



# Preliminary Evaluation of an Innovative, Brief Parenting Program Designed to Promote Self-Regulation in Parents and Children

Liliana J. Lengua<sup>1</sup> · Erika J. Ruberry<sup>1</sup> · Corina McEntire<sup>2</sup> · Melanie Klein<sup>1</sup> · Brinn Jones<sup>1</sup>

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## Abstract

Children growing up in low-income households tend to be less academically, socially, and emotionally ready at school entry. Self-regulation has been identified as a key factor underlying children's academic achievement and social-emotional competence and may be promoted through effective parenting. However, few existing parenting programs that teach behavioral parenting skills simultaneously address parents' self-regulation skills or promote strategies for coping with income-related stress and adversity. Systematic evaluation of the added benefit of incorporating these practices into parenting programs is needed. We conducted preliminary evaluation of a brief parenting program that aims to promote young children's self-regulation, social-emotional competence, and academic readiness by enhancing parent mindfulness, self-regulation, and evidence-based parenting practices. Evaluations were conducted in two early learning programs serving low-income families. Staff at the sites received limited training and supervision to deliver the program, to test the feasibility of implementing a program with lower resource demands. Observed and self-reported changes in parenting (increased scaffolding and consistency, decreased rejection and negativity), self-reported changes in parent self-regulation, and observed and mother-reported changes in child adjustment (decreased negative affect, increased social competence and academic readiness) were demonstrated. This pilot yielded promising initial evidence for a two-generation approach to increase both parent and child self-regulation in at-risk families.

**Keywords** Parenting · Self-regulation · Social-emotional competence · Academic readiness · Preschool · Low income

Growing up in a context of socioeconomic disadvantage impacts many domains of children's well-being, including their social-emotional adjustment and academic readiness (Duncan et al. 2011; McLoyd 1998). Experiences of poverty or low income and the associated contextual risk factors (Evans 2004) have been shown to disrupt the development of executive functions and self-regulation skills in early childhood (Hackman and Farah 2009; Raver et al. 2013). Because self-regulation at school entry has downstream effects on development of the social-emotional and academic skills required to succeed in school (Denham et al. 2014; Ponitz et al. 2009), early deficits represent one pathway by which lower-income children may begin and remain at a disadvantage (Blair 2003;

Evans and Rosenbaum 2008; Hackman et al. 2015; Lengua et al. 2008, 2014; Raver et al. 2011). Meanwhile, children with greater self-regulation may be buffered from some of the psychosocial risks associated with low income (Buckner et al. 2003).

Efforts to address this inequity, namely classroom-based interventions to increase children's self-regulation, have demonstrated some success (e.g., Bierman et al. 2008; Diamond et al. 2007). Meanwhile, other research suggests that involving parents may also be critical. First, there is notable development in self-regulation during the toddler and preschool years when children may not yet be in a formal school setting. Furthermore, several studies have found a role for early parenting in the development of self-regulation abilities (e.g., Chang et al. 2014; Kochanska et al. 2000; Lengua et al. 2014), and early caregiving may be particularly relevant to the development of experience-sensitive neurobiological self-regulation systems (Gunnar et al. 2006).

Parenting is consistently associated with children's self-regulation. Positive parental control strategies including clear and consistent limit-setting, scaffolding, and autonomy granting, along with affective qualities such as warmth,

✉ Liliana J. Lengua  
liliana@uw.edu

<sup>1</sup> Department of Psychology, University of Washington, Box 351525, Seattle, WA 98195-1525, USA

<sup>2</sup> Educational Service District 112, Vancouver, WA, USA

sensitivity, and responsiveness, are prospectively associated with greater child self-regulation (Hammond et al. 2012; Karreman et al. 2008; Lengua 2006; Lengua et al. 2007). Behavioral control strategies that encourage appropriate levels of autonomy while setting and enforcing clear expectations provide external regulation of behavior that can become increasingly internalized as children become developmentally able. Meanwhile, parenting high in warmth and responsiveness communicates to children that their needs will be met and models ways to manage negative emotions. Conversely, negative control, inconsistency, and harsh parenting are associated with poorer child self-regulation (Calkins et al. 1998; Karreman et al. 2008) and are implicated in escalating cycles of dysregulated parent–child interactions leading to child behavior problems (e.g., Patterson 1997). Such parenting behaviors may inhibit the development of self-control because they contribute to children’s physiological or emotional dysregulation and do not provide children as many opportunities to observe and practice effective regulation strategies. For example, maternal warmth was related to higher diurnal morning cortisol level, which predicted increases in executive control and lower behavior problems, whereas maternal negativity predicted a blunted diurnal cortisol slope which predicted lower social competence in preschool-age children (Lengua et al. 2013; Zalewski et al. 2012).

