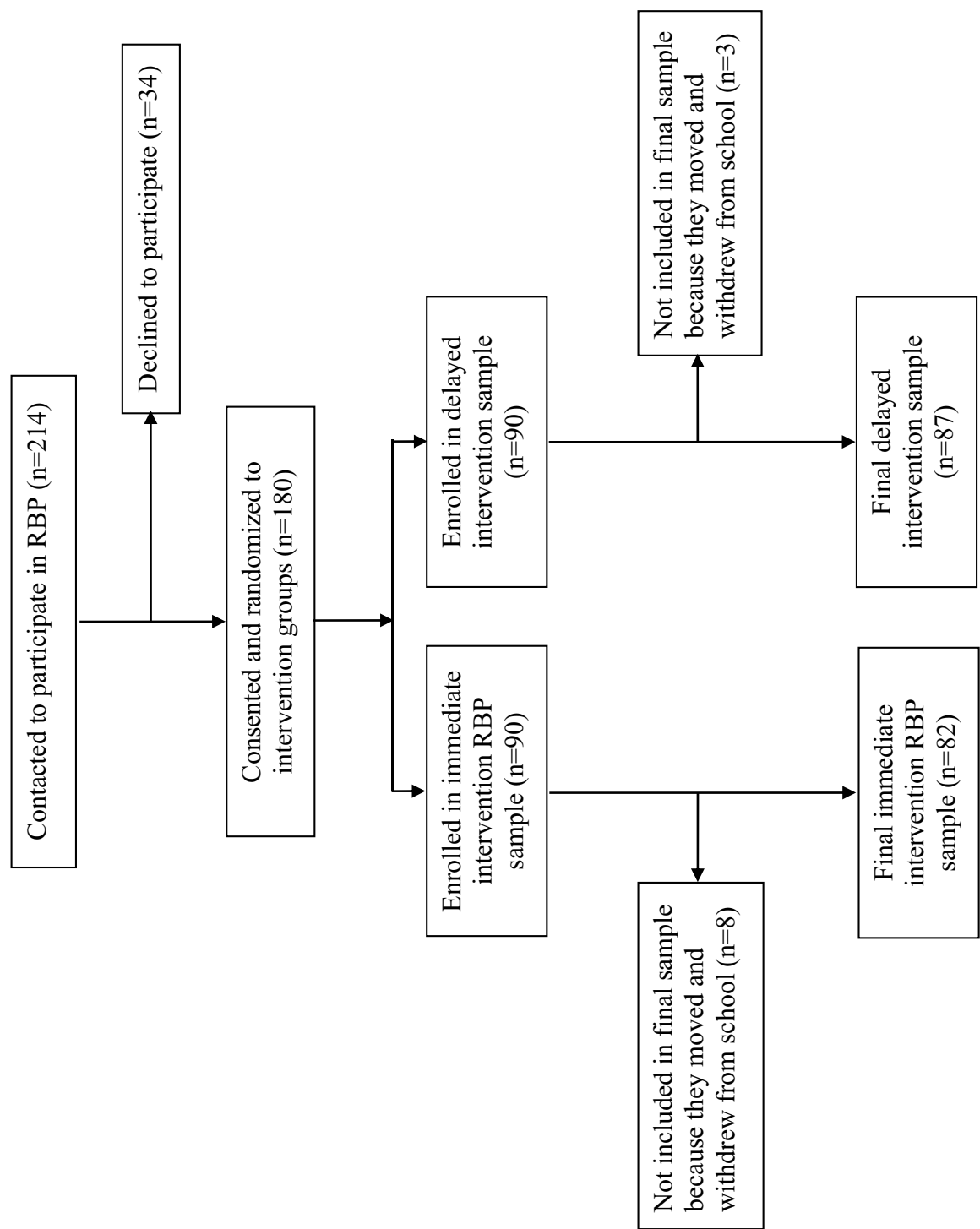


Figure 1. CONSORT diagram depicting participant recruitment process.

forms completed outside of school. Additionally, during our first two years of the program we did not collect data on academic enablers and therefore do not have that data from one of the schools; this reflects a loss of 35 students on this measure. Analyses of those who provided pre-intervention data found missing data for 6.0% of the Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2007), 5.4% of the child-reported Academic Competence Evaluation Scales (ACES; DiPerna & Elliott, 2000), and 4.4% of the teacher-report ACES. Comparisons found no differences between those who provided both pre- and post-intervention data versus those who failed to complete post-intervention data on variables such as age, gender, race/ethnicity, school, nor enrollment in the RBP or delayed intervention sample. Participants ranged in age from 9–12 years ($M = 10.82$, $SD = 0.56$) and 64.5% were male. Participants primarily identified as ethnic and racial minorities; 40.8% identified as Hispanic/Latinx, 54.4% identified as African American, and 1.8% identified as White. Sixty-two percent of families reported family income under \$75,000, with 25.4% reporting family income lower than \$24,000. See, [Table 1](#) for a description of demographic data of the immediate, delayed, and total samples. A power analysis using the G*Power program (Faul et al., 2009) indicated that to detect a medium sized effect of 0.5 when employing the traditional 0.05 criterion of statistical significance and multiple schools as covariates, 107 participants would be required, meaning that our sample of 169 was sufficient for our planned analyses.

