



Published in final edited form as:

J Prim Prev. 2014 October ; 35(5): 321–337. doi:10.1007/s10935-014-0358-z.

Moderating Effects of Parental Well-Being on Parenting Efficacy Outcomes by Intervention Delivery Model of the Early Risers Conduct Problems Prevention Program

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Abstract

Parent-focused preventive interventions for youth conduct problems are efficacious when offered in different models of delivery (e.g., individual in-home, group center-based). However, we know little about the characteristics of parents associated with a positive response to a particular model of delivery. We randomly assigned the parents of an ethnically diverse sample of kindergarten through second grade students ($n = 246$) displaying elevated levels of aggression to parent-focused program delivery models emphasizing receiving services in a community center largely with groups (Center; $n = 121$) or receiving services via an individualized in-home strategy (Outreach; $n = 125$). In both delivery models, parents received parent skills training and goal setting/case management/referrals over an average of 16 months. Structural equation modeling revealed a significant interaction between parental well-being at baseline and intervention delivery model in predicting parenting efficacy at year two, while controlling for baseline levels of parenting efficacy. Within the Outreach model, parents with lower levels of well-being as reported at baseline appeared to show greater improvements in parenting efficacy than parents with higher levels of well-being. Within the Center model, parental well-being did not predict parenting efficacy outcomes. The strong response of low well-being parents within the Outreach model suggests that this may be the preferred model for these parents. These findings provide support for further investigation into tailoring delivery model of parent-focused preventive interventions using parental well-being in order to improve parenting outcomes.

Keywords

Preventive intervention; Parent skills training; Outreach-based services; Center-based services; Parental stress; Parenting confidence

Parents are key targets for change in preventive interventions with children at risk for early conduct problems, and for good reason. Both parents' personal problems/stressors and parenting style (e.g., coercive parenting) are associated with the development of conduct problems in children (Dodge, Coie, & Lyman, 2006; Erath, El-Sheikh, & Cummings, 2009;

Hoeve et al., 2009; Moffitt & Caspi, 2001; Seng & Prinz, 2008). It stands to reason that efforts to reduce conduct problems have featured interventions that seek to educate and train parents in effective parenting strategies (de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, 2008; Kaminski, Valle, Filene, & Boyle, 2008; McCart, Priester, Davies, & Azen, 2006; Serketich & Dumas, 1996; Thomas & Zimmer-Gembeck, 2007). Although the general effects for such programs are typically favorable, a number of factors have limited the penetration of these programs in high-risk populations. For example, participation and retention rates have been poor, effect sizes on key outcomes have been modest with considerable variability in individual responses, and they are neither cost-effective nor efficient for community service systems levels (August, Bloomquist, Lee, Realmuto, & Hektner, 2006; August, Lee, Bloomquist, Realmuto, & Hektner, 2004; Conduct Problems Prevention Research Group, 1999). We need additional research to better identify how to maximize the benefits of parenting interventions. In recognition of the current state of interventions research, the new NIMH Strategic Plan recommends the development of new approaches that personalize care based on individual responses (Insel, 2009).

Key to the development of personalized interventions is the identification of tailoring variables used to adapt a particular program to optimize fit and enhance outcomes for a particular individual (e.g., Collins, Murphy, & Bierman, 2004). One example is parental well-being. Parental well-being reflects a parent's coping strategies, satisfaction with role as a caregiver, perceived support by others, and general emotional stability in contrast to feeling stressed, depressed, and/or lonely (King, King, Rosenbaum, & Goffin, 1999; Webster-Stratton, 1989). Factors associated with poor parental well-being (including depression, marital problems, and poor social support) are associated with parenting problems and unhelpful parental cognitions that are frequent targets of parent-focused interventions (Dumas & Wekerle, 1995; Leung & Slep, 2006). Relatedly, depressive symptoms in mothers are associated with poor parenting efficacy (Cutrona & Troutman 1986; Halpern & McLean 1997; O'Neil, Wilson, Shaw, & Dishion, 2009; Teti & Gelfand 1991; Weaver, Shaw, Dishion, & Wilson, 2008). Parental well-being factors are also associated with child behavioral and emotional problems (Dumas & Serketich, 1994; Webster-Stratton, 1989). Response to parent training is diminished when parents exhibit lower levels of personal well-being (or higher levels of stress and/or depression) (Reyno & McGrath, 2006). Furthermore, it is important to account for parental well-being in such interventions so that positive impact can be enhanced (Dumas & Serketich, 1994; Weaver et al., 2008; Webster-Stratton, 1989).

The potential impact of parent well-being as a tailoring variable is most evident in terms of its effect on a proximal outcome of parenting programs, namely, parenting efficacy (Reedtz, Handega, & Morch, 2011; Sofronoff & Farbotko, 2002). Parenting efficacy pertains to having a belief and confidence that one has the skills, abilities, and resources to parent effectively and to influence a child's behavior and development (Jones & Prinz, 2005; Teti & Gelfand, 1991). Many interventionists argue that parenting efficacy should be a focus of intervention and measurement of intervention effects (Dumka, Gonzales, Wheeler, & Millsap, 2010; Jones & Prinz, 2005; Sanders & Woolley, 2005). Low levels of parenting efficacy are related to poor persistence and follow-through in parenting tasks, less satisfaction in the parenting role, and various dimensions of parenting problems (harsh,

permissive/inconsistent discipline; Johnston & Mash, 1989; Sanders & Woolley, 2005). Furthermore, cross-sectional and longitudinal research shows that higher parental efficacy is related to better child and adolescent adjustment (Dumka et al., 2010; Gewirtz, DeGarmo, Plowman, August, & Realmuto, 2009; Shumow & Lomax, 2002; Weaver et al., 2008). Finally, a parent training study determined that improvements in children's behavior were mediated by changes in parent efficacy (O'Connor, Rodriguez, Cappella, Morris, & McClowry, 2012). Presumably, in that study, parents felt more competent in learning and using new parenting skills that led to improvements in child behavior.

