Evaluation of a Parent Education Program Emphasizing Responsive Parenting and Mindfulness: An Inclusive Randomized Controlled Trial

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Abstract: BACKGROUND: Recent studies indicate that parent education programs that include content to enhance parents' mental states may prove efficacious in improving parenting behavior and child outcomes. OBJECTIVE: This study presents findings from a national evaluation of the *Active Parenting First Five Years* (FFY) program. This group-based parent education program utilizes a video-supported curriculum and is designed to promote responsive parenting and healthy development in children under the age of five, with a unique emphasis on caregivers' mental states (i.e., mindfulness, executive function) and parent well-being. METHODS: A total of 213 (132 to test hypothesis 1) primary caregivers of children ages 0 to 4 participated. This study introduces a novel *Inclusive Randomized Controlled Trial* design for establishing treatment and comparison groups. Parent and child behavior were reported one month prior to the program beginning (Time 1/Control Survey), at the beginning of the program (Time 2/Pre-Survey), and at the conclusion of the program (Time 3/Post Survey). RESULTS: Pre- to post-test analyses showed significant increases in caregiver reported responsive parenting, developmental knowledge, parenting efficacy, mindfulness, overall positive child behavior, child prosocial behavior, and decreased parenting stress. Analysis of the treatment and control study groups detected group differences indicative of program effects for the parenting outcomes of mindfulness, parenting efficacy, and parenting stress. CONCLUSIONS: These findings illustrate the initial effectiveness of the FFY program, the potential usefulness of the *Inclusive Randomized Controlled Trial* in community samples, and emphasize the need for parental well-being to receive increased consideration in parenting intervention designs and curricula.

Keywords: program evaluation, inclusive randomized controlled trial, parenting, child behavior, parenting efficacy, mindfulness

The quality of care that a child receives at the earliest stages of life has been associated with notable outcomes across the lifespan (Vandell, Belsky, Burchinal, Steinberg, Vandergrift, & NICHD Early Child Care Research Network 2010). Parents play a key role in this process as they help establish and maintain positive developmental trajectories for their child's physical, cognitive, social, and emotional health (Holden, Brown, Baldwin, & Caterao 2014). Healthy developmental trajectories are established as parents build secure attachment relationships with their young children. These relationships are developed when parents are sensitive to their children's cues or signals and respond to their physical and emotional needs (Morris, Robinson, Hays-Grudo, Claussen, Hartwig, & Treat 2017).

Although researchers often focus on responsive and nurturing parenting because of its association with positive outcomes in children, responsive parenting is related to important attributes of the parents themselves. Responsive or positive parenting has been associated with parents' overall sense of efficacy, confidence in their role as parents, and optimistic belief in their ability to positively affect their child's behavior (Evans, Nelson, Porter, Nelson, & Hart 2012). Positive parenting practices however, do not develop in isolation. According to the National Academies of Sciences, Engineering, and Medicine (NASEM 2016), parenting is a learned skill that can be strengthened and improved through education and experience. Unfortunately, parents are often

unaware of where or how to obtain such education and the long-term benefits that it can have for themselves, their children, and their families.

It is important for parents to feel supported and competent in raising their children regardless of their own upbringing, socioeconomic status, or culture (Kim 2014). One area that has shown potential for providing parents with such support and competence is parent education (Sanders 2012). Parenting interventions are usually designed to engage parents directly in ways that will influence their nurturing, teaching, monitoring, and disciplining behaviors (National Center for Parenting, Family, and Community Engagement [NCPFCE] 2015). One such program that has been designed for these purposes is the *Active Parenting First Five Years* program (FFY; Popkin 2017). The present study was designed to evaluate the effectiveness of the FFY program while also examining whether specific aspects of the program make unique contributions to the behavior of parents/caregivers and their young children. To evaluate the FFY program, this study introduced a novel study design referred to as an *Inclusive Randomized Controlled Trial (*Inclusive RCT). This design helps address the paradox between whether an intervention program can work under ideal conditions versus whether it will work under usual community conditions (Yoshikawa, Rosman, & Hsueh 2002). Yoshikawa et al. (p. 10) call for approaches to random assignment that "maintain both representativeness and agency buy-in." The Inclusive RCT design is one answer to this call because it offers to agencies and communities the opportunity for all participants to

benefit from the intervention without significant delay. Additional details of this design are discussed in the Methods section.

The FFY program has been designed to: a) give parents knowledge of child development; b) teach parents how to prevent problematic behavior; c) share strategies for caring for the caregiver (e.g., mindfulness, stress relief); d) practice skills for positive parenting; and e) present strategies for improving children's (and parents') executive function through activities designed to boost focus, memory, and self-control. Although this program has been implemented extensively since its publication in 2017, there is an absence of research investigating whether this program is effective. Thus, evaluation of effectiveness is necessary.

FFY is a group-based parenting program that includes four interactive 2-hour sessions utilizing a video-supported curriculum. Sessions are approximately 50% didactic, typically led by a trained and certified group leader who teaches, asks questions, and facilitates group discussions and activities. These include multiple mindfulness trainings, break-out group/partner activities, as well as the instruction of memory and self-regulation enhancing games for parents to learn and take home and play with their children. Each session concludes with a lesson in self-care. The four sessions build upon one another with session one addressing the parent-child relationship, session two addressing preventing problems, session three addressing ways to encourage positive behavior, and session four addressing early learning and preparation for school success. Parents are encouraged to practice their new skills with their child, as

"homework assignments" are completed in the home rather than within the session.