Intervention

Participants engaged in RBP, a 12-week semester-based group cognitive-behavioral based intervention (Alvord et al., 2011). These 12 sessions (see below) comprised “Unit 1” from a larger collection of 30 sessions discussed in the manual, and topics were chosen given their relevance to the impairments that characterized the targeted sample. Each group had 4–7 participants and had two leaders—a combination of either a licensed psychologist from a nearby private practice, school counselor from the school, or a doctoral student in clinical psychology from a local university. All group

leaders received training and supervision in the RBP intervention: licensed psychologists were trained in RBP as part of their employment at the private practice, and school counselors and doctoral students attended a six-hour training and co-led the program with a licensed psychologist for a semester before being able to be a primary leader. Weekly sessions were approximately 50 minutes and involved an interactive didactic instruction of skills designed to enhance resilience. Session topics included 1) introduction to group, 2) resilience and being proactive, 3) maintaining appropriate personal space, 4) leadership, 5) reading verbal and non-verbal cues, 6) initiating and maintaining conversations, 7) being a good sport, 8) optimistic thinking, 9) solving friendship problems, 10) stress management, 11) assertiveness, and 12) empathy and perspective taking. Following the interactive didactic lesson, participants engaged in a behavioral rehearsal of skills with therapist-guided feedback. At the end of each session, participants learned and practiced self-regulation and relaxation skills. Each week participants were encouraged to generalize the skills through at-home assignments and a journal in which participants wrote about efforts toward their goals. Parents received a weekly letter, available in English and Spanish, summarizing the lesson with tips to rehearse skills at home to enhance generalization.

Measures

Demographics

Parents completed a questionnaire developed for this study to assess demographic information including age, sex, race, ethnicity, family income, and mental health status.

Resiliency scales for children and adolescent

(RSCA; Prince-Embury, 2007): Children completed a self-report of their resilience. The RSCA assesses three domains of resiliency, including sense of mastery (optimism, self-efficacy, adaptability), sense of relatedness (trust, support, comfort, tolerance), and emotional reactivity (sensitivity, recovery, impairment). The scale includes 64 items and two index-scores—Resource and Vulnerability rated on a 5-point Likert scale from “never” to “almost

Table 1. Demographic information.

	Total Sample (<i>n</i> = 169)		Immediate Intervention (<i>n</i> = 82)		Delayed Intervention (<i>n</i> = 87)	
Mean child age in years (SD)	10.82	(0.56)	10.83	(0.59)	10.82	(0.53)
Male (%)	109	(64.50)	54	(65.85)	55	(63.22)
Living arrangement						
Both biological parents (%)	70	(41.42)	33	(40.24)	37	(42.53)
Single biological parent (%)	37	(21.89)	21	(25.61)	16	(18.39)
Biological mother, stepfather (%)	19	(11.24)	10	(12.20)	9	(10.34)
Biological father, stepmother (%)	2	(1.18)	1	(1.23)	1	(1.15)
Shared (%)	5	(2.96)	2	(2.44)	3	(3.45)
Adopted (%)	2	(1.18)	1	(1.23)	1	(1.15)
Other/Missing (%)	34	(20.12)	14	(17.07)	20	(22.99)
Race						
Black or African American (%)	92	(54.44)	39	(47.56)	53	(60.92)
Biracial (%)	12	(7.10)	7	(8.54)	5	(5.75)
White (%)	3	(1.78)	1	(1.23)	2	(2.30)
Asian American (%)	2	(1.18)	1	(1.23)	1	(1.15)
Prefer not to Answer or Missing (%)	60	(35.50)	34	(41.46)	26	(29.89)
Hispanic (%)	69	(40.83)	38	(46.34)	31	(35.63)
Annual family income						
Under \$24,000 (%)	43	(25.44)	22	(26.83)	21	(24.14)
\$25,000-\$49,000 (%)	38	(22.49)	20	(24.39)	18	(20.69)
\$50,000-\$74,000 (%)	23	(13.61)	8	(9.76)	15	(17.24)
Above \$74,000 (%)	17	(10.06)	10	(12.20)	7	(8.05)
Prefer not to Answer/ Missing (%)	48	(28.40)	22	(26.83)	26	(29.89)
Diagnostic information						
Any Diagnosis (%)	17	(10.06)	9	(10.98)	8	(9.20)
Attention Deficit/ Hyperactivity Disorder (%)	11	(6.51)	5	(6.10)	6	(6.90)
Any Anxiety Disorder (%)	4	(2.37)	2	(2.44)	2	(2.30)
Current medication treatment						
Yes (%)	5	(2.96)	3	(3.66)	2	(2.30)
No (%)	132	(78.11)	66	(80.49)	66	(75.86)
Prefer not to Answer/ Missing (%)	32	(18.93)	13	(15.85)	19	(21.84)
Current psychotherapeutic treatment			9	(10.98)		
Yes (%)	22	(13.02)	10	(12.20)	12	(13.79)
No (%)	118	(69.82)	59	(71.95)	59	(67.82)
Prefer not to Answer/ Missing (%)	29	(17.16)	13	(15.85)	16	(18.39)

aCurrent psychotherapeutic treatment refers to any intervention other than the Resilience Builder Program©

always.” The RSCA has excellent psychometric properties for children between ages 9 to 14 for both clinical (i.e., those receiving outpatient treatment and with a documented DSM-IV Axis I diagnosis) and nonclinical populations: internal consistency alphas range from .82-.95, test-retest reliability averages .86, convergent validity ranges from .51 to .77, and discriminant function analyses find a sensitivity of 79% and specificity of 81% (Prince-Embury, 2007, 2010).