Low income and adversity are associated with parenting behaviors that may contribute to problems with child self-regulation. Raising children in low-income or high-risk contexts can adversely affect parenting directly and indirectly through multiple mechanisms. From a resource perspective, low-income parents have less time and money available to enrich their children’s environment (Conger and Donnellan 2006). In addition, the burden of stress associated with financial strain and elevated contextual risk factors impacts parents’ physical and psychological health, and family processes like marital conflict, which can in turn decrease effective parenting (Conger et al. 2000, 2002). Parents of low-income households are more likely to use ineffective discipline strategies (Bank et al. 1993), to be less responsive or involved (Bolger et al. 1995; McLeod and Shanahan 1993), and to use hostile or harsh discipline including control-oriented strategies and corporal punishment (Jansen et al. 2012; McLeod and Shanahan 1993; Pereira et al. 2013; Ricketts and Anderson 2008). Further, parenting mediates the relations between contextual risk and a variety of child outcomes, including self-regulation (Conger et al. 2002; Gershoff et al. 2007; Lengua et al. 2007; McLoyd 1990, 1998; Mistry et al. 2002; Reising et al. 2013; Trentacosta et al. 2008). There is also evidence that parenting can moderate these relations, such that higher levels of supportive or responsive parenting can mitigate the effects of contextual risk factors on children’s adjustment (e.g., Kriebel and Wentzel 2011; Pettit et al. 1997; Ruberry et al. 2017)

A critical factor thought to support effective parenting is parents’ own self-regulation (e.g., Dix 1991), yet until recently, it has remained understudied. Emerging research supports theoretical models in which cognitive and emotion regulation impact parents’ use of effective parenting behaviors. A 2015 review found that overall, greater maternal cognitive and/or emotional control was related to higher rates of positive parenting (i.e., warmth and involvement, consistency, scaffolding), and that poorer maternal control was related to more negative parenting (i.e., negative control, rejection, ineffective discipline and more extreme behaviors like maltreatment and abuse; Crandall et al. 2015). The reviewed studies varied widely in their conceptualization and measurement of regulation and of parenting, which underscores the breadth of ways in which cognitive and emotional control may underlie successful parenting interactions: from executive functions, such as attention focusing and shifting, working memory, and inhibitory control, to the complex regulation of affective responses in order to proceed effectively during challenging interactions. While the majority of extant studies in this area do not contextualize their findings among other sociodemographic risk factors faced by families (Crandall et al. 2015), it is critical to take such factors into account because of the known effects of stress on the prefrontal cortex, which supports the executive functions required for regulated behavior (Lupien et al. 2009). Parents who themselves grew up in impoverished environments are already at risk for poorer executive function due to chronic exposure to stress (Evans and Schamberg 2009), and the burden of income-related stress may further compromise their self-regulatory capacities. The growing recognition of the importance of parent self-regulation to effective parenting has led to several calls for intervention efforts that combine parent self-regulation skills with parenting skills (Crandall et al. 2015; Rutherford et al. 2015).

A growing number of parenting interventions or prevention programs have addressed the importance of parents’ emotions and self-regulation in their ability to effectively parent, recognizing that behavioral management strategies alone will not be sufficient if parents are too dysregulated to implement them effectively. Some have addressed this need by incorporating adjunctive modules into existing parenting programs, such as adding stress management and coping, relationship, and mindfulness skills (Coatsworth et al. 2010, 2015; Sanders et al. 2007). Several other interventions focused primarily on “mindful parenting” have also been pilot tested as treatments for child problems including ADHD and internalizing problems (e.g., Dumas 2005; van der Oord et al. 2012), though few have examined the mediating mechanisms by which mindfulness would impact parenting and, in turn, children’s mental health outcomes (Bögels et al. 2010). Larger, controlled studies are needed before these interventions can be considered efficacious in impacting parenting behaviors and child outcomes (Cohen and Semple 2010; Townshend et al. 2016).

Generally, mindfulness is proposed as a way for parents to decrease stress, to break the cycle of automaticity of reactions and interactions with their children, to increase their awareness of their own and their children's emotions, and to increase their ability to proceed with intention when responding to child behaviors. Among the potential mechanisms by which mindfulness training could improve parenting in these ways, it may increase parents' self-regulation or executive functioning (Bögels et al. 2010). As described in Duncan et al.'s (2009) model of mindful parenting, self-regulation helps parents to move away from emotional reactivity to more flexible responses to child behaviors and also, importantly, models effective regulation for the child. In a frustrating interaction, for example, rather than reacting habitually out of a heightened emotional state, a parent with mindful awareness of her emotion may be able to regulate her response by pausing and reflecting on a course of action that aligns with her parenting values. One can see how such a process would depend heavily on a parent's executive function skills.