In the present study, we examined parental well-being as a potential moderator of two different program delivery models of a parent-focused intervention within a randomized trial of the Early Risers conduct problems prevention program. We selected parenting efficacy as a proximal outcome with which to evaluate differential effects of the preventive intervention. Early Risers is a comprehensive system of care framework for delivering targeted preventive interventions for elementary-age children with behavior problems and their families. Investigated within the context of five randomized trials, the program has produced beneficial effects including reduction of children's externalizing behavior problems (effect sizes 0.26 – 0.70) and improvement of children's social competence (effect sizes 0.35 – 0.44) and positive parenting practices (effect sizes 0.25 – 0.56) (August, Hektner, Realmuto, & Bloomquist, 2001; August, Lee, Bloomquist, Realmuto, & Hektner, 2003; August et al., 2004; August et al., 2006; Bernat, August, Hektner, & Bloomquist, 2007; Bloomquist, August, Lee, Piehler, & Jensen, 2012; Piehler et al., in press). Germane to the current study, Early Risers integrates two parent-focused components within its intervention framework. The *Parent Skills* component provides parenting education and skills training via topics in child development and effective parent management techniques. The *Family Support* component addresses issues related to the health and basic-living needs of parents and uses goal setting and case management techniques. Early Risers delivers these parent-focused components in tandem with two child-focused components. A *Child Skills* component provides programming in social-emotional skills development and literature appreciation, and a *Child School Support* component provides individual assessment of classroom needs with mentoring on an as-needed basis (see August, Bloomquist, Realmuto, & Hektner, 2007, for Early Risers programming details).

In this study, we randomized the families of elementary-aged children exhibiting disruptive/aggressive school behavior to one of two different delivery models for the parent-focused components of Early Risers. The *Center* model was community center based and included parent-focused programming provided in small groups. The *Outreach* model was an in-home, outreach-based approach in which we primarily provided parent-focused programming in the home based on assessed need. In both Center and Outreach, the children received identical Child Skills and Child School Support components delivered in local schools over an average of 16 months. An earlier report from this study showed that the Center model of parent-focused programming had higher parent attendance than the Outreach model and that lower income predicted higher participation in the Center model but lower participation in the Outreach model (Bloomquist et al., 2012).

Like many other validated prevention programs, Early Risers has generally modest effect sizes in targeted outcomes and variability in response across participants. A next step in improving Early Risers is to better understand individual variability in response to the program, and then adapt it as needed to maximize outcomes. The primary goal of this study was to determine whether a model of parent-focused service delivery was associated with improved parenting efficacy and if baseline level of parental well-being moderated the effects observed. This could shed light on ways to tailor parent-focused preventive interventions for parents with low and high levels of personal well-being in order to most effectively bring about positive growth in parenting efficacy. Because this randomized research design in which we manipulated the delivery model of parent-focused programming is novel within a prevention context, our hypotheses were primarily exploratory. We hypothesized that parental well-being would differentially predict response to the program within two different models of program delivery, such that: a) parents with lower levels of well-being would demonstrate increased benefit from the higher level of personalization and individual support offered in the Outreach model; and b) parents with higher levels of well-being would demonstrate stronger outcomes in the collaborative and socially-oriented nature of the Center model. We expect this study to inform the ‘fit’ of parent characteristics and services delivery method for parent-focused interventions.

Methods

Overview

We conducted the study over a four year period using rolling recruitment in schools to identify kindergarten through second grade children displaying disruptive behavior. Children and their families completed an average of 16 months of interventions services that included both child and family components. We randomly assigned families to receive the family-focused components in either a center-based model (i.e., Center) or an in-home, outreach-based model (i.e., Outreach). We collected measures utilized in this study at baseline and at a two-year follow-up assessment. Bloomquist et al. (2012) provide additional details of the study methods.

Intervention Sites

This study was a collaborative effort that included Pillsbury United Communities family services agency in Minneapolis, Minneapolis Public Schools, and University of Minnesota Early Risers prevention team. Pillsbury United Communities is a longstanding family service agency that provides safety net and practical family services to low-income families residing in Minneapolis. Pillsbury United Communities employed implementation staff members, known as Family Advocates (FAs), and housed them at two neighborhood centers (one on the near north side and the other on the near south side of Minneapolis).

The responsibilities of the FAs included recruitment of at-risk children eligible for participation in Early Risers and delivery of all programming. FAs provided Child Skills and Child School Support programming in school settings. They delivered the family-focused components of Parent Skills and Family Support interventions primarily in the neighborhood family centers in the Center model, and primarily in the home in the Outreach model. All

FAs spoke English, and several who were also fluent in Spanish were assigned to schools that had the largest Spanish-speaking populations.

Identification, Assignment, and Recruitment of Subjects

We used a University IRB approved, multi-stage protocol to enroll children and families in the Early Risers program and subsequently to recruit them to participate in a research study to evaluate the program. A refer and screen method was used to identify subjects eligible for enrollment in the Early Risers program offered at their school. Teachers nominated students who were demonstrating high levels of disruptive behavior in their classrooms and then screened those children on the standardized 25-item Aggression scale of the Child Behavior Checklist – Teacher Rating Form (CBC-TRF; Achenbach, 1991). Children were eligible for the program and research study if they obtained a T-score ≥ 57 on the CBC-TRF Aggression scale. We excluded children from the program with an IQ ≤ 70 , a pervasive developmental disorder, or if school officials reported that their parents did not have at least rudimentary proficiency in either English or Spanish.

Next, we assigned families via a stratified randomization procedure at the subject level to either a Center or Outreach family-focused condition. The sample was stratified by gender (boy/girl), grade (K, first, second), and neighborhood center (south or north Minneapolis area). At the same time, a school liaison worker asked the families of children meeting criteria if they would be interested in participating in the Early Risers program offered at their school. If the parents agreed to enroll their child in the program, the FAs obtained consent from the primary parent/guardian and assent from the child.

Participant Characteristics

Participants in this study were 246 children in kindergarten through second grade living in economically disadvantaged areas of Minneapolis, Minnesota, and their families. Initially, 261 families (131 = Center and 130 = Outreach) showed interest in enrolling their child in the program and provided consent to participate. Ninety-four percent of those who consented participated in baseline assessment ($n = 246$; 121 = Center and 125 = Outreach). The sample included 60% males and the average child age at study enrollment was 6.7 ($SD=1.0$) years. Approximately 60% of the children were African American, 13% Hispanic, 8% Asian American, 8% multiracial, 8% European American, and 3% Native American. Approximately 41% of the children resided in single-parent households. The mean CBC-TRF Aggression score was 61.41 ($SD=12.45$) for children in the Center model and 60.34 ($SD=15.50$) for children in the Outreach model, a difference that was not statistically significant ($t(244) = .60, p = .55$). The percentages of participants falling into the borderline clinical (T-score 60–69; Center: 16%; Outreach: 16%) and clinical ranges (T-score ≥ 70 ; Center: 17%; Outreach: 16%) were equivalent across groups. Thirty-two percent of the total sample ($n=79$) were either in the borderline clinical or clinical range (T-score ≥ 65). Descriptive characteristics of the participants in the Center and Outreach models are included in Table 1. There were no significant group differences in any of the demographic characteristics.