Behavior assessment system for children, 2nd edition

(BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 was used rather than the updated 3rd edition for the purposes of consistency, as this study began prior to the publication of the updated version. This measure was completed by parents (Parent Rating Scales- PRS) and teachers (Teacher Rating Scales-TRS). The BASC-2 measures children's functioning in a broad array of areas including internalizing and externalizing scales and resiliency. Each item is scored on a 4-point Likert scale from “never” to “always” and transformed into a standardized *T* score based on age and sex. For this study, we focused on the resiliency content scale, in which *T* scores below 40 are considered at-risk. The resiliency content scale is designed for parents and teachers to rate children's ability to access internal and external support systems to cope with stress and overcome adversity. Sample items include “Is easily soothed when angry,” “Adjusts well to changes in routine,” “Recovers quickly after a setback,” and “Has trouble making new friends.” The Resiliency content scale has strong psychometric properties, including internal consistency of .85, test-retest reliability of .75, and inter-rater reliability of .74 (Reynolds & Kamphaus, 2004). The BASC also provides psychometric properties when administered to a clinical sample, comprised of youth identified by their parents as having one or more emotional, behavioral, or physical problems, i.e., comparable to the current study's sample. In this clinical sample, psychometric properties are reported to be “nearly equivalent” if not “identical” to those reported above in a normative sample (p. 134).

Academic competence evaluation scales

(ACES; DiPerna & Elliott, 2000). This questionnaire provides a standardized functional assessment of students' learning difficulties, including academic skills (i.e., reading/language arts, mathematics, critical thinking) and academic enablers (i.e., interpersonal skills, motivation, study skills, and academic engagement). This measure was completed by the teacher (73 items) and child (60 items)-each rated on a 5-point Likert scale from “never” to “almost always.” The ACES has strong internal consistency as Cronbach alphas ranged from .94 – .99 and strong test-retest reliability ranging from .88- .97

(DiPerna & Elliott, 2000). These are comparable between a general student population and those with learning disabilities and those identified as being at-risk for academic difficulties given low IQ and prior history of low academic achievement (Gresham et al., 2019). Finally, the ACES measure has been found to have significant convergent validity with grade point average as well as performance on a sample of standardized tests of academic achievement (DiPerna & Elliott, 2000).

Data-analytic plan

Pearson's correlation analyses were conducted to assess the relationship between resiliency and academic enablers. Analyses of variance examined how RBP impacted participants' resiliency and academic enablers including motivation, engagement, study skills and interpersonal skills. We conducted repeated measures analysis of variance, with time of rating as the within-subject factor, and intervention status (immediate vs. delayed) entered as the between-subject factor. Schools were dummy coded and entered as a random factor as a covariate, with four levels to account for the five schools from which participants were enrolled. We applied a per-family Bonferroni adjustment to each ANOVA comparison (Frane, 2015), meaning significant p values were < 0.025 for BASC-2 analyses, < 0.017 for RSCA analyses, and < 0.013 for ACES analyses. Effect size was calculated using partial eta squared, in which $\eta_p^2 = 0.10, 0.25$, and 0.40 is considered small, medium, and large, respectively (Cohen, 1988; Richardson, 2011). In addition, consistent with the recommendation of Likens et al. (2013), Cohen's d effect sizes were calculated for each pairwise comparison of interest where the ANOVA interaction and posthoc analyses were significant. As recommended by Cohen (1988), $p = 0.2$ was considered a small effect, 0.5 moderate, and 0.8 large.

Results

Preliminary analyses

A comparison of RBP and delayed intervention samples found no differences in age $t(1,169) = 0.63$ $p = .91$, sex $X^2(1,169) = 0.13$, $p = .75$, race $X^2(5,169) = 2.27$, $p = .811$, nor family

income $X^2(5,136) = 4.92$, $p = .423$. Therefore, these variables were not controlled for in subsequent analyses. Preliminary analyses showed that baseline resiliency differed across the five schools for teacher report of resilience, $F(4,104) = 5.59$, $p < .001$, $\eta_p^2 = .14$, but not for the other measures. Post hoc analyses of teacher report of resilience showed that participants in the tuition-free private school reported significantly higher levels of teacher-reported resilience compared to students in three of the public schools. Students at the private school were initially recruited from both 5th and 6th grade, so their age was also higher compared to the other schools where we recruited primarily students in 5th grade (along with three 4th grade students), $F(4,168) = 4.31$, $p = .002$, $\eta_p^2 = .16$. There were no significant baseline differences in academic enablers – however we did not administer that measure to students at the tuition-free private school. Given the differences at baseline between schools, we included schools as a covariate.