Many high-quality, evidence-based behavioral parenting interventions exist, including several that have been successfully offered in a prevention format in diverse community settings (e.g., *The Incredible Years*, Reid, Webster-Stratton et al. 2001; *Triple P—Positive Parenting Program*, Sanders et al. 2008). While shown to be effective in improving child behavioral, social–emotional, and school readiness outcomes, and in increasing effective and decreasing negative parenting behaviors, these are time-, training-, and resource-intensive and may not be widely scalable in many community-based early learning contexts (National Center on Parent, Family and Community Engagement 2015). Meta-analyses have demonstrated that economically disadvantaged parents benefit less than higher resourced families from group-based behavioral parent training programs (Lundahl et al. 2006), and further, there is evidence to suggest that parent and family-based programs are often less efficacious when enacted in community settings compared to effects obtained in original efficacy studies (Gottfredson et al. 2006). Barriers to participation and engagement often include logistical problems like required time, with parents missing significant numbers of sessions (e.g., mean attendance of 4 of 11 sessions; Gross et al. 2009), and concerns about privacy, which are understandable given many families' histories of system involvement (Heinrichs et al. 2005; Spoth et al. 1996). In one study, attendance was improved by stronger engagement with the group leaders, and this engagement was associated with racial and socioeconomic similarities among participants and leaders (Orrell-Valente et al. 1999). In addition to the disrupting role of income-related stress as described above on parents' ability to participate in, acquire, and use the skills offered in intervention or prevention programs, it may also be the case that the content and approach of existing programs is not perceived by low-income parents as being relevant to their lives and their

primary parenting concerns (Gottfredson et al. 2006; Gross et al. 2009).

We aimed to mitigate some of these feasibility and implementation challenges with this preliminary evaluation of the Social, Emotional, and Academic Competence for Children and Parents (SEACAP) program. In this study, we evaluated the impact, acceptability, and feasibility of SEACAP, a brief parenting program designed to leverage the role parenting plays in the emergence of self-control in young children. The program was designed to promote specific parenting behaviors associated with the development of children's executive function, social–emotional competence, and academic readiness, specifically increasing parent warmth, consistent limit-setting, and scaffolding and decreasing parent negativity. In addition to parenting skills, the program also provides parents with mindfulness and emotion regulation practices to increase their capacity to be effective in interactions with their children. These skills are hypothesized to be particularly important for parents experiencing the stress associated with socioeconomic disadvantage. SEACAP is brief so that it integrates readily within existing early learning programs, such as Head Start, to help parents further promote school readiness in their preschool-age children. Program effectiveness was assessed by testing whether changes in parent executive function, mindfulness, or parenting accounted for program effects on child outcomes. In addition, we measured acceptability for parents and incorporated iterative, qualitative feedback to tailor the program based on community needs. To address issues with feasibility of implementation within resource constraints, we evaluated how effectively the program could be delivered by existing center staff.

## Method

### Participants

Participants were 50 primary caregivers and their preschool-age children ( $M = 45.58$  months,  $SD = 12.31$ ). Primary caregivers were overwhelmingly biological mothers ( $n = 46$ ), but also included two biological fathers and one grandmother who had legal residential custody of the children. Participants were drawn from two early learning programs. Site 1 offered a pre-kindergarten socialization class for parents and their preschool-age children at elementary schools that served a high proportion of children receiving free or reduced lunch and representing a semi-rural population. Site 2 offered a Head Start program on a community college campus serving an urban and sub-urban population. Families were recruited through a variety of means including distributing information flyers, having study representatives available to provide information when parents brought children to the respective programs, presentations at family information events, etc.

Interested families contacted the study coordinator at each site and were screened for eligibility. Families were eligible if they had a child aged 2 to 6 years who had not yet enrolled in kindergarten and if the parent was English speaking. Participant demographic information at each site and across the sample is reported in Table 1. Forty-five and 28 participants provided data at the post-test and follow up assessments, respectively.

## Procedures

All procedures and materials were approved by the University's Institutional Review Board (IRB). All parents provided prospective informed consent to participate in the study. At both sites, parent educators or mental health providers were identified to deliver the program. They were provided with a scripted program manual that included detailed descriptions and instructions for program delivery, and they received a 1-day training in the program content and delivery and on-going weekly consultation and supervision throughout program delivery. The program was offered once a week, in most cases in the evenings, and childcare and meals were provided to facilitate participation by families. Families received \$50 for completing each of three assessments: pre-test conducted within 2 weeks of the start of the program, post-test conducted within 2 weeks of the end of the program, and a follow-up assessment conducted approximately 3 months after the end of the program. The program was implemented multiple times at each site with three to seven parents participating in each group. Site 1 implemented the program five times, and site 2 implemented the program three times. The average number of the total of six sessions attended at Site 1 was 4.56 ( $SD = 1.39$ ) and at Site 2 was 5.17 ( $SD = 1.20$ ), with an overall average of 4.81 sessions attended ( $SD = 1.33$ ), and 70% of parents attending five or more sessions.