A previous version of this program, *1,2,3,4, Parents!* (Popkin 1996), was widely used from its creation in 1996 until it was revised in 2017 to add curriculum on parenting infants and updated content and activities on mindfulness, behavioral control, and executive function, all based on important research findings about high-risk children and families since 1996. Like *1,2,3,4, Parents!* FFY maintained a focus on high-risk families by adhering to lower reading levels (high school) for the parent's guide and workbook.

The FFY program is similar to some evidence-based programs in program scope and objectives, including relationship building, improving child behavior, reducing parenting stress, and encouraging self-care (blinded for review). However, the FFY program differs from many traditional programs with its emphasis on parent well-being and mental health, including self-efficacy, mindfulness, and executive function. Briefly, self-efficacy refers to a sense of confidence in one's capacity to perform a given task or behavior (Teti & Gelfand 1991), mindfulness is a process by which attitudes, decisions, and behavior are brought into conscious awareness (Coatsworth, Duncan, Greenberg, & Nix 2010), and executive function refers to mental processes that allow planning, decision making, and working memory (Hofmann, Schmeichel, & Baddeley 2012). The emphasis on parent well-being and mental health has been implemented to enhance the parent-child relationship and help parents learn to be sensitive and nurturing of their children who are at one of the most

vulnerable stages of their lives. While this emphasis is becoming more prevalent in parent education programs, evaluations of program effectiveness are still needed (blinded for review).

Parent Well-Being and Mental States

In recent years, parent education programs have shifted from a primary goal of adjusting child behavior, to addressing parents' mental states and enhancing the parent-child relationship as a means of achieving desired behavior goals and outcomes for both parent and child (NCPFCE 2015). In fact, the Department of Health and Human Services reported that 16 out of 20 parenting programs on their list of "best-programs" included components related to the improvement of both parent and child behavior and attitudes (NCPFCE 2015). Additionally, over half of the listed programs featured components designed to improve parent well-being, emphasizing practices such as self-care, for example. Similar to the way parents are instructed to put on their own oxygen masks before addressing the needs of their children in the instance of an aircraft emergency, parenting educators have shared a similar message – parents need to feel confident, competent, and regulated before they can adequately and effectively facilitate the healthy development of their child (Kim 2014). As such, programs on the cutting-edge are beginning to emphasize teaching parents how to regulate their thoughts and actions as well as how to apply newly acquired knowledge to real-life settings (Sanders 2012). This focus on parents' mental states has resulted in more research and program development on topics such as parent mindfulness, parent executive function, parenting

stress, and regulatory behaviors in the context of parenting (Coatsworth et al. 2010; NCPFCE 2015). For example, the Parents as Teachers Program (Wagner & Clayton 1999) includes an emphasis on mental health and well-being through parent empowerment and self-efficacy; the Strengthening Families Program (Kumpfer, Molgaard, & Spoth 1996) attempts to increase parent well-being by reducing stress and alcohol and drug use; and the Positive Parenting Program (Sanders 2008) targets building parenting efficacy while encouraging self-care.

The following sections discuss research and programming on mindfulness, executive function, and self-efficacy. All are emphasized in the *Active Parenting First Five Years* curriculum, the focus of the current study.

Mindfulness. Mindfulness is an active process by which attitudes, decisions, and behavior are brought into conscious awareness (Coatsworth et al. 2010). Numerous studies have been published in recent years illustrating the importance of mindfulness in many aspects of adjustment and function (Segal, Williams, & Teasdale 2018; Shapiro & Carlson 2017; Zoogman, Goldberg, Hoyt, & Miller 2015). Indeed, mindfulness has been found to help individuals regulate emotions and stress, and has also been associated with positive neurological changes in the brain in adults (Hölzel et al. 2011).

Coatsworth et al. (2010) found that parents who practice mindfulness are better able to focus their attention, intentionally regulate their own emotions in the context of the parent-child relationship, and remain aware of their own and their child's emotions. Further, Neece (2014) observed that parents who are taught mindfulness-based stress reduction skills not only report

lower levels of stress and depression, but also report lower levels of attention and hyperactivity problems in their children. The present study adds meaningfully to the parenting mindfulness literature because the Coatsworth et al. (2010) study evaluated a pilot program for parents of children in early adolescence rather than parents of infants, toddlers, and preschoolers, and the Neece (2014) study was implemented for parents of children with developmental delays rather than for a community sample. Nonetheless, the findings of Coatsworth et al. (2010) and Neese (2014) are promising and suggest two hypotheses. First, the First Five Years curriculum which includes mindfulness will lead to greater parental mindfulness. Second, increasing parental mindfulness will be related to decreases in child behavior problems.

Executive Function. Another important aspect of cognitive and behavioral functioning that impacts parenting is executive function (Deater-Deckard 2014). Executive function and self-regulation skills enable individuals to plan, focus attention, remember instructions, and perform goal-oriented behavior (Hofmann et al. 2012). To date, limited research has been conducted to tie executive function to parenting behaviors; nevertheless, the literature that does exist is encouraging. For example, Deater-Deckard, Wang, Chen, and Bell (2012) found maternal executive function to be negatively related to harsh parenting, as mothers with low executive function abilities tended to utilize harsher parenting practices with their children, especially in chaotic home environments. Conversely, parents who are responsive and nurturing are more likely to initiate interactions that facilitate independent thinking, problem-

solving, and other behavior associated with executive function (Gauvain, Perez, & Beebe 2013; Treat et al. 2019).

Beyond examining how executive function is associated with parenting, studies have also illustrated the importance of positive executive function development in early childhood. For example, Deater-Deckard (2014) reported that executive function skills are developed over the course of childhood and tend to begin stabilizing by early adolescence. Moreover, the healthy development of these skills has been associated with a host of positive child outcomes including resilience from childhood adversity (Diamond & Lee 2011), and achievement in areas of reading and mathematics (Blair & Razza 2007; Bull, Espy, & Weibe 2008). Considering how often parents need to carry out these key mental processes in every-day parenting interactions and routines, as well as parents' role in developing the executive function skills of their children, executive function of both parents and children should receive significant consideration when developing programs and interventions related to parenting.