We assessed each dependent variable for normality of distribution, examining skewness and kurtosis. We found that skewness was less than absolute value of 1 with exception of child's report of interpersonal skills, and teacher's report of interpersonal skills and study skills. Therefore, we conducted log transformations for those variables. Levene's test of equality of error was nonsignificant for all dependent variables apart from child-reported study skills.

Baseline functioning

As seen in Table 2, child report of resilience on the RSCA was impaired (below average) in the domains of mastery, relatedness, and emotional reactivity. Both parent and teacher report of resilience on the BASC suggests participants were in the normal range of functioning in this domain. Child and teacher report of academic competence on all subscales ACES on was in the "developing" range, suggesting below average academic skills.

Association between resilience and academic enablers

We conducted Pearson's correlations between children's report of resiliency resources using the RSCA (a summary scale of protective factors),

Table 2. Descriptive statistics for measures at different time points, by reporter, per intervention condition.

Measure		T1				T2			
		RBP		Delay		RBP		Delay	
		M	SE	M	SE	M	SE	M	SE
RSCA- Sense of Mastery	C	43.84	1.60	44.25	1.31	48.51	1.55	41.89	1.26
RSCA- Sense of Relatedness	C	42.88	1.45	44.72	1.14	46.49	1.37	43.83	1.29
RSCA- Emotion Reactivity	C	50.67	1.22	51.77	1.41	52.21	1.40	50.00	1.22
BASC- Resilience	P	47.03	1.46	48.60	1.42	52.78	1.08	47.17	1.41
BASC- Resilience	T	43.78	1.03	41.68	0.98	46.77	1.20	41.22	1.10
ACES- Study Skills	C	4.04	.30	4.42	.35	4.49	.36	3.32	.28
ACES- Academic Engagement	C	4.14	.26	4.28	.28	4.81	.34	3.73	.26
ACES- Interpersonal Skills	C	3.54	.30	3.66	.29	3.48	.32	3.33	.28
ACES- Motivation	C	4.80	.33	4.69	.34	4.55	.35	4.04	.34
ACES- Study Skills	T	3.64	.40	3.45	.28	4.10	.32	3.22	.30
ACES- Academic Engagement	T	4.09	.35	4.03	.32	4.98	.36	3.45	.31
ACES- Interpersonal Skills	T	3.43	.31	3.73	.35	4.14	.30	3.13	.29
ACES- Motivation	T	3.84	.34	3.80	.32	4.17	.35	3.09	.30

T1 = Time 1; T2 = Time 2; C = Child; P = Parent; T = Teacher. RSCA = Resiliency Scale for Children and Adolescents; BASC = Behavior Assessment for Children, 2nd edition; ACES = Academic Competence Evaluation Scales. All values are estimated marginal means with schools as covariates.

children's report of vulnerability on the RSCA (a summary scale of risk factors), parent report of resiliency on the BASC-2, teacher report of resiliency on the BASC-2 and a summary score of academic enablers totaling all four academic enablers on the ACES for both child and teacher report, at baseline. As seen in Table 3, we found significant correlations between academic enablers and resilience. While this was not evident with all variables, it is notable that both parent-report, $r = .25$, $p < .01$, and teacher-report, $r = .21$, $p < .05$, of child's resilience were significantly correlated with child-report of academic enablers, teacher report of child's resilience was significantly correlated with teacher report of child's academic enablers, $r = .52$, $p < .01$, and child report of academic enablers was significantly correlated with their report of resilience in the domains of resources, $r = .63$, $p < .01$, and vulnerabilities, $r = .56$, $p < .01$.

RBP outcome: resiliency

We found a significant interaction between time and intervention for children's reported sense of mastery, $F(1,146) = 12.42$, $p = .001$, $\eta_p^2 = .08$ (see, Figure 2). Parameter estimates showed that RBP and delayed intervention groups did not differ at T1, $t(1,160) = -.20$, $p = .840$, $\eta_p^2 < .01$, yet RBP group reported significantly higher sense of mastery compared to the delay group at T2, $t(1,154) = 3.33$, $p = .001$, $\eta_p^2 = .06$, Cohen's $d = 0.52$. We also found a significant interaction between time and intervention for children's reported sense of relatedness, $F(1,148) = 7.55$, $p = .007$, $\eta_p^2 = .07$. Parameter estimates showed that RBP and delayed intervention groups did not significantly differ at T1, $t(1,164) = -1.01$, $p = .314$, $\eta_p^2 = .01$, nor at T2, $t(1,153) = 1.42$, $p = .157$, $\eta_p^2 = .01$, Cohen's $d = 0.22$. The interaction between time and intervention for children's report of emotional reactivity did not

Table 3. Pearson correlation between resilience and academic enablers.