## Measures

**Income and Related Stressors** Parents reported on household income from all sources on a 14-point Likert scale that provided a fine-grained breakdown of income at the lower levels facilitating identification of families at the federal poverty cutoff (e.g., 1 = \$14,570 or less, 2 = \$14,571–\$18,310, 3 = \$18,311–\$22,050, etc.). Parents also reported on risk factors including their educational attainment, number of people living in their home, race and ethnicity of the child, maternal age at childbirth, and marital status.

**Parenting** Parent–child dyads participated in two 5-min interactions. In the first task, parent and child were given an image of a figure to build with Legos; the parent was instructed that they were to help their child complete building the figure

without directly touching any of the Legos themselves. Second, the parent and child were offered a selection of age-appropriate toys and instructed to play freely as they normally would. Parenting was coded by a research assistant who coded from video recordings using a system that was adapted from established coding systems (Cowan and Cowan 1992; Lindahl and Malik 2000; Rubin and Cheah 2000). The research assistant was trained to a “gold standard” of inter-rater reliability of 0.90 and coded all videos in a single batch to minimize coder drift over time. Warmth, negativity, limit setting, scaffolding, and responsiveness were coded in 1-min epochs for both tasks, and then averaged across epochs and tasks. All behaviors were rated on 6-point scales (0 = absent/lowest, 5 = highest). Warmth captured the frequency and level of behavioral and verbal expressions of positive affect directed toward the child as well as the quantity of verbal and non-verbal interactive engagement. Negativity assessed verbal and non-verbal expressions of irritation or frustration with the child that were critical, rejecting, or invalidating. Limit-setting assessed parents' clarity, consistency, and follow-through of directives when children were noncompliant, oppositional, or disruptive. Scaffolding was a combination of guidance/structuring, encouragement of autonomy, and low negative/intrusive control, which at high levels reflected the parent's ability to intervene when the child needed it and to disengage when the child was functioning independently. Responsiveness to children's need for help or expressions of negative affect indicated mothers' sensitivity to cues of the child. All coding was completed by one research assistant precluding the need to calculate inter-rater reliability. Prior use of this coding system indicated acceptable reliability (ICCs = 0.67–0.81), and validity was indicated by significant prediction of children's developing self-regulation, social competence, and adjustment problems (redacted for review).

Parents also rated their parenting on the 47-item parent-report version of the Child Report of Parenting Behavior Inventory (CRPBI—Schaefer 1965 cited in Teleki et al. 1982) which assesses acceptance ( $\alpha = 0.89$ ), rejection ( $\alpha = 0.83$ ), consistent limit setting ( $\alpha = 0.83$ ), and support for autonomy ( $\alpha = 0.71$ ).

**Parent Self-Regulation** Parents' self-regulation was assessed using the Behavior Rating Inventory of Executive Function—Adult Version (BRIEF-A—Roth et al. 2005), a widely used self-report measure of executive function that assesses attention regulation, inhibitory and emotion control, working memory, planning, and organization behaviors. The internal consistency in this study was  $\alpha = 0.96$ . Parents also completed a Stroop Color Word Test (Golden 1978) as an objective measure of cognitive inhibitory control.

**Parent Mindfulness** Mothers reported on their mindfulness using the 24-item short form of the Five Facet Mindfulness

**Table 1** Sample demographic characteristics by site

Demographics	Site 1 ( <i>n</i> = 33)	Site 2 ( <i>n</i> = 17)	Combined ( <i>N</i> = 50)
Child age	41.15 (12.78)	50.81 (8.90)	44.97 (12.26)
Income	6.25 (3.81), ≈ \$33,050	3.50 (3.74), ≈ \$21,500	5.03 (3.98), ≈ \$29,500
Public assistance	54%	88%	66%
Single parent	32%	60%	44%
Mother's age at first child's birth	30.04 (6.76)	26.32 (7.45)	28.59 (7.19)
Mother's education	5.15 (1.70)	5.44 (1.15)	5.26 (1.51) ≈ some college, tech/professional school
Number of moves in 3 years	1.00 (1.49)	1.88 (1.89)	1.33 (1.69)
Ethnic or racial minority	34%	73%	54%

Questionnaire (FFMQ). The FFMQ is a validated measure with good psychometric properties that has been shown to be sensitive to change (Baer et al. 2006). It yields subscores for five facets of mindfulness: observing, describing, acting with awareness, non-judgment, and non-reactivity. Given the high correlations among the subscales and absent a priori expectations about the impact of the program on specific subscales, we analyzed a score representing the average across the five subscales to reduce the number of variable being examined in the study. Internal consistency reliability for the full scale was  $\alpha = 0.90$ .