Parenting Efficacy. One additional area of emphasis when considering parent mental states is parents' sense of efficacy. Research on parenting efficacy has been shown to be an important element of cognition that can aid parents in adjusting to their roles and help settle problems that arise in child-rearing (Teti & Gelfand 1991). Specifically, parents who possess higher levels of parenting efficacy tend to have a better understanding of their child's behaviors and show higher levels of responsive, positive parenting (Desjardin 2003). To date, a handful of studies have examined effects of interventions to increase

parenting efficacy (Anastopoulos, Shelton, DuPaul, & Guevremont 1993; Bor, Sanders, & Markie-Dadds 2002; Mouton, Loop, Stiévenart, & Roskam 2018). However, they sampled children with attentional difficulties, hyperactivity, or behavior problems. For example, the most recent study (Mouton et al. 2018) used a sample of 3- to 6-year-old children with moderate to clinical levels of externalizing behavior problems. The researchers found that the program improved parents' efficacy and decreased children's behavior problems but, in contrast to the current study, did not evaluate whether other aspects of parenting improved. We hypothesized that the evaluation of FFY would show increases not only in parenting efficacy but also in responsive parenting as an effect of the curriculum and that children's behavior problems would decrease.

While parenting efficacy has been found to be a valuable characteristic of responsive parenting, less is known regarding the relationship between parenting efficacy and domains of mental health, such as stress. As an example, a number of scholars argue that parenting stress plays a major role in determining parents' sense of efficacy (Crnic & Ross 2017; Jackson & Huang 2000; Jones & Prinz 2005) as opposed to parenting stress being determined by parents' feelings of efficacy. Nonetheless, Crnic and Ross (2017) point out that efficacy may also be a predictor of parenting stress and the current study tests the hypothesis that the FFY curriculum will be effective in reducing parenting stress as parents' reported sense of parenting efficacy increases.

Summary, Research Goals, and Hypotheses

The current study evaluated the effectiveness of the parent education program *Active Parenting First Five Years* (Popkin 2017). There were three main research goals for the study. The *first research goal (1A & 1B)* was to evaluate the effectiveness of the *Active Parenting First Five Years* parent education program. For *research goal 1A*, it was hypothesized (Hypothesis 1A) that parents would report higher scores for positive parent and child outcomes and lower scores for negative parent and child outcomes at the completion of the program (Post Survey) when compared to the scores collected at the beginning (Pre-Survey). For *research goal 1B,* each of these parent and child outcomes was compared between parents randomly assigned to a treatment group and parents assigned to a comparison group. It was hypothesized (Hypothesis 1B) that parents who were assigned to the treatment group would show greater increases than the comparison group in the previously outlined positive behavior domains, while also reporting improvement in their child's behavior.

The *second research goal (2)* was to examine how changes in parents' reports of mindfulness were related to changes in parents' reports of their child's emotional problems, conduct problems, hyperactivity, and prosocial behavior. As introduced in the literature review, it was hypothesized (Hypothesis 2) that as parents' reported mindfulness increased, so would their reports of decreases in their child's emotional problems, conduct problems, and hyperactivity, as well as increases in their child's prosocial behavior.

Finally, the *third research goal (3)* was to investigate how parents' knowledge of child development and reported parenting efficacy were related to

and predicted their reports of parenting stress. It was hypothesized (Hypothesis 3) that as parents experienced positive changes in reported developmental knowledge and a greater sense of parenting efficacy, they would also report lower levels of parenting stress at the end of the program.

This study adds to the literature on parent education by offering a rigorous evaluation of the First Five Years program; by testing specific hypotheses about changes in parenting and child behaviors; by testing the hypothesis that increases in parental mindfulness are related to decreases in child behavior problems; by examining whether increased developmental knowledge and parenting efficacy contributed to lowered parenting stress; and by utilizing a diverse community sample of mothers and fathers of children in infancy and toddlerhood. Finally, this study uses a novel design for evaluation – *Inclusive Randomized Controlled Trial (*Inclusive RCT) – that could prove useful in evaluating interventions implemented in community or applied settings, described procedurally below.

Method

Participants

The sample for this study was collected for a National Evaluation of the *Active Parenting First Five Years* program, beginning in the Fall of 2017 and concluding in the Spring of 2019. Data collection took place in the states of Arizona, Colorado, Florida, Georgia, and Oklahoma. Parents and caregivers were invited to participate in the intervention primarily by group leaders who had been previously trained and certified through Active Parenting. Group leaders

recruited participants for this evaluation through schools, libraries, hospitals, community centers, and religious organizations, primarily using flyers and word-of-mouth. Prior to program implementation, group leaders were trained by the research team on data collection procedures. All data were identified using a unique code, and data were securely mailed back to the research team for analysis upon completion of the program. Initially, parents who chose to participate in the study received a $15 gift card from Active Parenting if they completed all three surveys and attended at least three of the four program sessions, plus an additional $10 gift card if they attended the orientation session offered prior to the program beginning. After only 5% of the first 89 participants met this benchmark, it was decided that the incentive for these same requirements would be increased to $40. After this change was made, 89% of the following 157 participants met the requirements to receive the incentive. In addition to participant incentives, group leaders received a free copy of the parent materials for each parent who participated in their group. FFY sessions, course material, and surveys were made available in Spanish for participants who reported Spanish as their primary language ($N = 23$). Informed consent was obtained from each parent/caregiver before they participated in any program evaluation procedure, and all study procedures were approved by the university's institutional review board prior to data collection. Additionally, (blinded for review) and (blinded for review) declare that they are contributing authors to FFY. (blinded for review) University receives royalties (1% of sales, 10% of sales in (blinded for review) to purchase Active Parenting materials for

(blinded for review) Extension Educators to educate (blinded for review) parents. (blinded for review) and (blinded for review) do not personally receive any financial benefit. (blinded for review) and (blinded for review) declare no conflicts of interest.