	Parent Report of Resilience	Teacher Report of Resilience	Child Report Academic Enablers	Teacher Report Academic Enablers	Child Report Resilience Resources	Child Report Resilience Vulnerabilities
Parent Resilience	–					
Teacher Resilience	.14	–				
Child Academic Enablers	.25b	.21a	–			
Teacher Academic Enablers	.12	.52b	.23a	–		
Child Resilience Resources	.25b	.07	.63b	.06	–	
Child Resilience Vulnerabilities	–.20a	–.06	–.56b	–.08	–.88b	–

aCorrelation is significant at .05 level (2-tailed)

bCorrelation is significant at the .01 level (2-tailed)

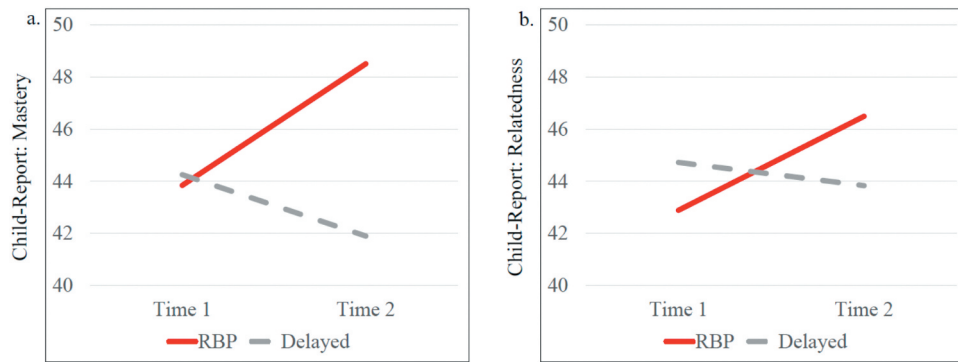


Figure 2. Children's report on resiliency scale for children & adolescents for a) Sense of mastery and b) Sense of relatedness.

survive the Bonferroni adjustment of $p < .017$, $F(1,143) = 5.59$, $p = .019$, $\eta_p^2 = .04$. These findings demonstrate that children participating in RBP had greater improvement in their sense of mastery and relatedness relative to those in the delay group.

We found a significant interaction between time and intervention for parent's report of resilience, $F(1,94) = 14.06$, $p < .001$, $\eta_p^2 = .13$ (see, Figure 3). Parameter estimates showed RBP and delayed intervention groups did not differ at T1, $t(1,125) = -0.77$, $p = .442$, $\eta_p^2 < .01$, yet the groups did differ at T2, $t(1,110) = 3.19$, $p = .002$, $\eta_p^2 = .15$, Cohen's $d = 0.66$. We also found a significant interaction between time and intervention for teacher's report of resilience, $F(1,117) = 9.05$, $p = .003$, $\eta_p^2 = .08$. Parameter estimates showed RBP and delayed intervention groups did not differ at T1 $t(1,139) = 1.48$, $p = .143$, $\eta_p^2 = .02$, yet the groups did differ at T2 $t(1,128) = 3.42$, $p = .001$, $\eta_p^2 = .10$, Cohen's $d = 0.57$, with the RBP participants displaying significantly higher resilience compared to the delayed group. These findings indicate that both parents and teachers perceived that RBP effectively improved children's resilience.

RBP outcome: academic enablers

We found a significant interaction between time and intervention status for children's report of study skills, $F(1,134) = 10.01$, $p = .002$, $\eta_p^2 = .09$ (see, Figure 4). Parameter estimates showed RBP and delayed intervention groups did not differ at T1, $t(1,146) = -0.81$, $p = .417$, $\eta_p^2 = .01$, yet RBP group reported significantly higher study skills compared to the delayed group at T2, $t(1,138) = 2.59$, $p = .011$, $\eta_p^2 = .06$, Cohen's $d = 0.46$. We also found a significant interaction between time and intervention for children's report of academic engagement $F(1,134) = 11.50$, $p = .001$, $\eta_p^2 = .09$. Parameter estimates showed groups did not differ at T1, $t(1,146) = -0.38$, $p = .708$, $\eta_p^2 < .01$, yet the RBP group reported significantly higher academic engagement compared to the delayed intervention sample at T2 $t(1,138) = 2.54$, $p = .012$, $\eta_p^2 = .07$, Cohen's $d = 0.44$. We found no significant interaction

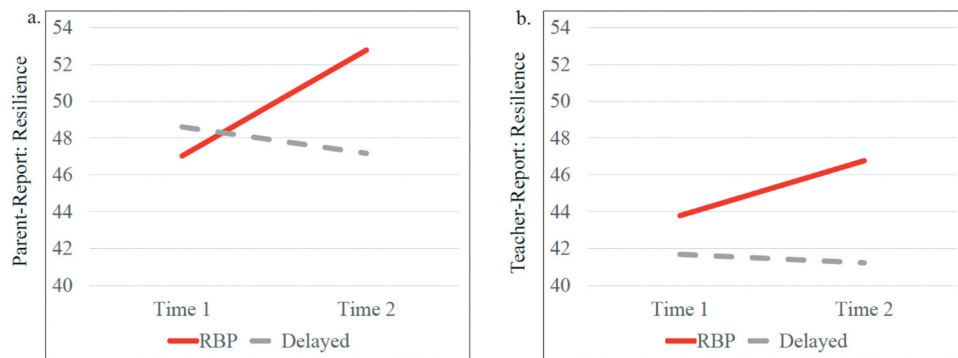


Figure 3. Behavior assessment system for children-2nd edition, report of resilience for a) Parents and b) Teachers.