Interventions

Overview—Early Risers is a comprehensive system of care framework for delivering effective school-based targeted interventions for children with behavior problems (August et al., 2007). The program focuses on the characteristics, developmental trajectories, and risk factors associated with their behavior problems. In the prototype model, one central implementer (the family advocate) delivers Child Skills, Child Support, Parent Skills, and Parent/Family Support components in a coordinated manner over a multi-year period. There is allowance for variation in the use of different evidence-based curricula and practice parameters within components based on accumulating scientific evidence, feasibility, and acceptability.

Child Components—In the current study, children assigned to both Center and Outreach models received identical ‘Child Skills’ training and ‘Child School Support’ case management component interventions. FAs delivered the fixed-prescription Child Skills component in a coordinated fashion over the summer and school year. It centers on small-group social-emotional skills training utilizing the Promoting Alternative Thinking Strategies (PATHS) curriculum (Greenberg, Kusché, & Mihalic, 1998). Techniques used comprise direct teaching of social behaviors like sharing, cooperating, communicating, ignoring, and assertiveness; fostering perspective taking, accurate attributions, and solving of social problems, and recognizing feelings in self and others. The Child Skills curriculum exposes children to a wide variety of literature appreciation and creative/recreational activities. During these activities, children continue to practice social-emotional skills, and FAs administer contingencies to shape specific social behaviors and competencies. The variable-prescription Child School Support component includes individualized strategies such as monitoring children’s behavior/academic progress, goal setting, prompting/guiding adaptive school behaviors, advocacy, brief solution-focused interventions, and promoting coordination among the child, family, and school. FAs also provide assistance to help the child and family access school-based services as needed (see August et al., 2007 for details).

Family-Focused Components—The FAs delivered two family-focused interventions to the parents: ‘Parent Skills’ training and ‘Family Support’ case management. Parent Skills focuses on reducing problem child behaviors, increasing alternative child behaviors, and improving parent-child interactions by teaching adaptive parenting strategies. Techniques consist of shaping and reinforcing desired behavior, ignoring and punishing undesired behavior, reducing coercive parent-child interactions, enhancing parental monitoring and supervision, building the parent-child bond, and teaching the parent to guide or coach the child’s skills development. In the current study, the Early Risers team developed a specific Parent Skills curriculum that presented parenting-specific content via 19 Success Plans. These Success Plans covered topics relevant to parenting children with behavior challenges and was organized into six modules for promoting: (i) behavior, (ii) social, (iii) emotional, and (iv) academic child development, as well as (v) parent and (vi) family well-being (see Bloomquist et al., 2012 for details). The implementer and the parent(s) jointly reviewed the Success Plans. The family advocate modeled the skills, engaged the parents in role play practice, and facilitated parents to set parenting goals accordingly. Family Support emphasizes monitoring of the family’s progress and providing responsive case management

and practical interventions with the primary recipient being the parent. Family advocates assess the needs of a family, develop a plan, link the family to needed community services, and provide practical interventions. In the current study, the content offered in Parent Skills and Family Support was identical in both Center and Outreach programming.

Prior to receiving the family-focused intervention, parent participants assigned to the Center or Outreach models received up to two prescribed engagement-oriented meetings that were delivered by FAs at the home or school. In the Center condition, however, there was an expressed goal of transitioning families to receive direct services (Parent Skills and Family Support) at the center. During these initial engagement meetings, the FAs informed the parents of family-focused interventions and used a semi-structured interview to elicit information regarding their strengths and concerns with respect to the child and parent/family. FAs used this information to identify areas of focus, set goals, and to inform the family how participating in the family-focused components might facilitate their goals. In addition, once programming began, parents in both conditions received \$20 for each completed “Success Plan” used within Parent Skills.

Center versus Outreach Intervention Delivery Models—FAs offered participants in the Center model the majority of the family-focused programming in a Pillsbury United Communities neighborhood center and made referrals for additional supports principally within the center. FAs offered all participants in the Center model 10 sixty-minute sessions of the Parent Skills group delivered via Family Nights at the center. In the Parent Skills groups, FAs led parents to consensually choose from a menu of 19 Success Plans to reflect the preferences of what the group wanted to cover over 10 sessions. FAs also delivered Family Support contacts primarily at the center via one-to-one meetings. The protocol called for each family to receive a minimum of three Family Support contacts to check in and assess potential needs, but could be as many as indicated depending on need. There was no specified amount of time prescribed for Family Support.

Participants in the Outreach model received services mostly in their home. Outreach referrals within Family Support emphasized accessing community resources other than the Pillsbury United Communities agency unless the family directly asked for such referral information. These referrals typically focused on accessing community resources (e.g., food shelves, job support, housing information). Participants in this condition received individualized Parent Skills integrated with Family Support during each meeting (i.e., sessions combined both Parent Skills and Family Support activities). FAs led parents to choose from a menu of Success Plans to reflect the parent's preferences of what he or she wanted to cover during the meetings. The frequency of family-focused meetings in Outreach was based on a level of need that was determined by the child's severity of behavior problems and the parent's expressed concerns about the family that were determined via the semi-structured interview used during the engagement meetings. The implementer manual included an algorithm to assist FAs in categorizing families as Level 1 - low child severity/low family severity; Level 2 - high child severity/low family severity or low child severity/high family severity; and Level 3 - high child severity/high family severity. The protocol called for each family to receive the following amount of family-focused services

depending on assessed need: Level 1- minimum of 3 contacts, Level 2 - approximately 10 contacts, and Level 3 - 10+ contacts (as needed).

Bloomquist et al. (2012) report parents' participation data. As is described, 94% of parents from the Center model and 89% from the Outreach model participated in at least one session of the family-focused programs (Parent Skills and Family Support). Because the Outreach model delivered Parent Skills and Family Support simultaneously, we combined the participation data for both of these interventions within both Center and Outreach in order to compare them as overall indicators of family-focused participation. For the Center model, we measured parents' participation by contacts and minutes of services received in Parent Skills and also Family Support and combined these scores into number of contacts and minutes as indicators of family-focused participation. For the Outreach model, we measured parents' participation by their contacts and minutes of services received during each meeting with the FA (which typically combined Parent Skills and Family Support strategies), thus providing number of contacts and minutes as indicators for family-focused participation. Including the full sample, the average parent participation was approximately 14 contacts ($SD = 15$) and 261 minutes ($SD = 445.62$) for the Center and approximately 10 contacts and 173 minutes ($SD = 238.22$) for the Outreach model. Seven parents (6%) in the Center model and 14 parents (11%) in the Outreach model did not participate in any of the family-focused programs. In the Center model, 18 parents (15%) received between one and three contacts, 27 parents (22%) between four and ten, and 69 parents (57%) more than 10 contacts. In the Outreach model, 26 parents (21%) received between one and three contacts, 29 parents (23%) between four and ten, and 56 parents (45%) more than 10 contacts. For the Center model, contacts included visits to the center ($M = 3.12$, $SD = 5.37$), home visits ($M = 1.88$, $SD = 3.06$), telephone calls ($M = 12.11$, $SD = 12.32$), and visits in school/other settings ($M = 1.76$, $SD = 3.32$). In the Outreach model, contacts included home visits ($M = 3.34$, $SD = 4.64$), visits to the center by only a few participants ($M = 0.20$, $SD = 0.64$), telephone calls ($M = 8.83$, $SD = 9.41$), and visits in school/other settings ($M = 1.12$, $SD = 2.65$). Families completed an equivalent average number of parenting Success Plans in each condition (Center: $M = 1.63$, $SD = 3.15$; Outreach: $M = 1.39$, $SD = 2.83$). Of the 19 parenting Success Plans, the three most frequently utilized across both conditions included Improving Parent Stress Management Skills (completed by 14% of all participants), Noticing a Child's Positive Behavior (13%), and Teaching a Child to Manage Anger (11%).