**Child Self-Regulation** Children's self-regulation was assessed as executive control using a brief behavioral battery. Cognitive inhibitory control was assessed using a Stroop-like task called Day-Night (Gerstadt et al. 1994), which requires the child to say "day" when shown a picture of moon/stars and "night" when shown a picture of the sun. Total scores were the proportion of correct responses out of 16 trials. The Dimensional Change Card Sort (Zelazo et al. 2003) assesses inhibitory control, attention focusing, and set shifting. In this task, children are instructed to sort cards into one of two boxes based on dimensions of the card images (e.g., color, shape) that shift across segments of the task. The task increases in difficulty as the sorting instructions changes across 3 sets of 12 trials, with the final, advanced set requiring that children hold multiple rules in mind. The score was the proportion of correct trials out of the total 36 possible trials. Head-Toes-Knees-Shoulders (HTKS) integrates attention and inhibitory control (Ponitz et al. 2008). Children are asked to follow the experimenter's instructions, but to enact the opposite of the direction (e.g., touch toes when asked to touch head). Behaviors were coded as 0 = touched the directed body part, 1 = self-corrected, or 2 = correctly touched the opposite. Scores were the proportion of the sum of the item scores across 20 trials to the total possible score. Correlations among the three behavioral task scores ranged from  $r = 0.27$  to  $0.39$ .

An aggregate executive control score was calculated as the average of the three behavioral tasks.

**Child Adjustment** Both observational and mother-reported ratings of children's adjustment were included. Children's positive affect, negative affect, and compliance were rated by trained research assistants from video recordings of the parent-child interactions. Positive affect was coded as the frequency and intensity of the child's positive facial expressions, smiling, laughter, and other expressions of warmth and enjoyment toward the parent. Negative affect was coded as verbal and nonverbal expressions of negative emotions, including frustration, annoyance, anger, and hostility. Compliance was rated as the child's compliant response to the parent's commands, instructions, and limit-setting. All behaviors were rated on 6-point scales (0 = absent/lowest, 5 = highest).

Mothers reported on their child's social competence and internalizing and externalizing problems using the preschool parent report form of the Social Skills Rating System (SSRS—Gresham and Elliot 1990). Mothers rated children's cooperation (e.g., puts away toys, helps with tasks; 12 items), assertiveness (e.g., self-confident, introduces self; 8 items) and self-control (e.g., controls temper, attends to instructions; 10 items) for a social competence score (30 items). Mothers rated children's externalizing problems (seven items) and internalizing problems (six items). Mothers reported on children's academic readiness using the School Readiness Survey (O'Donnell 2008), which includes nine items indicating children's ability to identify colors and letters, count, write their names, hold a pencil correctly, produce intelligible speech, and recognize letter sounds.

## Data Analyses

Analyses were conducted to examine changes in parenting and child outcomes from pre- to post-program and the maintenance of effects at follow-up. Also, we examined participant

characteristics that might be associated with improvements in parenting and child outcomes, and tested whether improvements in parenting predicted improvements in child outcomes. First, potential covariates and site differences were explored. Second, intervention effects on parent executive function, mindfulness, parenting, and child adjustment were examined by testing for mean differences in pre-program, post-program, and follow-up values. Third, we examined whether changes in parent executive function, mindfulness, and parenting predicted changes in child adjustment by conducting regression analyses that covaried pre-test values.

## Results

### Identifying Site Differences and Potential Covariates

Preliminary analyses were aimed at identifying site differences and potential covariates for inclusion in analyses. Site differences in pre-test levels on study variables were tested to determine whether the samples could be combined across sites. Site differences on parent executive function, mindfulness, observed and mother-reported parenting, and observed and mother-reported child adjustment were tested. Given the small sample size, significant effects were identified using both  $p$  values  $< 0.05$  and confidence intervals. There were no significant site differences. Therefore, data were combined across the two sites for all remaining analyses.

Family income, receipt of public assistance, parent education, parent age, single parent status, ethnic or racial minority status, and residential instability were examined as potential covariates of program effects. Descriptive statistics on these demographic variables are provided in Table 1. Covariates were identified for inclusion in analyses if they were correlated with pre-test levels of study variables. Family income ( $r = 0.45$ ,  $p = 0.02$ ) and single parent status ( $r = -0.44$ ,  $p = 0.02$ ) were significantly associated with observed parental responsiveness, and residential instability (number of moves in the prior 3 years) was correlated with higher mother-reported inconsistent discipline ( $r = 0.42$ ,  $p = 0.01$ ) and rejection ( $r = 0.38$ ,  $p = 0.01$ ). Maternal education was correlated with mother report of parenting acceptance ( $r = 0.48$ ,  $p = 0.001$ ) and child social competence ( $r = 0.43$ ,  $p = 0.004$ ). No other correlations were significant. Family income, single parent status, maternal education, and residential instability were included as covariates in regression analyses examining program effects. However, family income was highly correlated with the other covariates and contributed to inflated multicollinearity in regression analyses as indicated by a high variance inflation factor statistic ( $VIF = 9.69$ ). Therefore, family income was excluded in regression analyses so that the other covariates could be retained.