The total number of participants who completed at least one survey was 246; the number of participants who completed at least the pre- and post-surveys was 213. This sample was composed of primary caregivers of children between the ages of zero and five, with caregiver ages ranging from 18 to 81 (*Mdn* = 30). In regard to the caregiver-child relationship, this sample was made up of 61% mothers, 16% fathers, and 13% grandparents. For the racial breakdown, 66% of participants were Caucasian, 12% African American, 12% Native American, 2% Asian, and 9% reported as "Other." Additionally, 29% reported being ethnically Hispanic. In terms of relationship status, 61% of participants were partnered (married or living together), and 39% reported being single. Forty-six percent reported receiving a high school diploma/GED or less, 81% reported earning less than $40,000 per year, and 31% reported receiving government assistance in the past year. In order to assess aspects of child behavior, participants reported on the behavior of one target child (the same child each time) within the 0-5 age range (*M* age = 2.48, *SD* = 1.35; 60% Male, 40% Female). Parents were also asked about their overall experience and impressions of the program in the post-survey.

Procedure

In the current study, data were collected at three time points in order to conduct an Inclusive RCT, which is similar to a wait list control trial in that assessments of treatment and control participants occur at the same time, but unlike a waitlist control design as there is no delay in control participants being able to receive the intervention because random selection of intervention versus control groups occurs after study completion (blinded for review; blinded for review). To implement the Inclusive RCT, data collection for all participants took place over an eight-week period during which three surveys were administered to participants. First, four weeks prior to the FFY program, a program orientation session was held for all participants. At this orientation session, parents completed the control survey (Time 1) but no parenting content was presented. Four weeks after the orientation session, FFY teaching sessions began and were held weekly for four consecutive weeks, with a pre-survey (Time 2) administered at the beginning of the first session, and a post survey (Time 3) administered immediately following the final session. Each of these three surveys was identical, with the exception of the post survey which included additional questions related to caregivers' experience and impressions of the FFY program. In terms of design, this study adhered to the Consolidated Standards of Reporting Trials (CONSORT; Begg, Cho, Eastwood, Horton, Moher, Olkin et al. 1996) guidelines, as outlined in Figure 1.

From the previously described sample of 213 participants who completed at least the pre- (Time 2) and post-survey (Time 3) it was determined that 132 participants had completed all three phases of the study (Time 1/Time 2/Time

3). No significant differences in characteristics were found between participants who completed all three phases of the study and those who did not. Prior to data analysis, a randomization tool (Microsoft Excel 2016) was used to assign the sample of 132 participants to two different groups; half were assigned to a comparison group ($N = 66$) and half to a treatment group ($N = 66$). Responses to control and pre-surveys (Time 1 and Time 2, four weeks apart with no intervention between time points) were analyzed for comparison group participants, whereas responses to pre- and post-surveys were analyzed for treatment group participants (Time 2 and Time 3, four weeks apart with four intervention sessions following Time 2 and concluding immediately prior to the post-survey; see Figure 2). As shown in Table 1, there were no significant demographic differences detected between the comparison and treatment groups.

Measures: Parent Outcomes

Responsive Parenting. Parenting behaviors and attitudes related to supporting good behavior, limit setting, proactive parenting, and teaching were measured using the 27-item Parenting Young Children self-report parenting measure (McEachern, Dishion, Weaver, Shaw, Wilson, & Gardner 2012). Participants based their responses on a 7-point Likert scale (1 = *not at all* and 7 = *most of the time*) instructing parents to rate how often they engage their child in activities such as “Stand back and let your child work through problems s/he might be able to solve”, “Speak calmly with your child when you were upset with him or her?”, and “Set rules on your child’s problem behavior that

you were willing/able to enforce." Parent reports were averaged to create the final responsive parenting score. The three coefficients for Cronbach's alpha ranged from .93 to .95 across the three times of measurement. The first factor of a principle component analysis explained 36% of the variance and had loadings above .3 for all of the items, suggesting a single measure for the items.

Developmental Knowledge. Parents' knowledge concerning early child development and caregiving was assessed using the knowledge scale of the Oklahoma Infant Mental Health and Development Survey (Huffer, Williamson, Morris, Hays-Grudo, & Bosler 2016). This measure consists of 9 items such as "Babies often need help from caregivers to calm down", "Predictable routines are not important for babies and toddlers" (reverse coded), and "Responding quickly to a baby's crying just encourages the baby to become more demanding" (reverse coded). Each item was rated on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*) and the nine items were averaged to create the final developmental knowledge factor. The three coefficients for Cronbach's alpha ranged from .59 to .64 across the three times of measurement. This range suggests low internal consistency of the measure and examining the possibility of exclusion of items did not increase alpha. The first factor of a principle component analysis explained 27% of the variance but two items had loading less than .3, which points to a weakness in the measure. But given the checklist nature of the measure, it may not be as important.