Implementation Support to Promote Adherence to Intervention Delivery Model

The program developers offered implementation support (i.e., training, supervision and technical assistance) to all FAs and program supervisors at Pillsbury United Communities in both models throughout the intervention period. Bloomquist et al. (2013) provide detailed information on the implementation support used in the study. Initial three-day training included an overview of the study, a complete review of the project manual, modeling of intervention skills, and role-play activities. Because FAs worked with all of the children referred in a given school, each FA provided services to children and their parents/families assigned to both Center and Outreach models. Therefore, FAs completed training to deliver both the Center and Outreach models of family-focused service delivery. A significant portion of the training included differentiating procedures between the two models and the

importance of implementing them as specified by the manual. The research staff provided a half-day booster training session to the FAs and program supervisors each fall to promote continued adherence to the research protocol. A program supervisor employed by Pillsbury United Communities provided supervision for each FA. The FAs reported directly to the program supervisor and had weekly group and individual supervision meetings with them. FAs consulted with the program supervisor in the event of an emergency or deviation from study protocol. The Early Risers program developers met with and/or had phone contacts with program supervisors on a weekly basis throughout the project. These meetings/phone contacts focused on technical assistance, review of program progress, and resolution of any emerging concerns/problems. In addition, the Early Risers program developers met directly with the FAs approximately monthly to check in, troubleshoot any implementation obstacles/problems, and review service delivery specifications.

FAs' self-report ratings showed that they delivered the majority of contact within each model as specified in the manual, thus demonstrating acceptable adherence to the Center and Outreach models (see Bloomquist et al., 2012). Participants in both the Center and Outreach conditions occasionally received services outside of the models' preferred setting. All participants received two initial prescribed home-based engagement sessions. For some families in the Center condition, FAs deemed that additional home-based engagement sessions were necessary. In the Center condition, families completed an average of 1.9 home visits. However, 31 families in the Center condition (26%) received more than two home visits, indicating some deviation from the manualized approach for that condition. FAs reported in supervision meetings that they felt this deviation was ethically necessary in order to make continued attempts to engage these harder-to-reach families in services. Within the Outreach condition, a small number of families received some center-based services ($n=16$; 13%), and the majority of those ($n=12$) only presented once at the center. This reportedly most often occurred because some families lived close to the center providing services and came on their own accord in order to see their FA. In order to examine the impact of these deviations from manualized delivery of services on results, all primary analyses were also run using only the subsample that received services within the manualized parameters of each modality ($n=199$; 90 = Center and 109 = Outreach).

We completed formal fidelity assessment for the Child Skills and the Parent Skills intervention components. Fidelity technicians periodically monitored the Child Skills program via unannounced observations. These technicians took notes and then completed a 15-item questionnaire designed to assess adherence to content and delivery specifications. Ratings for fidelity items were on a 5-point scale (i.e., 1 = not at all to 5 = nearly all of the time). The average fidelity scores were 4.2 for adherence to content, 3.3 for adherence to delivery specifications and 4.4 for quality. Parents completed a 10-item checklist over the phone after attending a session in order to assess the fidelity of the Parent Skills program. The checklist asked parents about the FA's delivery of content and activities for the session. Parents responded yes or no to five items. The remaining five items were rated from 1 = Strongly disagree to 5 = Strongly agree. To calculate a total fidelity score, the ratings were converted to scores of '1' (4=Agree and 5 = Strongly agree) or '0' (1=Strongly disagree, 2=

Disagree, and 3 = Neutral). We summed these ratings resulting in an average total fidelity score of 9.3 out of a possible 10.

Measures

We used baseline measures of parenting efficacy (covariate) and parental well-being (moderator), and year 2 measures of parenting efficacy (outcome) in the analyses. Parents completed annual assessments and received \$50 for each completed assessment. We derived all constructs from existing scales and confirmatory factor analyses.

Family Participation—The total number of minutes that families received any type of family-based programming, including both Parent Skills and Family Support activities, constituted the family participation variable. See Bloomquist et al. (2012) for more information on participation across the two delivery models.

Parenting Efficacy—We assessed parenting efficacy using an aggregate latent construct score (described in Results below) derived from parent self-report measures of ‘parenting confidence’, ‘relationship frustration’ and ‘parental lack of control of child's behavior’. We used the ‘parenting confidence’ (8 items; $\alpha = .67$) and ‘relationship frustration’ (12 items; $\alpha = .81$) scales from the Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006), which is a 71-item self-report measure that assesses a parent's perspective of the parent-child relationship. Respondents rated items on a 4-point Likert-type scale ranging from never (0) to almost always (3). We calculated gender-specific T-scores with a mean of 50 and a standard deviation of 10. The parenting confidence scale measures a parent's feelings of comfort and confidence when involved in the parenting process and when making parenting decisions (e.g., “I make good parenting decisions,” “I am in control of my household”). The relational frustration scale assesses a parent's level of stress or frustration in common parenting situations (e.g., “My child and I get into heated discussions,” “I overreact when my child misbehaves”). The PRQ has strong psychometric properties and acceptable correlations with other commonly used measures of similar parenting constructs (Kamphaus & Reynolds, 2006).

We used the ‘parental lack control of child's behavior’ scale (10 items; $\alpha = .72$) from the Parental Locus of Control scale (PLOC; Campis, Lyman, & Prentice-Dunn, 1986), which assesses parents’ perceptions of their parenting control as they relate to their parenting role and parent-child interactions (e.g., “My child's behavior is sometimes more than I can handle,” “I find that sometimes my child can get me to do things I really did not want to do”). Forty-seven items are rated on a 5-point Likert format ranging from strongly disagree (1) to strongly agree (5). Higher scores on the scale indicate that parents feel unable to control their child's behavior. Campis et al. (1986) reported evidence for good internal consistency, construct validity, and discriminant validity.