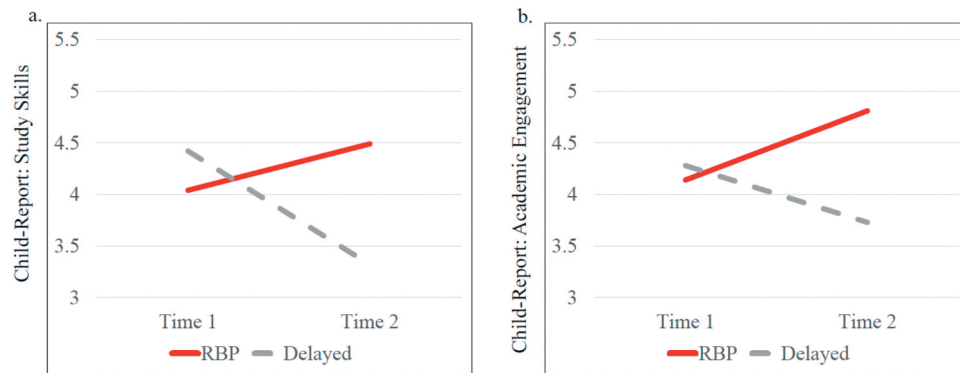


Figure 4. Child report on the academic competence evaluation scales for a) Study skills and b) Academic engagement.

between time and intervention status for children's report of interpersonal skills, $F(1, 133) = 0.49$, $p = .485$, $\eta_p^2 = .004$ nor motivation, $F(1, 134) = 0.57$, $p = .452$, $\eta_p^2 = .004$ (see, Table 2 for data). These findings demonstrate RBP was effective in increasing children's report of sense of study skills and academic engagement.

We found a significant interaction for time and intervention status for teacher's report of study skills, $F(1, 90) = 19.25$, $p < .001$, $\eta_p^2 = .18$, academic engagement, $F(1, 94) = 17.07$, $p < .001$, $\eta_p^2 = .15$,

interpersonal skills, $F(1, 94) = 15.18$, $p < .001$, $\eta_p^2 = .14$, and motivation, $F(1, 89) = 15.98$, $p < .001$, $\eta_p^2 = .15$ (see, Figure 5). Parameter estimates showed that participants didn't differ at T1 for study skills, $t(1, 107) = -0.41$, $p = .680$, $\eta_p^2 < .01$, engagement, $t(1, 110) = -0.13$, $p = .898$, $\eta_p^2 < .01$, interpersonal skills, $t(1, 111) = -0.64$, $p = .524$, $\eta_p^2 < .01$, nor motivation, $t(1, 105) = 0.10$, $p = .922$, $\eta_p^2 < .01$, yet the RBP group had significantly higher levels at T2 for study skills, $t(1, 104) = 2.01$, $p = .048$, $\eta_p^2 = .06$, Cohen's $d = 0.43$, engagement, $t(1, 106) = 3.24$, $p = .002$, $\eta_p^2 = .09$, Cohen's $d = 0.63$, interpersonal skills, $t(1, 106) = 2.44$, $p = .014$, $\eta_p^2 = .07$, Cohen's

