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Validation of Parenting Your Baby and Parenting Your Toddler and Associations with Engagement in Parenting Intervention

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Abstract

Infants and toddlers are dependent on supportive and nurturing parenting to promote optimal child development. Assessments of parenting can identify need for parenting intervention, however measures are needed that can predict whether parents reporting challenges will engage in intervention. We validated the Parenting Your Baby (PYB) and Parenting Your Toddler (PYT) parenting measures and examined associations with engagement in parenting intervention. Participants included 403 primary caregivers and their newborns from a multisite longitudinal randomized control trial of the Smart Beginnings (SB) parenting intervention across two urban cities. Caregivers completed the PYB (6 months) and PYT (18 and 24 months) and other self-report measures of parenting and infant and toddler temperament and social-emotional functioning for validation. Observed parenting (6, 18, and 24 months) was coded from observed caregiver-child interactions. Engagement in ongoing intervention (SB) was recorded across infancy and toddlerhood. Factor structure was adequate for the PYB and strong for the PYT. Both measures demonstrated reliability and validity across concurrent and future self-report and observed measures of parenting and caregiver-reported infant and toddler functioning. Parent-reported desire for change in parenting scores on the PYT at 18 months were associated with engagement in parenting intervention 18 through 30 months. The PYB and PYT are reliable and valid measures of the parenting of young children, though more work is needed on the factor structure of the PYB. An important direction for future research is to understand and support engagement in parenting intervention for those who report desire for change but do not engage.

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Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Keywords

Parenting measures; Infant; Toddler; Parenting intervention; Engagement

Across the first two years of life, children are more dependent upon caregivers to meet their instrumental needs (e.g., food and protection) and provide nurturance, structure, and developmental guidance than in any other stages of childhood or adolescence. Such parenting behaviors are essential for promoting optimal child development (Fearon et al., 2010; Feldman, 2012; Groh et al., 2012; King et al., 2019; van IJzendoorn et al., 1995). There are numerous observational and self-report instruments for measuring early parenting that assess a wide range of behaviors across domains such as warmth, sensitivity, involvement, and specific discipline strategies (Fernald et al., 2010; Fowles & Horowitz, 2006; Pritchett et al., 2010). Here, we define “positive parenting with infants and toddlers,” as the behaviors exhibited by caregivers of young children that support positive child behavior and promote healthy parent-child relationships and child development. We consider positive parenting with infants and toddlers to comprise three domains: supporting and enjoying, planning ahead, and monitoring and limit setting. These domains are described in more detail in Fig. 1.

Two key gaps among self-report measures of parenting of *young* children, in particular, are their ability to assess 1) behavioral aspects of parenting addressed in prominent parenting interventions for young children rooted in social learning theory (e.g., Parent-Child Interaction Therapy, Family Check-Up, and Incredible Years) and 2) parents’ perceived desire to “do things differently” in their parenting (i.e., their desire for change). A measure designed to assess the behaviors targeted in interventions will improve our ability to assess parenting outcomes following intervention and provide effective treatment. Furthermore, gaining information about desire for change in parenting could be helpful in assessing parent motivation (e.g., Miller & Rollnick, 2013). Of clinical importance, understanding parent motivation could differentiate between parents who are more or less likely to accept referral to a parenting intervention and complete the intended number of sessions (i.e., engage). Thus, there is a need for validated self-reported measures of parenting that also measure parents’ desire for change in these same behaviors to improve our ability to deliver parenting interventions to families who are likely to engage and who may benefit from additional approaches to increase such likelihood of engagement (e.g., Ingoldsby, 2010). The Parenting Your Baby (PYB) and Parenting Your Toddler (PYT) self-report measures of parenting assess both parenting skills across the domains of positive behavior support (i.e., supporting and enjoying, planning ahead, and limit setting [PYT only]) and desire for change in parenting behavior within each domain using separate items. However, the PYB and PYT have not been empirically validated and the ability of the separate desire for change items to predict engagement in parenting intervention has not been established. In the present study, we address these gaps by validating the PYB and PYT and examining associations with engagement in parenting intervention.