Parental Well-Being—We measured parental well-being via an aggregate latent construct score (described in Results below) using parent self-reported scales of ‘global symptoms’, ‘interpersonal support’, and ‘parental stress’. The Brief Symptom Inventory 18 (BSI 18; Derogatis, 2000) is a self-report symptom inventory designed to measure parents’

psychological distress. The instrument has 18 items that can be aggregated to form the 'global symptoms' ($\alpha = .91$) score. The scale includes items relevant to somatization, depression, and anxiety symptoms. We calculated gender specific normative scores in the form of T-scores with a mean of 50 and a standard deviation of 10. Previous research has validated the BSI 18 with a variety of populations and in a variety of clinical and community settings (e.g., Prelow, Weaver, Swenson, & Bowman, 2005).

The 40-item Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983) measures the perceived availability of four specific support resources: (a) tangible support, the perceived availability of material aid; (b) appraisal support, the perceived availability of someone with whom to discuss issues of personal importance; (c) self-esteem support, the presence of others with whom the individual feels he/she compares favorably; and (d) belonging support, the perception that there is a group with which one can identify and socialize. Respondents rated items on a 4-point Likert-type scale ranging from definitely false (0) to definitely true (3). The ISEL total score (40 items; $\alpha = .93$) was calculated for each individual and included in the analysis. The ISEL is a widely used indicator of social support and shows good reliability and association with related scales (Cohen, Memelstein, Kamarck, & Hoberman, 1985).

Parents also completed the Parental Stress Scale (PSS; Berry & Jones, 1995). The PSS measures parents' global feelings and perceptions about the experience of being a parent (e.g., "The major source of stress in my life is my children," "I am happy in my role as a parent" [reverse scored]). Eighteen items are rated on a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. We calculated the total sum (18 items; $\alpha = .76$) for inclusion in analyses. Higher scores indicate greater perceived stress. Berry and Jones (1995) report good psychometric and validity evidence of the scale.

Results

Analytic Strategy

We estimated structural equation models using the SEM program Mplus version 6 (Muthén & Muthén, 1998–2010). We initially examined a confirmatory factor analysis (CFA) measurement model to derive three primary latent constructs (baseline Parenting Efficacy, baseline Parental Well-Being, and year 2 Parenting Efficacy) and to evaluate the fit and relationships among these constructs. We then estimated a main effects model predicting the latent year 2 Parenting Efficacy construct. Independent variables included a latent baseline Parental Well-Being construct, intervention condition (i.e., Center vs. Outreach), and a latent baseline Parenting Efficacy construct (in order to control for baseline levels). We added an interaction term between the latent Parental Well-Being construct and intervention condition as a subsequent step in the model. We also estimated the main effects and interaction models including minutes of family participation as an additional independent covariate. Finally, we estimated an additional set of models using the subsample of participants who received services without deviation from manualized delivery parameters. Table 2 presents the bivariate correlations, means and standard deviations of the final main study variables.

Missing values were present in the dataset because of the longitudinal nature of the research design. We managed missing data in all models with the full information maximum likelihood (FIML) procedure used by Mplus version 6. This method is very efficient when analyzing data from samples with moderate levels of missing values (Enders, 2001). FIML uses all available information from each participant in order to estimate each parameter. Consequently, we could retain in the analysis participants with missing data so they could contribute to model estimation. In the current analyses, covariance coverage (i.e., the proportion of complete cases for each variable or variable pair) ranged from .53 to .86. This represents an acceptable rate of missing data for FIML estimation (Enders, 2001).

We evaluated the fit of each estimated model to the data. A good model fit should yield a nonsignificant χ^2 value, but this test often does not provide a complete picture of model fit and other fit indices may be preferred. We evaluated fit indices according to Hu and Bentler (1999), who suggest that a CFI greater than .95 and an SRMR below .09 indicate acceptable model fit. When estimating interaction models involving latent variables, Mplus version 6 does not compute standardized estimates of model parameters or the most commonly used fit statistics (i.e., chi-square, CFI, RMSEA). Therefore, we provide Bayesian and loglikelihood values for both the main effects and interaction models for purposes of comparison.

After testing the model fit for the overall sample, we examined the generalizability of the model across child genders. Meaningful comparisons across ethnic groups were not possible with the current sample. Because the majority of the sample was African American (60%; $n=148$), other ethnic groups had insufficient representation for inclusion in multiple group models. As recommended by Cheung and Rensvold (2002), the change in the comparative fit index (CFI) was used to assess the significance of the difference between the multiple group “constrained” models, in which the two groups are assumed to have equivalent regression paths, and the multiple group “unconstrained” models, in which the groups are not assumed to have identical regression paths. According to Cheung and Rensvold (2002), CFI of .01 or greater indicates a significant difference between the two models. Because Mplus version 6 cannot perform multiple group analyses in models using interaction terms involving latent variables, no group comparisons were possible in the interaction model.

Preliminary Analyses

We examined attrition over the course of the intervention for the two conditions. Attrition was due to loss of families at follow up or a family's decision to drop out of the study. Thirty-six parents (30%) from the Center model and 33 (26%) from the Outreach model attrited from the study during the first year of intervention and an additional 14 (17%) and 11 (12%) families, respectively, attrited during the second year. The attrition rates were statistically equivalent between the two intervention conditions. Comparisons on the baseline characteristics were conducted using 2 (intervention) \times 2 (attrition) analyses of variance or chi-square tests. There was no significant interaction effect or main effects of intervention and attrition on initial CBCL-TRF Aggression score, child age, gender, female caretaker's age, single parent household status, income, and number of times moved in past year. Significant main effects of attrition were found on mother's education level (attrited

$M=10.6$, $SD=3.7$; retained $M=11.7$, $SD=3.2$; $F(1,216) = 5.3$, $p = .02$) and number of siblings living with child (attrited $M=2.7$, $SD=2.0$; retained $M=2.1$, $SD=1.7$; $F(1, 228) = 7.7$, $p = .01$).

Primary Analyses

We initially estimated a CFA to derive the latent construct variables and examine the fit of the three latent constructs (baseline Parental Well-Being and baseline and year 2 Parenting Efficacy) to the data. The Parenting Efficacy latent constructs at baseline and year 2 each included three indicators: 'parenting confidence', 'relationship frustration' and 'parental lack of control of child's behavior.' The Parental Well-Being latent construct also included three indicators: 'global symptoms', 'interpersonal support', and 'parental stress.' Except for a significant χ^2 value, the CFA proved to be an acceptable fit for the data: $\chi^2(36) = 603.45$, $p < .001$, CFI = .95, SRMR = .05). All indicators were significantly related to the latent variable to which they were assigned at $p < .001$. Baseline Parental Well-Being demonstrated strong positive associations with Parenting Efficacy at baseline ($r = .81$, $p < .001$) and year 2 ($r = .52$, $p < .001$). Parenting Efficacy at baseline was also strongly associated with year 2 parenting efficacy ($r = .72$, $p < .001$).