Parenting Efficacy. Parents' confidence in their ability to act successfully in their parenting role was measured using the five-item Parenting Self-Agency

Measure (Dumka, Stoerzinger, Jackson, & Roosa 1996). These included "I feel sure of myself as a mother/father", "I can solve most problems between my child and me", and "I know things about being a mother/father that would be helpful to other parents" and were scored on a 4-point Likert scale (1 = *rarely* and 4 = *always*). Parenting efficacy scores were computed by summing the scores of each of the five items, with higher scores indicating greater efficacy. Cronbach's alphas for the scale ranged from .74 to .87 across the three times of measurement. The items all loaded at more than .6 and the first factor explained 50% of the variance.

Mindfulness. The Cognitive and Affective Mindfulness Scale (Feldman, Hayes, Kumar, Greeson, & Laurenceau 2007) was used to assess caregiver mindfulness. This scale consists of 12 items, including "It is easy for me to concentrate on what I am doing" and "I can usually describe how I feel at the moment in considerable detail" rated on a 4-point Likert scale (1 = *rarely/not at all* and 4 = *almost always*). Summing the scores of the twelve scale items resulted in a final mindfulness score. Cronbach's alphas for this measure ranged from α = .83 to .86 across the three points of measurement. Thirty-seven percent of the variance was explained by the first factor and all but one item loaded at more than .5 with one item loading at .21.

Perceived Parenting Stress. Parents' perceived level of stress was assessed using the Parental Stress Scale (Berry & Jones 1995). This measure consists of 18 items, including items such as "Having child(ren) leaves little time and flexibility in my life", "I sometimes worry whether I am doing enough

for my child(ren)", "It is difficult to balance different responsibilities because of my child(ren)." These items were rated on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*), and the eighteen items were averaged to create a final perceived parenting stress factor, with Cronbach's alphas ranging from .84 to .87 across the three timepoints. Of the 18 items, 2 did load with less than .3, but overall the items loaded well and the first factor explained 30% of the variance.

Measures: Child Outcomes

Caregivers reported on children's behavior using the 20-item Strengths and Difficulties Questionnaire (SDQ; Goodman 1997). This version of the SDQ is designed for younger populations, specifically for children between the ages of 2 and 4. Due to this restriction in age range, the sample size for child data (N = 88 for the restricted sample; N = 150 for the larger sample) was lower than the sample size for parent data (N = 132 for the restricted sample; N = 213 for the larger sample). This measure features items related to child emotion problems, conduct problems, hyperactivity, and prosocial behavior, reported on a 3-point scale (1 = *not true* and 3 = *certainly true*). An overall child behavior score can be calculated by using all twenty items. Cronbach's alphas for the overall scale ranged from .81 to .85. The *emotional problems* scale includes five items such as "often unhappy, depressed, tearful" and "many worries or often seems worried", with Cronbach's alphas ranging from .60 to .62. The *conduct problems* scale has five items related to difficult externalizing behavior including "often loses temper", "often lies or cheats" and "often steals from home,

school, or elsewhere," with Cronbach's alphas ranging from .60 to .69 across the three survey timepoints. The *hyperactivity* scale has five items with which parents rate the extent to which their child was, for example, "restless, overactive, unable to stay still" or "constantly fidgeting or squirming," with Cronbach's alphas ranging from .74 to .77. The *prosocial behavior* subscale of the SDQ consists of five items, including "considerate of other people's feelings", "shares readily with other children", and "kind to younger children." Cronbach's alphas for this subscale ranged from .70 to .73. The variance explained by the subscales in a principle component analysis ranged from 36% to 52% and all items loaded at least at 0.3 and most over 0.5.

Covariates. Parents reported their target child's age and sex at each stage of data collection. These were included in analyses as covariates.

Analytical Plan

Hypothesis 1A proposed pretest to posttest improvements for the entire sample of 213. Thus, a series of paired-sample *t*-tests were conducted to observe measurement differences from Time 2/pre-program to Time 3/post-program in each of the variables related to parenting behavior and attitudes along with the child behaviors for the entire sample. Because control group data were not included in this analysis, random assignment to comparison versus treatment was not considered in the analysis of Hypothesis 1A. For Hypothesis 1B, using the sample of 132 who completed all three points of data collection, first, a multivariate analysis of variance (MANOVA) was conducted to detect program effects on each of the parent and child outcomes by examining

differences in simple change scores between participants randomly assigned to the comparison group (Time 1/orientation & Time 2/pre-program) and to the treatment group (Time 2/pre-program & Time 3/post-program). Second, an analysis of variance was conducted to examine differences in mean scores for each specific variable between those randomly assigned to the treatment group and those randomly assigned to the comparison group. Third, in order to evaluate whether results from the MANOVA and ANOVA analyses would be replicated in multilevel analysis (time nested within participants) a random intercept two-level spline regression was conducted. This multilevel analysis functioned as a sensitivity analysis to determine whether a multilevel approach using the whole sample without assignment to treatment or control groups would yield similar results to the MANOVA and ANOVA analyses previously used for the Inclusive RCT design.

For Hypothesis 2, using the entire sample of 213, bivariate correlations were examined between each demographic variable and each of the dependent variables of child emotion problems, conduct problems, hyperactivity, and prosocial behavior in order to determine whether any demographic variables should be included in the regression model as control demographics. Next, a simple regression was conducted to observe how parents' reports of changes in mindfulness pre- and post-program were associated with children's changes in emotional problems, conduct problems, hyperactivity, and prosocial behavior with appropriate controls and covariates. Simple change scores were computed by calculating the difference between pre- and post-survey scores for each

composite variable (Allison 1990; Trafimow 2015). The same steps were taken for Hypothesis 3, but instead using a multiple regression to observe how parents' reported change in developmental knowledge and reported change in parenting efficacy were associated with changes in parenting stress across the program.