Self-report measures of parenting have been used as screening tools based on their low cost and ease of administration. As such, an important use of self-reports of parenting

behavior identifying caregivers who may need intervention to improve parenting behavior and promote optimal child outcomes (Fowles & Horowitz, 2006). Additionally, responses on self-reports of parenting behavior are powerful tools for interventionists because they highlight areas of particular concern that are acknowledged by the caregiver and, thus, are apt targets for intervention. Although parents may acknowledge parenting difficulties on a questionnaire, they may not be aware of their need for improvement in those areas, which may partially explain why fewer than 30% of parents identified as in need of intervention actually engage (Girvin et al., 2007; Miller & Prinz, 2003). Not surprisingly, when parents can identify a need for change and are motivated to make changes, they are more likely to engage in parent-child intervention and perceive fewer barriers to engaging in intervention (Nock & Photos, 2006). Hence, in addition to providing information about parent's willingness to engage in an intervention noted above, such measures may also assist in the identification of parents who may require greater support in the referral process. Whereas many currently available measures of parenting behavior assess frequency of specific caregiving behaviors, they do not ask specifically about desire for change. Measures are needed that can assess both early parental functioning (i.e., within the first two years of life) and allow caregivers to indicate desire for change within different domains of parenting. Furthermore, an ideal measure would have high validity and reliability to accurately assess parenting behavior and its potential to be influenced by parenting interventions.

The PYB and PYT are adapted from the Parenting Young Children measure of parenting behavior for school-aged children (PARYC; McEachern et al., 2012), which was developed to assess domains of caregiving relevant to young children (i.e., Positive Behavior Support, Proactive Parenting, and Limit Setting) that are often targeted in parenting interventions rooted in social learning theory, such as the Family Check-Up (Shaw et al., 2006). The PARYC also includes separate items for parents to comment on whether they would like to make changes in specific areas of parenting (i.e., "desire for change" items). The impetus for including these "desire for change items" was to address the dearth of existing items in early childhood parenting measures that assess a parent's desire for change. The items are separate from the items assessing positive parenting and can be omitted if users are simply interested in assessing parenting. Caregiver-reported desire for change can be useful as a clinical tool for interventionists to provide a practical sense of the caregiver's current level of motivation to address their own parenting. For basic research studies about parenting, desire for change can also provide important information beyond frequency rates about a caregiver's satisfaction with their current level of positive behavior support for their child. Earlier work validating the PARYC reported that parents' perception of their own parenting behavior as problematic was associated with service utilization for the family. Although self-reported desire for change was not associated with service utilization, the authors noted that this null finding might have been attributable to assessing service utilization broadly (i.e., not just services related to parenting) and across the entire family. The degree to which desire for change is associated with engagement in parenting interventions more specifically is closely tied to the purpose of the PARYC, PYB, and PYT.

The Parenting Your Baby (PYB) and Parenting Your Toddler (PYT) self-reports were adapted from the PARYC to measure aspects of parenting behavior relevant to infants and toddlers, including planning ahead to meet their child's needs (proactive parenting)

and being able to provide support and enjoy their baby. PYT also includes items on limit setting, which becomes particularly important during the transition to the toddler period, a challenging time of increased autonomy and exploration and limited abilities for self-regulation (Shaw & Bell, 1993). However, unlike the PARYC, the PYB and PYT have not been previously validated.