We next used a main effects path model to test for the contribution of baseline Parental Well-Being and intervention condition on year 2 Parenting Efficacy, while controlling for baseline levels of Parenting Efficacy (see Figure 1). The intervention condition variable was recoded to be a numeric, categorical variable (Center=1; Outreach=-1). Except for a significant χ^2 value, fit indices for this model were acceptable: $\chi^2(27) = 50.38$, $p < .001$, CFI = .96, SRMR = .05, Loglikelihood = -5349.02, Sample Adj. BIC = 10786.78. All indicators were significantly related to the latent variable to which they were assigned at $p < .001$. Parenting Efficacy at baseline was a strong significant predictor of the same construct measured at year 2 ($\beta = .86$; $p < .001$). Neither Parental Well-Being nor intervention condition contributed significantly to Parenting Efficacy at year 2. Multiple group analyses revealed no significant differences across child gender in those main effects.

We estimated the interaction model by adding an interaction term between the latent Parental Well-Being construct and intervention condition to the main effects model. Among available fit indices, the interaction model resulted in an improved fit when compared to the main effects model (Loglikelihood = -5345.24, Sample Adj. BIC = 10781.56). This interaction term contributed significantly to predicting Parenting Efficacy at year 2 (unstandardized $b = .21$, $SE = .09$, $p < .05$). Standardized parameter estimates are not available when estimating an interaction term involving a latent variable in Mplus version 6 (Muthén & Muthén, 1998–2010). Figure 2 illustrates the interaction effect, revealing that within the Outreach model, parents with lower levels of well-being reported at baseline appeared to show greater improvements in parenting efficacy than parents with higher levels of well-being. Within the Center model, parental well-being appeared to make little impact on parenting efficacy outcomes.

Because the Center and Outreach models produced differences in overall family participation (see Bloomquist et al., 2012), it is possible that some of the differential effects observed for the two delivery models could be explained more directly by differences in family participation rather than delivery model. We then estimated the main effect and

interaction models described previously, including minutes of participation in family programming as an additional covariate. In these models, participation did not contribute significantly to the prediction of Parenting Efficacy at year 2. Participation was also not reliably associated with baseline Parenting Efficacy or Parental Well-Being. Furthermore, this model retained all significant effects from the previous models. Because participation did not appear to contribute to the models, we decided to retain the previously described models without participation as a covariate.

We ran an additional set of models including only those participants ($n=199$) who received services without deviation from the manualized approach. This included all Outreach participants who received no Center-based services and Center participants who received no more than the two initial prescribed home visits to build engagement. All model results with this subsample were fully consistent with those utilizing the full sample.

Discussion

This study examined the role of parental well-being in moderating the effects of two different delivery models of the parent component of the Early Risers conduct problems prevention program on parenting efficacy. Findings were partially supportive of study hypotheses, suggesting that within the Outreach model, parents with low well-being made greater improvements in parenting efficacy at post-intervention than did parents with high levels of well-being, even when controlling for initial levels of reported parenting efficacy. In contrast, within the Center model, parental well-being did not predict parenting efficacy outcomes, with equivalent improvements resulting for parents with high or low levels of well-being. These results were consistent even when controlling for the differing levels of participation across the two delivery models. The findings extend previous research showing that parent-focused interventions can enhance parenting efficacy (O'Connor et al., 2012; Reedtz et al., 2011; Sofronoff & Farbotko, 2002) by demonstrating a moderating effect of parental well-being on model of delivery of parent-focused interventions.

The Outreach model appeared to yield the strongest outcomes for parents with lower levels of well-being as exhibited by high stress, mental health symptoms, and little social support. The individualized contact and the higher level of personalization of the services within the Outreach model may allow parents with low well-being to address their personal needs in a private and non-stigmatizing manner, leading to improvement in self-perceptions of parenting efficacy. No doubt practitioners delivering services via Outreach are able to gain a strong understanding of contextual factors affecting a family (e.g., limited financial resources, chaotic household environment, an unsafe neighborhood) and therefore will be ideally positioned to address them (see also Stormshak, Kaminski, & Goodman, 2002). For parents with lower levels of well-being, these contextual factors may have been particularly salient in their functioning and important to address in order to improve their parenting. Because of their strong response within the Outreach model, our findings are encouraging of efforts to further validate that this model is preferable for low well-being parents.

Interestingly, within the Outreach model, parents with stronger support networks, lower stress, and few mental health symptoms demonstrated more limited improvements in

parenting efficacy when compared to lower well-being parents. While the reasons for this finding are not fully clear, it may be that parents with stronger existing support networks and few mental health concerns found the more personalized and involved support offered by Outreach practitioners to be unnecessary or perhaps even overly intrusive. In contrast, the Center model appeared to be generally equally effective for different levels of parental well-being in enhancing self-perceptions of parenting efficacy. Because of their relatively poor response within the Outreach model, our findings are suggestive that the Center model may be preferable for parents with higher levels of well-being.

Past research has generally indicated that parents with low well-being tend to be less responsive to parent-focused interventions that target conduct problems (Reyno & McGrath, 2006). However, parental well-being did not predict differences in intervention response when averaged across both delivery models. Only when examined as a moderator of delivery model was parental well-being predictive of the extent of gains made in parenting efficacy. Notably, within the Outreach model, it was parents with lower rather than higher well-being who seemed to make the most significant gains in parenting efficacy. The comprehensive nature of the Early-Risers programming may have accounted for the different direction of this effect when compared to other parent-focused interventions. Because of the combination of parenting skills and support strategies within Early Risers, a broad array of services was available to each parent across both delivery models. Within the Outreach model, increased awareness of contextual factors influencing individual families may have allowed practitioners to provide an increasingly personalized model of both parenting skills and case management services. Parents with low well-being in the Outreach model may have better addressed personal and contextual barriers that allowed them to make more substantial gains in their parenting and associated efficacy when compared to parents with higher well-being.