Results

Prior to hypothesis testing, normality and completeness of data were examined. Descriptive statistics were first conducted for the entire sample, looking at all data collected at Time 1, Time 2, and Time 3 (see Table 2). Next, after participants had been randomly assigned to their respective group (treatment or control), demographics were examined using chi square or *t*-tests to check whether the treatment and control groups consisted of similar samples in terms of demographics (see Table 1). As seen in Table 1, no significant differences were found between groups. Finally, bivariate correlations were calculated for all parent and child study variables for Time 2 (pre-survey) and Time 3 (post-survey), as seen in Table 3. As shown, various parent variables were concurrently associated with a number of child variables, including responsive parenting which was modestly associated with greater child strengths and prosocial behavior and modestly associated with lower conduct problems and hyperactivity; parenting efficacy was modestly associated with both lower conduct problems and hyperactivity and modestly associated with increased prosocial behavior; mindfulness was modestly associated with increased child strengths and decreased conduct problems, and moderately

associated with fewer emotion problems; and parenting stress was moderately associated with lower child strengths and greater conduct problems and hyperactivity. Child age and sex were not associated with any parent or child behavior outcomes, and were therefore not retained as covariates.

Research Objective #1: Evaluate the effectiveness of the *Active Parenting First Five Years* parenting intervention. For *research goal 1A*, all pre- and post-program data were analyzed using paired-samples *t*-tests to observe program outcomes broadly. As shown in Table 4, analyses indicated significant changes for all parent outcomes: responsive parenting (d = 0.63), developmental knowledge (d = 0.81), parent self-efficacy (d = 0.98), mindfulness (d = 0.58), and parenting stress (d = 0.41). The same was true for two child outcomes: total strengths (d = 0.84) and prosocial behavior (d = 0.61). After using a Bonferroni correction (Armstrong, 2014) at the .005 level, we found that each of the previously mentioned significant variables remained significant except for the child outcome of total strengths. These levels of change are similar to those found in other studies evaluating programs designed to achieve similar parenting outcomes (Leung et al. 2016; Mullis 1999). The child outcomes of emotional problems, conduct problems, and hyperactivity did not differ significantly from pre- to post-survey measurement.

To test *research goal 1B*, a multivariate analysis of variance was conducted using the comparison group and treatment group to determine program effects. Parent and child outcomes were evaluated separately as the sample size for each varied due to fewer responses for the child outcome

measure. The MANOVA for parent outcomes revealed a significant difference between the two groups, Wilk's $\lambda = .83$, $F(10, 121) = 5.12$, $p = .000$, Partial $\eta^2 = .18$. The separate analysis of variance for each variable revealed three significant differences with modest effect sizes ranging from .04 to .13 for the outcomes of parenting efficacy, mindfulness, and parenting stress (see Table 5). Effect sizes are similar in range to those found in other non-clinical studies similarly designed to evaluate parent education programs delivered over a brief time period (Bradley et al. 2003; Miller et al. 2013). The MANOVA of child outcomes did not reveal a significant difference between the comparison and treatment groups when considered jointly, Wilk's $\lambda = .89$, $F(5, 82) = 1.96$, $p = .09$, Partial $\eta^2 = .11$.

A random intercept two-level spline regression was conducted as a sensitivity analysis to determine whether the findings from the previous two analyses could be replicated. This analysis evaluated whether significant differences existed between Time 1/Time 2 differences, and Time 2/Time 3 differences. The results of the two-level spline regression revealed positive and significant changes (reported as difference of differences using a Wald Chi-square test) for responsive parenting ($\chi^2 = 8.24$, $p < .01$), developmental knowledge ($\chi^2 = 12.41$, $p < .001$), parenting efficacy ($\chi^2 = 16.15$, $p < .001$), mindfulness ($\chi^2 = 4.44$, $p < .05$), and significant decreases in parenting stress ($\chi^2 = 4.75$, $p < .05$). Similar to the MANOVA, no significant differences for child behavior outcomes were detected. Effect sizes for this analysis were calculated

dividing the difference estimates by the within person variance (Feingold 2009) and are reported in Table 6.

Research Objective #2: Examine whether changes in parents' reports of mindfulness were related to parents' reports of changes in their child's emotional problems, conduct problems, hyperactivity, and prosocial behavior. As indicated in the analytical plan, the first step in the analysis was conducting a series of bivariate correlations between each of the five child outcome variables – total strengths and difficulties score, emotion problems score, conduct problems score, hyperactivity score, and prosocial behavior score – and each demographic variable to determine whether any demographic variables should be included in the regression model. Correlations were computed for simple change scores (Allison 1990; Trafimow 2015), showing the total increase or decrease in each of the child outcome variables across the program. A significant negative correlation was found between total change in parents' reports of mindfulness across the program and parents' reports of change in conduct problems across the program (r = -.23 $p < .01$), indicating greater mindfulness change being associated with greater decreases in reported conduct problems. Change in mindfulness was not found to be significantly correlated with changes in total child strengths (r = .07, $p > .05$), emotion problems (r = -.04, $p > .05$), hyperactivity (r = .09, $p > .05$), or prosocial behavior (r = .08, $p > .05$). No significant relationships were found between the change scores and demographic variables, and they were not included in the regression model.

Next, a simple regression was conducted to examine whether parents' changes in mindfulness were related to changes in child outcomes. From the regression analysis it was found that for each standard deviation increase in mindfulness, there was a net standard deviation decrease of -.16 in reported conduct problems (see Table 7).