Engagement in parenting intervention (i.e., receiving the intended number of sessions for the given intervention or the dosage associated with positive outcomes) is associated with positive outcomes for children and families (e.g., Dishion et al., 2008; Moore et al., 2012; Roby et al., 2021), yet engagement rates are low (e.g., Bower et al., 2020; Finan et al., 2018; Morawska & Sanders, 2006; Snell-Johns et al., 2004; Staudt, 2007). Having measures that assess desire for change and provide information about whether a family is likely to engage in intervention will facilitate identifying and reaching families who are likely to engage. Additionally, and perhaps more importantly, such information will also facilitate identifying families who, despite reporting parenting challenges, have low desire for change and may be less likely to engage in intervention (and thus may need greater supports in doing so). Thus, validating measures of parenting that also assess desire for change and identify families who are likely to engage (or not) in parenting intervention is a gap in the literature that is important to address to improve the reach and impact of parenting interventions and promote positive outcomes for children and families.

The Current Study

We examined the reliability and validity of the PYB and PYT self-report measures of early parenting behavior, and tested whether endorsement of the desire for change in parenting behavior is associated with engagement in a parenting program. Our sample included families participating in a randomized control trial of Smart Beginnings, which is a tiered intervention comprising a universal parenting program (Video Interaction Project [VIP; Mendlesohn et al., 2005]) offered to all families and a more intensive parenting program offered to selected families with elevated psychosocial risk (Family Check-Up [FCU; Shaw et al., 2006]). Across the sample as a whole, it was hypothesized that the PYB and PYT would 1) demonstrate adequate factor structure and internal consistency and good 2) test-retest reliability, 3) convergent validity with other measures of parenting behavior (e.g., sensitivity, responsivity, engagement, harsh discipline, cognitive stimulation) across method (i.e., self-report and observational data), and 4) predictive validity with measures of child social-emotional and cognitive development. Finally, we hypothesized that 5) higher scores on the separate parent-reported desire for change items would be associated with increased engagement in the Smart Beginnings parenting program.

Method

Participants

Participants included 403 primary caregivers and their newborn children from a longitudinal multisite randomized control trial (RCT) of the Smart Beginnings tiered intervention. Participants were enrolled using a two-phased consecutive sampling process. In New York City, 200 families were enrolled in the postpartum units of Bellevue Hospital Center (now

NYC Health+Hospitals/Bellevue) between June 2015 and February 2017. In Pittsburgh, 203 families were enrolled from the postpartum unit of UPMC Magee Women's Hospital and UPMC Children's Primary Care Center - Oakland (part of UPMC Children's Hospital of Pittsburgh) between June 2016 and October 2017. Inclusion criteria for children included: full-term, singleton delivery, normal birthweight without significant prenatal or perinatal medical complications, no need for Early Intervention, and plans to receive pediatric care at the primary care sites noted above. Inclusion criteria for parent/legal guardian included: plans to stay in the birth city for the next 3 years, primary language English or Spanish, no known significant impairment (e.g., intellectual disability, schizophrenia), baby discharge to mother, no plans to stay in a shelter, and no prior participation in the components of the Smart Beginnings intervention (i.e., VIP and FCU). Families were randomized to control (i.e., care as usual) or treatment group (VIP $n = 201$; Control $n = 202$) (see Fig. 2). Of the 403 families (50% female; 34.5% primiparous birth), 203 (50%) were recruited in Pittsburgh. This study was approved by the institutional review boards at the institutions where the data were collected.

There were site differences in race/ethnicity. In New York, primary caregivers self-identified as belonging to the following groups: Asian (3%), African-American (8%), White (2%), Latinx (84%), Other (3%). In Pittsburgh, primary caregivers self-identified as: Asian (0%), African-American (81%), White (12%), Latinx (3%), Other (3%). The distributions of race/ethnicity at the two sites were reflective of the clinics at which the samples were collected. Rates of marriage and cohabitation were much higher in the New York sample (81%) compared to the Pittsburgh sample (40%). Both samples were low-income. The mothers in the Pittsburgh sample were more likely to have graduated high school (84 vs. 56%) but the income-to-needs ratio was slightly higher in the New York sample (0.82) compared to the Pittsburgh sample (0.64). Overall (across both sites) participant retention in the larger research study (i.e., completion of assessments at each wave across the control and intervention groups) was high across the 6-, 18-, and 24-month assessments: 90%, 81%, and 82%, respectively.