Additional findings of interest emerged. When examined without moderators, the overall impact on parenting efficacy of the two delivery models was equivalent. Little research has directly examined the differential effects of these delivery models on parenting outcomes within the same population. When comparing child behavioral outcomes, a meta-analysis did not find an overall significant difference in effect sizes between individual and group-based delivery modes of parenting interventions (Serketich & Dumas, 1996). Supporting past research, parenting efficacy demonstrated a strong association with parental well-being (Halpern & McLean, 1997; Gondoli & Silverberg, 1997; O'Neil et al., 2009). Parents with low well-being also tended to lack confidence in their ability to parent their child and control their child's behavior. Furthermore, parenting efficacy at baseline was a strong predictor of subsequent parenting efficacy two years later. Parenting efficacy appears to demonstrate a high degree of stability in parents.

Parents with low well-being are often at higher risk for having children with conduct problems and may be less likely to respond positively to associated interventions (Dumas & Serketich, 1994; Reyno & McGrath, 2006; Webster-Stratton, 1989). Given this additional risk, it is critical to identify service approaches to best meet the needs of this population. However, little previous research has reliably indicated how to utilize parent well-being in clinical decision making. Our results help address this issue by encouraging further

investigation into the use of parental well-being as a tailoring variable in determining the optimal delivery model of intervention services. By examining parents' baseline levels of well-being, we may be able to tailor services so as to best meet parents' needs and increase their likelihood of success.

The identification of effective tailoring variables represents a significant step forward in the fields of prevention and intervention science (Collins et al., 2004). We could improve the relatively modest effect sizes of many interventions in the area of child conduct problems by better providing specific intervention approaches to the individuals most likely to respond to those approaches (Serketich & Dumas, 1996). Furthermore, tailoring interventions effectively will result in increased efficiency of delivery. For example, home-based delivery of intervention services is typically associated with an increased cost of delivery when compared to group-based delivery in a center or clinic. By selectively providing home-based services only to those individuals who are most likely to benefit, significant resource savings could result.

A few methodological limitations are important to note when considering our study findings. First, the data rely exclusively on parent self-report. Self-report is most relevant for the key constructs examined in our study (i.e., parental well-being, parenting efficacy), but relying exclusively on self-report may have inflated some the associations between these constructs due to the potential of shared measurement error. Second, while adherence to each program model generally fell within acceptable parameters, some overlap did occur in delivery context, particularly within the Center model where some additional home visits occurred to engage families. However, because all findings were consistent when including only those participants who received services within manualized parameters, we believe adherence deviations in delivery had minimal impact on the current findings. The occasional need for additional home-based outreach services may represent a limitation of a strict center-based model for families who are difficult to engage. Furthermore, substantial attrition marked our study in both conditions. Given the high risk and highly mobile nature of the population, this level of attrition is not entirely unexpected over a two-year preventive intervention (Prinz & Miller, 1994). While the use of full-information maximum likelihood (FIML) allowed for the use all available information from observed data, the substantial decrease in sample size at follow-up is a limitation of the current models. Some clustering was present in the data that we did not fully accounted for in the present analyses, including participation in group-based services. Because many of the groups had unstable membership due to rolling recruitment and variable attendance, identifying and controlling for this clustering was not possible.

It is important to note that we obtained the current findings in a diverse, urban, low-income sample. While youth in this population are generally at high risk for the development of conduct problems, it will be important to further evaluate the replicability of these findings in other types of populations. Furthermore, because of the relatively small representation of ethnic groups other than African Americans in the sample, we could not meaningfully examine the generalizability of our findings across ethnic groups.

We also note that the current findings are preliminary. Further study of the merits of tailoring interventions based on parental well-being is necessary before adopting this as practice. Continued work in several areas may better elucidate our findings and provide additional support for the use of well-being as a tailoring variable. First, our understanding of the mechanisms of the observed interaction effects between parental well-being and delivery model remains primarily speculative. Mediation analyses that examine change in well-being over the course of the intervention may better clarify its complex relationship with parenting efficacy. Furthermore, while we believe the focus on the proximal outcome of parenting efficacy was a strength of our study, future work may examine the impact of these processes on observed parenting and child behavioral outcomes. Finally, additional qualitative research would be helpful to better understand parents' experiences and satisfaction with different intervention models.

In conclusion, study findings underscore the value of an ideographic approach to analyzing intervention outcomes. Increased attention to individual characteristics that may predict response to different intervention approaches will allow the field to move beyond the dominant model of providing fixed programming for all participants. By continuing to identify reliable moderators of intervention response, it will be possible to tailor interventions to the unique needs and characteristics of each individual in order to maximize the positive impact of such efforts for children and their families.

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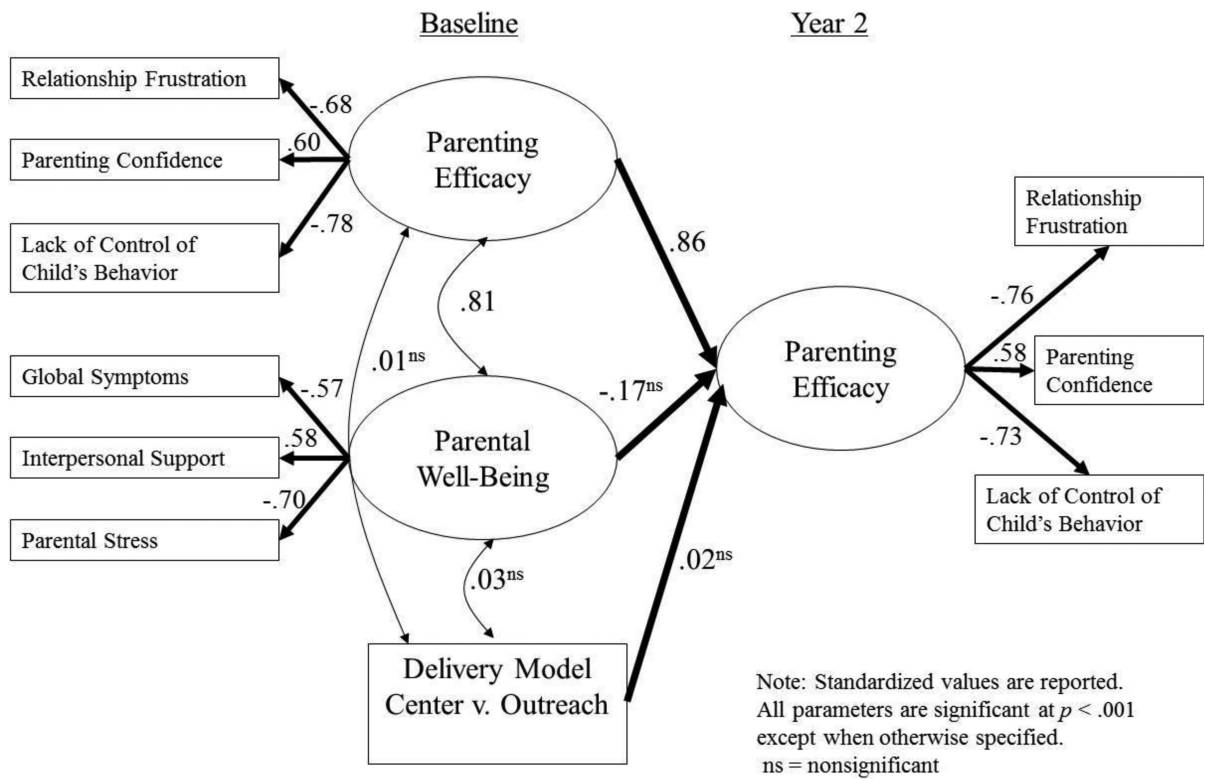


Figure 1. The main effects model of Parental Well-Being and intervention delivery model predicting year 2 Parenting Efficacy while controlling for baseline levels of Parenting Efficacy.