Research Objective #3: Investigate how changes in parents' developmental knowledge and parenting self-efficacy were associated with changes in reports of perceived parenting stress. As noted in the analytical plan, bivariate correlations were calculated between each demographic variable and the simple change scores for parents' developmental knowledge, self-efficacy and stress (Allison 1990; Trafimow 2015). These exploratory analyses revealed a modest significant negative relationship between changes in developmental knowledge and changes in parenting stress (r = -.22, p < .001), and a modest significant relationship between changes in parenting efficacy and changes in parenting stress (r = -.20, p < .01) across the program. No significant correlations were found between the change scores and the demographic variables, and they were not included in the regression model.

A multiple linear regression was conducted to examine whether changes in parents' developmental knowledge and parenting efficacy were predictive of changes in parent stress. As observed in Table 7, it was found that for every one standard deviation increase in developmental knowledge, a decrease of .21 standard deviation was predicted for parenting stress. Similarly, for every one

standard deviation increase in parenting efficacy, a decrease of .22 standard deviation was predicted for parenting stress (see Table 8).

Discussion

The *Active Parenting First Five Years* (FFY) program is an evidence-based parent education program that has been implemented in numerous communities and with families both nationally and internationally since January 2017. However, since the time of this program's inception it has not received rigorous evaluation of effectiveness. This study is the first to our knowledge to evaluate the effectiveness of the FFY program, while also attempting to determine which aspects of the program might offer unique contributions to parenting skills and behavior, and in turn, the parent education literature. Additionally, this study offers a first attempt at evaluating a parent education program utilizing the *Inclusive Randomized Controlled Trial* design formulated for programs conducted in community settings.

Findings from this study offer preliminary support for the FFY program as an effective program that can promote development in multiple parent and child outcomes. Additionally, findings from this study add to the existing literature on the importance of the under-acknowledged role that parents' mental states play in parenting (NCPFCE 2015) and the need to include parent wellbeing and mental states as relevant aspects of parent education (Sanders 2012). The present results coupled with the previous findings illustrate that competence in parenting requires more than merely knowing about children; parents benefit

from increasing knowledge of and practice in skills for regulating their thoughts and actions.

We predicted that positive outcomes would increase and negative outcomes would decrease after program participation. Findings from paired samples *t*-test analyses of pretest to post-test changes indicate that parents reported marked improvement in many areas of parenting and child outcomes when considering the sample as a whole. Specifically, parents reported improvements in the areas of responsive parenting, knowledge of development of young children, efficacy in parenting, use of mindfulness behavior, and reduced stress. Additionally, parents reported positive outcomes for their children, including increases in child strengths and prosocial behavior. Negative child outcomes were not found to change significantly over time, with one potential explanation being a lower response rate for the child strengths and difficulties outcome measure due to a restricted sampling window (children ages two to four), resulting in a lower response rate for child outcome items. Nonetheless, the findings for improvements in parenting suggest that this program has the potential to be an effective intervention for assisting parents in developing parenting skills, gaining knowledge associated with child development, and promoting positive behavior in their children.

MANOVA and ANOVA analyses of the Inclusive RCT design revealed significant differences between the treatment and control groups in parents' increased sense of efficacy, increased use of mindfulness techniques, and decreased levels of parenting stress. Consistent with the paired samples t-tests

analyses of pre- to post-test changes, there were no significant findings for the child outcomes. Results from the multilevel analysis (two-level spline regression) conducted as a sensitivity analysis of the Inclusive RCT MANOVA and ANOVA analyses suggest that the Inclusive RCT design is less powerful than the multilevel analysis. The latter revealed responsive parenting and developmental knowledge also as significantly different, whereas the MANOVA and ANOVA analysis did not. Our inclusion of both analyses illustrates that researchers should consider using multilevel modeling to analyze intervention effects of parenting programs but may want to consider also reporting the Inclusive RCT method. Multilevel modeling allows inclusion of all parent participants and increases power. Random assignment to treatment versus control with the Inclusive RCT method allows researchers working in community settings to be able to discuss the integrity of their randomization approach, an approach often favored by funders and policy makers. Regardless of analysis, improvements were found in a number of parenting capacities, offering evidence that this program is effective, at least as perceived by parents.

Another research goal was to examine how changes in parents' reports of mindfulness were related to parents' reports of their child's emotional problems, conduct problems, hyperactivity, and prosocial behavior. Increases in parental mindfulness predicted significant decreases in children's conduct problems. Although correlational, these findings suggest that mindfulness training for parents may lead to parenting practices that result in a reduction in children's conduct problems. Alternatively, parents' perceptions of decreases in child

conduct problems could have occurred because parents became better able to regulate their own attention and actions as well as to accept their child's present behavior while beginning to search for positive, thoughtful solutions (Segal, Williams, & Teasdale 2018). Although this study also examined child outcomes of hyperactivity, emotion problems, and prosocial behavior, mindfulness was not found to be related to significant changes in these areas. While a small number of previous studies reported mindfulness to be related to child outcomes other than conduct problems (Bögels, Hoogstad, van Dun, de Schutter, & Restifo 2008; Neece 2014; Semple, Lee, Rosa & Miller 2010; Semple, Reid, & Miller 2005), many of these studies were conducted using specialized samples largely comprised of parents of children with developmental or behavioral deficits, in contrast to the typical community sample of the current study.

Finally, our last research goal was to investigate how caregivers' reported parenting efficacy and knowledge were related to and predicted their reports of parenting stress. We found that lowered levels of stress were predicted by increased developmental knowledge and increased parenting efficacy, as hypothesized. Potential explanations for this finding could be, as previously noted by Teti and Gelfand (1991) and Mouton et al. (2018), that a newly achieved sense of parenting efficacy can help parents better adjust to their roles as parents and settle child-rearing problems more effectively which could lead to lowered levels of parenting stress. Moreover, as parents gain knowledge and insight regarding their child's developmental stages as well as appropriate

expectations for them, they may achieve a greater sense of control, potentially contributing to reduced parenting stress.