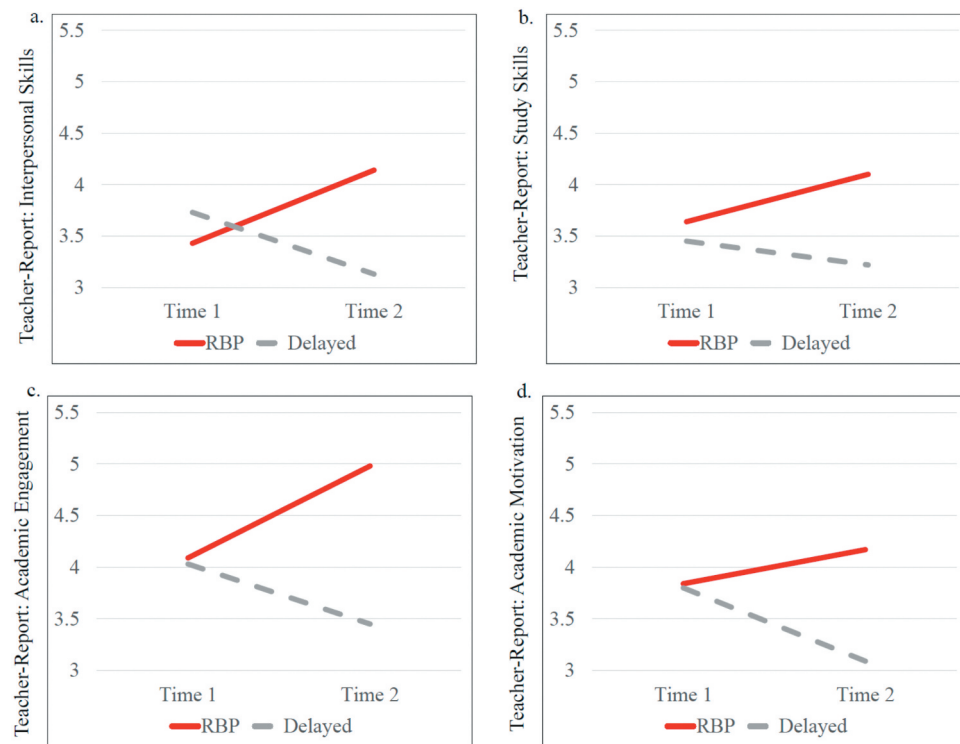


Figure 5. Teacher report on the academic competence evaluation scales for a) Interpersonal skills, b) Study skills, c) Academic engagement and, d) Academic motivation.

$d = 0.49$, and motivation, $t(1,106) = 2.36$, $p = .020$, $\eta_p^2 = .07$, Cohen's $d = 0.42$. (see, Table 2 for data). These findings indicate that teachers perceived that RBP effectively improved skills that enable academics including study skills, interpersonal skills, motivation and academic engagement.

Discussion

This study focused on the value of augmenting resilience skills in youth from economically marginalized communities in the school setting. Our findings demonstrate that resilience skills and academic functioning are positively associated. Importantly, our findings indicate that the Resilience Builder Program® (RBP) is an effective intervention for promoting resilience and academic functioning, suggesting that RBP administered in schools may be a promising means for increasing access to mental health care for underrepresented youth.

Relationship between resilience and academic functioning

We found a significant correlation at baseline between resilience and academic enablers (i.e., engagement, motivation, interpersonal skills, study skills); specifically, between child report of academic enablers and resilience as reported by themselves, parents, and teachers, and teacher report of their students' academic enablers and teacher report of resilience. Although this relationship was not consistent across informants, and some correlations, while significant, were not robust, these results provide further support for the body of evidence linking resilience to stronger academic functioning (Doll et al., 2011; Yeager & Dweck, 2012). In addition, our results provide empirical support to the theory that the resilience skills of self-efficacy, positive relationships with others, and self-regulation contribute to improved skills associated with enhanced academic functioning (Martin & Marsh, 2006).

Impact of RBP on resilience

As predicted, youth who participated in RBP had significantly higher parent and teacher ratings of resilience and self-reported resilience, specifically

in the domains of mastery (optimism, self-efficacy, adaptability) and sense of relatedness (trust, support, comfort, tolerance), after the intervention compared to those in the delay group. RBP improved students' sense of mastery, which likely fosters the mind-set that they have the skills to adequately face challenges (Yeager & Dweck, 2012). This improved self-efficacy is particularly noteworthy given that prior work has suggested that unstable social structures often seen in economically disadvantaged communities (i.e., unsafe neighborhoods, poorer quality education and housing) impair youths' mental health by damaging their self-efficacy (American Psychological Association, Working Group for Addressing Racial and Ethnic Disparities in Youth Mental Health, 2017). One of the core skills of RBP is learning to be proactive which increases the sense of mastery or self-efficacy that one can establish goals and overcome obstacles. While it has been established that resilience is malleable (Brooks & Goldstein, 2001), this study suggests that teaching proactive orientation in economically marginalized youth may effectively increase this sense of mastery. Of note, not only did children report feeling a greater sense of self-efficacy and ability to overcome obstacles, but both parents and teachers reported higher levels of this resilient attitude and behavior in youth following RBP.

Children who participated in RBP reported an increased sense of relatedness compared to children in the delay group. These improvements were also generalized to the classroom setting, as teachers observed improved interpersonal skills in RBP participants compared to the delay group. Social connections to others in the community are an important component of resilience (Masten & Coatsworth, 1998), and supportive relationships have been proposed as a particularly important protective factor for youth from economically marginalized communities (American Psychological Association, Working Group for Addressing Racial and Ethnic Disparities in Youth Mental Health, 2017). Explicit instruction and behavioral rehearsal of skills to initiate and maintain conversations, be assertive, read verbal and nonverbal cues, and solve friendship problems during RBP may have helped these children feel more socially connected

and supported. Having the social competence and interpersonal skills to connect with school personnel, make friends, and build connections in the community is not only part of resilience but enables academic success (DiPerna, 2006).

Impact of RBP on academic outcomes

Our study found learning skills to be proactive and effectively relate to others, key protective factors of resilience, led to an improvement in skills that enable academic success. As academic success is related to self-efficacy and relatedness (Borman & Overman, 2004; Martin & Marsh, 2006), the current study suggests that a focused effort to improve these resilience-skills may improve abilities such as engagement and motivation that promote academic success. Feeling a greater sense of mastery likely made school feel less stressful and more manageable. Students who feel able to connect and relate to others and assertively ask for help are likely more engaged with teachers and peers. Teachers also reported that RBP participants had higher levels of academic motivation following the program compared to those who did not receive the intervention immediately. This suggests children who feel more mastery and self-efficacy will exhibit greater motivation to continue to pursue their schoolwork than those who feel that schoolwork is too challenging and not manageable.