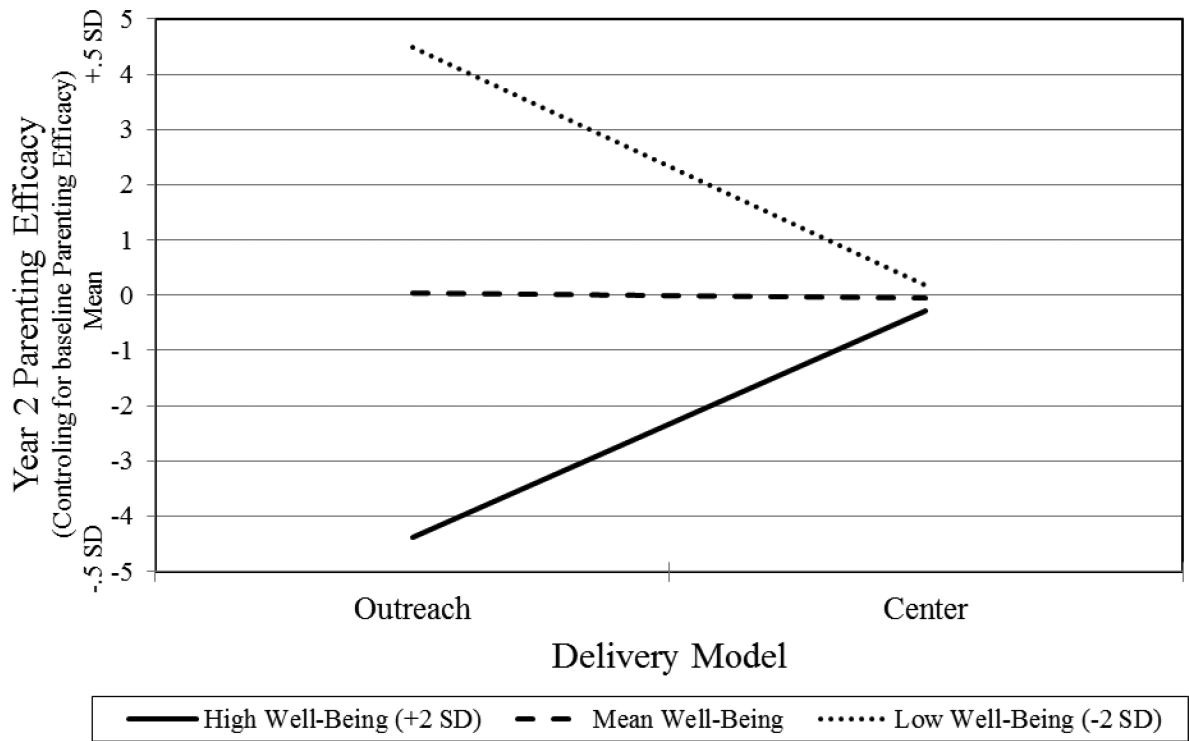


Figure 2. The interaction between intervention delivery model and baseline Parental Well-Being in predicting Parenting Efficacy at year 2 while controlling for baseline levels of Parenting Efficacy.

Table 1

Demographics and Baseline Characteristics for Center and Outreach Delivery Models

Variables	Center (<i>n</i> =121) <i>M</i> (<i>SD</i>) or %	Outreach (<i>n</i> =125) <i>M</i> (<i>SD</i>) or %	<i>t</i> or <i>z</i>	<i>p</i>
Mother/Family				
Maternal Age	32.24 (7.58)	33.18 (7.46)	0.92	.36
Single parent household (%)	42	40	0.11	.74
# of siblings living with child	2.22 (1.57)	2.45 (2.04)	0.94	.35
# moved in last year	0.62 (0.94)	0.70 (1.04)	0.64	.52
Annual income (%)			0.72	.70
\$20,000	63	64		
20,001–40,000	28	24		
> 40,000	9	12		
Maternal Education level (yrs)	11.60 (2.85)	10.93 (3.91)	1.45	.15
Child				
Age	6.63 (0.99)	6.76 (1.04)	0.96	.34
Gender (Male %)	58	62	0.36	.55
Race (%)			8.93	.18
African American	67	54		
Asian	4	11		
European American	6	10		
Hispanic	10	17		
Multiracial	9	6		
Native American	3	2		
Other minority groups	1	0		

Table 2

Descriptive Statistics and Correlations

	Parenting Efficacy-Baseline			Parental Well-Being- Baseline			Parenting Efficacy- Year 2		
	Relational Frustration	Parenting Confidence	Lack of Control	Global Symptoms	Interpersonal Support	Parental Stress	Relational Frustration	Parenting Confidence	Lack of Control
BL- Relat. Frustration	-								
BL- Parent. Confidence	-.39	-							
BL- Lack of Control	.55	-.45	-						
BL- Global Symptoms	.36	-.30	.32	-					
BL- Interspers. Support	-.24**	.34	-.23**	-.48	-				
BL- Parental Stress	.42	-.34	.52	.31	-.40	-			
Y2- Relat. Frustration	.69	-.34	.50	.28**	-.15 ^{ns}	.31	-		
Y2- Parent. Confidence	-.33	.52	-.24**	-.11 ^{ns}	-.14 ^{ns}	-.22*	-.47	-	
Y2- Lack of Control	.43	-.29	.64	.20*	-.06 ^{ns}	.37	.58	-.44	-
MEAN	6.92	17.86	21.07	47.54	2.24	36.04	7.48	17.72	21.56
SD	4.51	3.42	6.45	10.28	.50	7.77	4.87	3.69	7.19

Note. BL= Baseline, Y2= Year 2; All correlations are significant at $p < .001$ except when otherwise specified.

**
 $p < .01$.

*
 $p < .05$.

^{ns}
 $p > .05$.