Procedures

At enrollment parents were asked about family characteristics (e.g., race/ethnicity) and baseline measures were collected. Updated information about sociodemographic characteristics were assessed at each subsequent survey (i.e., income, family composition) at 6-, 18-, and 24-months. At the 6-month assessment the caregiver and child participated in video-taped parent-child activities that included: a 5-minute free play, followed by a toy, tickle, look task and a 6-min novel toy task. The 18- and 24-month assessments began by introducing toddlers to an assortment of age-appropriate toys and having them play for 10 min while caregivers completed sociodemographic questionnaires. Then, parents were asked to have their children put the toys in a basket (5 min), followed by a parent and child free-play session with a novel toy (5 min), and two teaching tasks (3 min each). After the observational activities were completed, the parent and an assessor completed the remainder of the questionnaires on the child's development and well-being, parent well-being, and parenting practices. Consent for the primary caregiver and their child to engage in the study was obtained from primary caregivers at each wave of data collection.

The Smart Beginnings (SB) parenting program (see ****BLINDED PUBLICATION**** for more about the SB program) integrates two evidence-based interventions to promote positive parenting skills and school readiness in low income families. The Video Interaction Project (VIP; Mendlesohn et al., 2005) component consisted of 14 individual sessions between birth and three years during which primary caregiver/s and infant met with a child development specialist at the time of routine well-child care visits. The Family Check-Up (FCU; Shaw et al., 2006; Dishion & Stormshak, 2007) component was offered at 6 and 18 months to caregivers in the intervention group who met psychosocial risk criteria. Participation in the interventions was strong. Seventy percent of treatment families attended at least 7 out of 10 VIP visits through 24 months. Sixty-five percent of FCU-eligible families completed at least one feedback session through 18 months.

Measures

Parenting Your Baby (PYB)—The PYB is a self-report measure of parenting behavior in two domains: Supporting and Enjoying your Baby (8 items) and Planning Ahead with your Baby (8 items). Items are rated on a scale from 1 (*not at all*) to 7 (*most of the time*) indicating the extent to which they engage in each item. Each domain concludes with a separate (i.e., not included in the domain scores) item assessing desire for change that states, “Thinking about the items above, would you like to do things differently in this area of parenting?” rated on a scale from 1 (*Really want to change*) to 7 (*Fine as is*). The desire for change items are optional and can be omitted with no negative impact on the validity and reliability of the specific factors of positive parenting. The PYB was adapted from the PARYC (designed for children 5 years and older) to measure parenting behavior of parents with infants ages 6 to 12 months. In the present study, PYB was administered at age 6 months. The desire for change items were reverse-scored such that higher values indicate a greater desire for change. Desire for change was assessed with the single item within each domain and as a total (average) desire for change score.

Parenting Your Toddler (PYT)—The PYT is a self-report measure of parenting behavior across three domains: Supporting and Enjoying your Toddler (7 items), Planning Ahead with your Toddler (7 items), and Limit Setting with you Toddler (7 items). Items are rated on a scale from 1 (*not at all*) to 7 (*most of the time*) indicating the extent to which they engage in each item. Each domain concludes with a separate (i.e., not included in the domain scores) item assessing desire for change that states, “Thinking about the items above, would you like to do things differently in this area of parenting?” rated on a scale from 1 (*Really want to change*) to 7 (*Fine as is*). As for the PYB, the desire for change items are optional and can be omitted with no negative impact on the validity and reliability of the larger measure. The PYT was adapted from the PARYC (designed for children 5 years and older) to measure parenting behavior of parents with toddlers ages 12 to 36 months.

In the present study, PYT was administered at child ages 18 and 24 months. The desire for change items were reverse-scored such that higher values indicate a greater desire for change. Desire for change was assessed with the single item within each domain and as a total (average) desire for change score.