### Pre-Test, Post-Test, and Follow-up Differences

Differences across means from pre-test, post-test, and follow-up on parent executive function, mindfulness, parenting, and child adjustment were tested using ANOVA, and intent-to-treat analyses were used in which missing post-test and follow-up values were substituted with last-available data points (Table 2). Pre-test to post-test differences were modest to moderate in effect size as indicated by repeated-measures  $d$ . Parent self-reported executive function demonstrated a significant increase (decrease in BRIEF scores reflects increases in executive function) from pre-test to post-test, with effects sustained at follow-up. There was a trend toward increases on Stroop performance and no significant differences in parent-reported mindfulness. Parents demonstrated significant increases in observed scaffolding behaviors from pre-test to post-test that were sustained at follow-up, and a significant decrease in negativity that was sustained at follow-up. Parents reported significant decreases in rejection and increases in consistent limit setting from pre-test to post-test that were sustained at follow-up. Children demonstrated significant decreases in observed negative affect. Parents reported significant increases in children's social competence and academic readiness.

### Demographic Characteristics as Predictors of Program Outcomes

To test whether demographic characteristics predicted pre-test to post-test changes in parent self-regulation, parenting, or child adjustment outcomes, regression analyses were conducted in which single parent status, maternal education, residential instability, parent age, and ethnic/racial minority status were examined as predictors of post-test levels of the study variables, controlling for pre-test levels. Residential instability was associated with greater increases in warmth ( $\beta = 0.40$ ,  $p = 0.04$ ). No other pre- to post-test changes in maternal self-regulation, parenting, or child outcome variables were accounted for by demographic variables.

### Changes in Parenting Predict Changes in Child Adjustment

Regression analyses were used to test whether changes in parenting from pre-test to post-test predicted post-test levels of child adjustment controlling for pre-test levels in child adjustment (Table 3). Change scores were created for parent self-regulation and parenting and were used in regression analyses predicting post-test child adjustment controlling for pre-test child adjustment. This approach reduced the number of variables being included in regression analyses to preserve power given the small sample size and also addressed multicollinearity that was introduced when both pre-test and post-test parent

**Table 2** Means, standard deviations, tests of mean differences, and effect size across average pre-test, post-test, and follow-up values on parent self-regulation, parenting, and child outcomes

	Pre-test	Post-test	Follow-up	$F(2,50), p$	Pre-/Post-test $d_{repeated\ measures}$
Parent self-regulation					
Stroop	41.10 (11.25)	41.00 (11.71)	42.78 (11.50)	2.04, 0.10	0.01
BRIEF (EF problems)	39.59 (22.62)	36.00 (22.42)	34.80 (22.87)	4.89, 0.02	0.36
Mindfulness	52.28 (12.53)	52.15 (13.42)	52.20 (13.18)	0.02, 0.99	0.02
Parenting—observed					
Warmth	3.51 (0.32)	3.56 (0.32)	3.52 (0.34)	1.01, 0.37	0.16
Negativity	0.39 (0.41)	0.34 (0.45)	0.30 (0.37)	3.18, 0.05	0.16
Scaffolding	3.12 (0.34)	3.19 (0.32)	3.15 (0.31)	4.50, 0.02	0.20
Consistent limit setting	3.65 (0.53)	3.66 (0.69)	3.70 (0.63)	0.19, 0.83	0.02
Responsiveness	4.06 (0.59)	4.13 (0.56)	4.14 (0.50)	0.65, 0.53	0.10
Parenting—mother-report					
Acceptance	3.43 (0.46)	3.47 (0.42)	3.45 (0.39)	0.38, 0.69	0.13
Rejection	0.91 (0.50)	0.78 (0.41)	0.73 (0.47)	5.39, 0.01	0.35
Consistent limit setting	0.77 (0.54)	1.35 (0.53)	1.33 (0.54)	6.99, 0.002	1.28
Autonomy support	2.59 (0.60)	2.70 (0.58)	2.72 (0.61)	1.39, 0.26	0.20
Child adjustment—observed					
Executive control	0.48 (0.25)	0.50 (0.23)	0.53 (0.22)	2.17, 0.13	0.10
Positive affect	2.92 (0.65)	3.02 (0.37)	3.06 (0.46)	1.43, 0.25	0.11
Negative affect	0.80 (0.71)	0.52 (0.50)	0.55 (0.68)	4.63, 0.02	0.32
Compliance	4.23 (1.05)	4.49 (0.75)	4.52 (0.76)	1.46, 0.25	0.21
Child adjustment—mother-report					
Social competence	47.00 (11.76)	48.78 (11.16)	50.12 (10.65)	3.98, 0.03	0.19
Externalizing	4.91 (2.76)	4.78 (2.74)	4.84 (2.74)	0.16, 0.85	0.03
Internalizing	1.52 (1.45)	1.60 (1.56)	1.39 (1.53)	1.24, 0.30	0.04
Academic readiness	32.83 (5.12)	33.26 (5.20)	34.26 (5.41)	4.42, 0.02	0.11