Strengths and Limitations

This study has a number of strengths that are both methodological and theoretical. First, this study was conducted using a primarily low-income sample that was diverse in terms of race and educational background. Another strength was the inclusion of parent data from five different states. This allowed for the sample to be more representative than it would have been had data been gathered in only one state or region. Next, this study introduced a novel study design – the *Inclusive Randomized Controlled Trial* – which allowed researchers to employ randomization that permitted MANOVA analyses to compare change between treatment and control groups. The incorporation of multilevel analysis (two-level spline regression) allowed inclusion of the total sample for greater statistical power and allows other parent education researchers to consider balancing the two approaches in order to be able to show results from greater statistical power compared to results from employment of randomization. Additionally, all participants had the opportunity to receive the benefits of being enrolled in the program without risk of exclusion or significant delay - two risks commonly associated with traditional randomized or wait-list controlled methodological designs. These findings suggest that this design could be of particular use for cooperative extension or agencies evaluating programs using smaller community samples. Finally, this study adds to the current mindfulness

literature showing that mindfulness can be targeted and improved in the context of parenting interventions.

Despite these strengths, this study possesses a number of limitations. First, the sample size for this study was rather small, resulting in limited statistical power for analyses of the Inclusive RCT design comparing treatment (N = 66) and comparison (N = 66) data. This limitation was especially salient when considering child outcome data (N = 44 per group) because parents were only asked to complete the child outcome measures if they had a child who fell within the age range for the measure (2 to 4 years). Related to this limitation, two of the child outcome measures (emotion problems and conduct problems subscales of the SDQ) were found to possess internal consistency levels that featured a lower-end range of .60 for at least one data collection time point. A more serious internal consistency problem occurred with the developmental knowledge measure which included many different aspects of child development knowledge. The low internal consistency suggests a need for additional research on the construct of child development knowledge including the possibility that the understanding of child development differs across states. Nonetheless, these lower levels of internal consistency could call into question the reliability of these measures at those particular data collection points. The items also showed weakness in validity, but as an example of the method, the validity was acceptable.

Another weakness was the absence of data collection related to executive function. While executive function is a key component of the FFY program,

instruments designed to measure executive function specifically were not included in this study. Finally, the study's exclusive reliance on parental report is a limitation. It is likely that program effects were driven in part by parents' perceptions. The use of observational data collection methods or an additional source of information (e.g., other caregiver, teacher) to support the self-report data will be important for future studies. It must also be acknowledged that expectancy effects from being enrolled in a parenting program and social desirability could have influenced parents' responses.

Future Directions

Moving forward, a number of steps could be taken to add to or elaborate on the findings of this study. First, one might consider collecting follow up data in an attempt to observe program effects across a greater timespan. While data collection took place over the duration of the FFY program, we do not know if program outcomes will continue to be maintained over time. A follow up of several to many months would prove valuable.

Second, future studies might place a greater emphasis on child outcomes. This study only used one measure (with subscales) to collect data on children. In collecting more data on children, one might consider adding a behavioral observation component to enhance the richness of data and avoid relying only on parent reports. Similarly, a behavioral observation component could be added for the parents in order to observe parent-child interaction and relationship patterns.

Researchers might consider implementing the Inclusive RCT study design in future studies, as it was shown to be a relatively effective design offering more rigor than many other non-RCT designs. With larger sample sizes in future studies, this novel study design could prove useful for researchers needing to demonstrate they employed randomization while offering all participants the benefits of the intervention without significant delay. Regardless of sample size, the current study suggests that researchers using the Inclusive RCT to demonstrate use of randomization also consider the use of multilevel analysis for greater statistical power.

Finally, with increasing recognition of the utility of mindfulness practices and executive function in the context of parenting, researchers and parenting specialists might consider incorporating program components designed for building these capacities into new or soon-to-be updated versions of existing high-quality parent education programs. For example, Coatsworth et al. (2010) found that infusing mindfulness principles into a previously established parenting intervention produced results suggesting that mindfulness practices coupled with parenting education can be related to beneficial outcomes observed in the parent-child relationship.

Implications

In conclusion, this study has multiple implications for parents and their young children. First, specifically considering outcomes related to mindfulness, this study illustrates the role that parent behavior can play in the subsequent development of their child's behavior, particularly when considering children

with conduct problems. Next, this study suggests that parents who feel confident and competent may be better suited to handle the many stressors associated with parenting young children. The results from this study suggest that programs developed to increase parents' parenting efficacy can produce significant benefits. Finally, findings from this study offer preliminary support that a curriculum designed to emphasize parent mental states and well-being can make a notable difference in parenting in a high-risk, low-income sample. The methodology and findings associated with the evaluation of this program could open the door to other evidence-based programs to adapt their breadth of focus to include not only parenting skills and child behavior change but also mindfulness training and executive function building that can build parenting knowledge and efficacy while also promoting positive mental states and general well-being.

Compliance with Ethical Standards

Conflict of Interest (blinded for review) and (blinded for review) declare that they are contributing authors to FFY. (blinded for review) University receives royalties (1% of sales, 10% of sales in (blinded for review) to purchase Active Parenting materials for (blinded for review) Extension Educators to educate (blinded for review) parents. (blinded for review) do not personally receive any financial benefit. (blinded for review) and (blinded for review) declare no conflicts 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.

This article does not contain any studies with animals performed by any of the authors.

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

Additional Information

Data Access and Responsibility The principal investigator (blinded for review), had full access to all of the data in the study and takes responsibility for the integrity of the data analysis.

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