Both students and teachers reported improved study skills for participants of RBP compared to the delay group, even though we did not directly provide any direct instruction on study or other academic skills. This demonstrates that RBP may improve resilience skills that generalize to domains not explicitly instructed, including improved academic functioning. These results highlight the value of interventions that target resilience as an important mechanism for improving academic outcomes.

This improvement in academic domains is particularly important given that youth from economically disadvantaged communities are at a disproportionate risk for academic failure compared to those from higher-income families (Reardon & Portilla, 2016). Academic underachievement in underrepresented youth may reflect the strong role of psychosocial factors (American Psychological Association, Presidential Task Force

on Educational Disparities, 2012), particularly disengaged connections with teachers and school (DiPerna et al., 2007; Li & Lerner, 2011), poor self-efficacy (Yeager & Walton, 2011), and impaired self-regulation (Raver et al., 2008). These skills align strongly with those addressed in RBP. Thus, the academic gains documented by youth following RBP may in part reflect the connection between academic difficulties and resilience-based psychosocial impairments in youth from economically marginalized communities.

Finally, we note that based on teacher report, children who completed the RBP displayed significant gains in psychosocial domains of functioning often associated with academic functioning, namely motivation and interpersonal skills. While comparable results were not found with child report, along with child report of emotional reactivity, we note that another study of RBP with a sample of ethnic/racial minority youth from economically disadvantaged communities documented child report of improved emotion regulation and social functioning using a different measure (Rich et al., 2019).

Limitations

Several limitations of the present study should be noted. Given that one school did not complete the ACES, the rate of missing data was relatively high. However, approximately 93% of children and 82% of teachers provided both pre- and post-intervention data. Missing data is common when conducting research in school settings (Jenson et al., 2006) due to students moving and less controlled conditions for data collection compared to the traditional laboratory setting. In addition, therapists varied in their educational background, although the manualized RBP was written so that any mental health professional or supervised trainee would be able to lead sessions. We were unable to assess impact of educational background of group leaders as this was confounded by school: certain schools had groups led entirely by either licensed professionals or graduate students. Although we hope that therapist's use of the manualized RBP intervention, with standardized approaches, activities, and goals for each session, promoted therapy integrity, this study did not collect data as regards to intervention fidelity. School

characteristics also varied. A subsample of our participants were 5th and 6th grade students attending a tuition-free private school. These students demonstrated higher baseline resilience compared to students who were attending public schools and recruited from the 4th and 5th grade, perhaps reflecting proactive parenting, a component of resilience, involved in seeking out such a school. Informants were not blinded to the intervention vs. delayed condition of students, meaning their report may have been biased. While significant improvements were found, it should be noted that these often reflected modest changes in actual scores on the questionnaires. Finally, a small subset of the current sample (27.81%) constitutes our study of the effectiveness of RBP in schools (Rich et al., 2019). The prior study was more limited in the schools represented and the domains studied (i.e., only emotion regulation).

Conclusions

Our findings RBP improves both resilience and academic functioning supports the suitability of this intervention for school settings. Future directions include receiving feedback from school personnel and families about ways to adapt the RBP to fit the needs of a variety of populations, including youth of color and those from economically marginalized communities.

For practitioners, our results speak to the value of targeting resilience-based skills in clinical practice. Through a series of studies with youth from 7 to 13, presenting with heterogeneous impairments in social, emotional, and behavioral functioning, treated in the private practice and school setting, research has demonstrated the value of the Resilience Builder Program®. Resilience is a broad concept and encompasses numerous skills including self-regulation of emotion and behaviors, being proactive, being adaptive and flexible when facing challenges, problem-solving, self-efficacy, optimism, and social competence. By enhancing youth's ability to overcome daily challenges using these skills, gains are seen in self-regulation, interpersonal skills, and even study skills and academic functioning.

Given that participants were underrepresented racial/ethnic youth from economically disadvantaged communities, our results are consistent with prior work that has theorized that by improving self-efficacy and connections with others, underrepresented students may remain academically engaged and motivated (Gregory et al., 2016). Thus, RBP may provide an intervention ideally suited to reduce inequity in mental health services because it improves those resilience-based skills that are of valuable to youth from marginalized populations. Further, given that RBP is a manualized intervention that addresses prevalent social, emotional, and behavior deficits across diagnoses, this broad suitability enhances its value in addressing inequity by being effective with a diverse population. Efforts to address disparities in mental health services must move beyond documenting those disparities to identifying interventions that are sensitive to the needs of marginalized and underrepresented youth and can be translated and disseminated to practice settings (Valdez et al., 2019). Our results suggest that the RBP may be one such intervention with the potential to address the disparities in access to mental health services in children of color and those from economically marginalized communities and provide them with resilience skills so they are better equipped to face the challenges and hardships they disproportionately experience.

Disclosure statement

Dr. Alvord is co-author of the book "Resilience Builder Program for Children and Adolescents: Enhancing Social Competence and Self-Regulation" and receives royalties on its sales. The other authors report no such conflicts.

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