self-regulation and parenting variables were included in the models. Change scores were calculated as the pre-test value subtracted from the post-test value so that higher values indicated greater increases in the variable.

In the regression analyses, covariates (single parent status, maternal education, residential instability, parent age, and ethnic/racial minority status) and the pre-test level of the corresponding child adjustment variable were included, along with parent self-regulation and parenting change scores, and these were examined as predictors of post-test levels of child adjustment. For the parent-self-regulation variables, increases in parent-reported executive function predicted increases in child academic readiness. Changes in parent mindfulness and Stroop were not related to changes in child adjustment. For the observed parenting variables, increases in warmth predicted increases in child executive control, observed positive affect, and academic readiness. Increases in scaffolding predicted decreases in externalizing problems and increases in academic readiness. Increases in consistent limit setting predicted decreases in observed negative affect, and increases in responsiveness predicted decreases in externalizing problems.

For the mother-reported parenting variables, increases in acceptance predicted increases in child executive control, observed compliance, and mother-reported social competence. Decreases in rejection predicted increases in observed compliance. Increases in consistent limit setting predicted increases in social competence. Changes in mother-reported autonomy support were not related to changes in child outcomes.

### Satisfaction and Acceptability Ratings

Participants rated the extent to which they were satisfied with the program content (e.g., *The information was useful to me; I was able to use most of the information about parenting*), program format (e.g., number of sessions, amount of material, usefulness of group format), facilitators (e.g., facilitators were clear and engaging, knowledgeable), and overall (e.g., *Program met my goals; After the program I am a more effective parent*). Ratings ranged from 1 = strongly disagree to 5 = strongly agree with the statements. Satisfaction was high, with average ratings across sites being 4.08 for program content, 4.48 for facilitators, 4.06 for program format, and 4.33 overall.

**Table 3** Standardized regression coefficients for the effects of parent self-regulation and parenting change scores (post-test – pre-test) predicting post-test levels of child adjustment controlling for pre-test levels of child adjustment and demographic covariates (single parent

status, maternal education, residential instability, parent age and ethnic/racial minority status; these effects are excluded for clarity of presentation)

	Mother-report				Observed			
	Social competence	Internalizing problems	Externalizing problems	Academic readiness	EC	Positive affect	Negative affect	Compliance
Change in parent self-regulation								
Stroop	0.13	–0.08	–0.05	0.12	0.12	–0.11	0.24	0.10
BRIEF	0.09	0.01	0.15	–0.27*	–0.01	–0.19	0.08	–0.15
Mindfulness	–0.01	0.05	–0.13	–0.12	0.16	–0.20	–0.11	–0.23
Change in observed parenting								
Warmth	–0.09	0.07	0.10	0.25*	0.31*	0.53*	0.09	0.13
Negativity	–0.09	–0.03	–0.05	–0.03	0.02	0.06	0.18	0.03
Scaffolding	–0.03	0.09	–0.30*	0.24*	0.19	–0.03	0.14	0.21
Limit setting	0.002	–0.25 <sup>†</sup>	–0.09	0.20	0.19	–0.10	–0.39*	0.08
Responsiveness	–0.03	0.09	–0.29*	0.04	0.19	–0.03	0.14	0.21
Change in mother-report parenting								
Acceptance	0.26*	–0.12	0.07	–0.01	0.39*	0.01	–0.01	0.36*
Rejection	–0.05	0.14	0.11	0.10	–0.25	0.11	–0.08	–0.34*
Consistency	0.26*	–0.10	0.10	0.07	0.25	–0.08	–0.14	–0.16
Autonomy	0.12	–0.18	–0.04	0.14	0.22	–0.002	0.20	–0.13

\* $p < 0.05$ 

EC executive control

When asked about which parts of the program were most helpful, parent responses indicated that they were satisfied with the emphasis on self-regulation (e.g., “Calm Body! I love the class,” “Understanding stress before resolving a problem,” and “Being present”), enhanced attention toward their children (“The part about being more present with the child and active listening,” and “Acknowledging that I need to pay more attention to my children”), and feeling more effective as a parent (“All of it was helpful; every meeting I learned as least one thing that has helped me effectively parent,” and “Having options for my child”).

## Discussion

The current study provided initial evaluation of the feasibility and effectiveness of a brief parenting program designed to promote parent self-regulation and effective parenting, which in turn were expected to increase preschool children’s social–emotional well-being and academic readiness. Despite a small sample size, the results showed promising increases in parents’ perspectives on their own self-regulation, on both observed and self-reported indices of parenting, and on indicators of children’s well-being. These results are promising

particularly as the study was implemented with consideration of feasibility and acceptability in early learning settings, such that it is intended specifically to address some of the challenges that arise in these contexts.

Parents demonstrated improvement in effective parenting practices, on both objective and self-reported measures, and increases in effective parenting predicted improvements in children’s outcomes. Further, parents reported improvements in their self-regulation and there was a trend toward increased cognitive inhibition on the Stroop task. Although the capacity to test complex mediating models in this study was limited due to the small sample size, the pattern of findings provide promising evidence of the effectiveness of targeting both parent and child self-regulation by supporting effective parenting practices with parent mindfulness and emotion regulation practices. The results of this study show program effects on at least one indicator of all of the intended program targets and across both objective and parent-reported measures. This is important to minimize the likelihood that reporter bias or social acceptability motivation account for the effects. These changes were all in the expected direction, with decreases in parent negativity and rejection, and increases in scaffolding and consistent limit setting. In terms of child adjustment, we saw decreases in displayed negative affect, which makes sense



as a more immediate, short-term observable change in child behavior. Nonetheless, there were tests for intervention effects across many variables, which increases the likelihood that some effects might be significant by chance. On the other hand, many moderate-sized effects were non-significant, probably due to low power related to the small sample size.

The SEACAP Program represents a unique approach, delivering parenting skills in a curriculum that integrates mindfulness and emotion regulation practices for parents. It is offered in a brief, 6-week format, about half the number of sessions of comparable programs. The current pilot study suggests that the heavily scripted program can have promotive effects on parent self-regulation, parenting, and child adjustment when implemented by early learning center staff with brief training and ongoing supervision, which enhances the feasibility for offering parenting programs in such settings. There are significant barriers to engagement among the types of underserved populations our program aims to reach (Haine-Schlagel and Walsh 2015; Ofonedu et al. 2017), and we leveraged several engagement strategies identified in the treatment literature, including assessment, accessibility promotion, psychoeducation, reminders, eliciting motivation, modeling, and rehearsal of skills (Lindsey et al. 2014). Parents found the program acceptable, giving high ratings to the content and format. Average attendance was equivalent to that reported in a meta-analysis of parenting programs (four sessions); however, in SEACAP, this represents two thirds of the program content by design. It is important to note that parent self-regulation and parenting practices are not taught sequentially. Rather, adult learning models were incorporated into the design of the program such that parents are introduced to all major concepts at the outset, and new tools or skills within each major concept were taught each week, so that parents who missed sessions still receive information and practices for mindfulness, emotion regulation, and parenting behaviors.

### Limitations and Future Directions

There are several limitations to this initial evaluation. The most notable limitation is the absence of a control group, which means that the observed changes in parenting and child adjustment could be attributable to response demands, developmental change, or other factors. The combined sample was of relatively small size and we ran numerous tests. These findings will need to be replicated in larger studies that include control groups, which are sufficiently powered to detect all intervention effects. These limitations were balanced by several study strengths. The use of multi-method assessments including the observations of parenting and child adjustment reduce the likelihood that significant findings were the result of reporter bias or shared method variance. The maintenance of effects at 3-month follow-up is promising. Finally, we used

intent-to-treat analyses, which yield conservative estimates of treatment effects.

Innovative approaches are needed to reach and impact a greater number of underserved families if we hope to curtail widening wellness and achievement gaps. We aimed to do so by adding parent mindfulness and emotion regulation practices to evidence-based, behaviorally specific parenting skills in a very brief format, integrated into families' existing early learning communities. If further studies confirm these encouraging initial effects of SEACAP for parents and their young children, this program will represent a promising new pathway to reducing mental health and academic achievement disparities among low-income children, by simultaneously increasing parents' self-regulation and use of effective parenting practices.

**Author Contributions** L.J.L. developed the parenting program, designed and executed the study, conducted the data analyses, and wrote the manuscript. E.J.R. collaborated with the design and execution of the study and with writing the manuscript. C.M. collaborated with the execution of the study and writing of the manuscript. M.K. and B.J. coordinated data coding, assisted with data management, and contributed to writing of the manuscript.

### Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards, and were approved by the University of Washington Human Subjects IRB.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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