Additional measures for validation purposes

Cognitive stimulation: Parenting behaviors to promote cognitive stimulation were assessed using the StimQ₂ (Dreyer et al., 1996; Mendelsohn et al., 2020), which is a structured interview that measures cognitive stimulation provided in the home by the primary caregiver. It has been validated in English and Spanish for low-income populations. The StimQ-Infant (StimQ-I) was administered at the 6-month assessment and the StimQ-Toddler (StimQ-T) was administered at 18- and 24-months. The StimQ-I and StimQ-T are structured similarly but contain different items tailored to the child's developmental status. Three subscales were administered: The Parent Verbal Responsivity (PVR) subscale measures verbal interactions; the Parental Involvement in Developmental Advance (PIDA) measures teaching activities; and the Reading Activities (READ) subscale asks about number of books and number of days that a primary caregiver reads to the child as well as quality of book reading (e.g., pointing to pictures, talking to child about feelings and emotions of characters in books). At 6-months we administered the PVR, PIDA, and READ subscales, at 18 months only the READ and PVR subscales were administered (due to time constraints in the protocol at this wave), and at 24 months the PVR, PIDA and READ were administered. However, at 24 months the Play and Pretend subdimension of the PVR was added after data collection had started at the ****BLINDED**** site. Thus, we used Hot Deck Imputation (Ford, 1983) to create item-level imputed values for these missing data. Cronbach's alpha in the current sample was 0.73 for StimQ-I, 0.70 for StimQ-T at 18-months, and 0.81 for StimQ-T at 24-months. Total and Subscale scores were calculated for each wave and used in analyses.

Harsh discipline: Parent-reported harsh discipline was assessed using the Socolar Harsh Discipline Scale (Socolar et al., 2004). The Socolar Harsh Discipline Scale inquires about the use of Corporal Punishment (2 items: slapping and spanking) and the caregiver's Negative Demeanor during discipline (3 items) for the last 3 months. An average score of the 5 items was calculated with higher scores indicating harsher discipline. In addition, a dichotomous variable (yes/no) was created to indicate if the primary caregiver had used corporal punishment. Cronbach's alpha in the current sample was 0.61 at the 18-month assessment and 0.70 at the 24-month assessment.

Parent responsiveness, acceptance, and involvement: The Home Observation for Measurement of the Environment (Infant/Toddler Version; IT-HOME; Bradley & Caldwell, 1984) is a comprehensive measurement of a child's home environment that comprises both caregiving report (via a semi-structured interview) and interviewer observations. Only observable items for the responsiveness (11 items at 6, 18, and 24 months), acceptance (5 items at age 6 and 24 months and 7 items at age 18 months), and involvement (2 items at age 6 and 24 months and 3 items at age 18 months) subscales were administered in the present study (versus those obtained through an interview). Each item is scored dichotomously as the presence or absence of each item based on assessor observations. Evidence of convergent and discriminant validity of the IT-HOME has been established (Bradley & Caldwell, 1984). Items for the responsiveness, acceptance, and involvement subscales were administered at 6, 18, and 24 months.

Observations of caregiver-child interaction: Quality of the caregiver-child interaction was measured using global ratings of the observational activities at ages 6, 18, and 24 months. Videos were coded by research assistants blinded to the study treatment using adaptations of the Parent-Child Interaction Rating Scales-Infant Adaptation (PCIRSI; Bosquet Enlow et al., 2014; Sosinsky et al., 2004) and the Early Parenting Coding System (Winslow & Shaw, 1995). Codes included mother ratings and dyadic ratings, with each item scored on a scale from 1 (Very low) - does not demonstrate the described behavior, to 7 (Very high). Mother ratings included five domains: 1) Sensitivity, characterized by interactions that are child-centered and guided by awareness of the child's needs, mood, interest, and capabilities, 2) Intrusiveness, characterized by interactions that are adult centered rather than child centered and are apparent when the caregiver does not allow the child an opportunity to respond at the child's pace, 3) Detachment, which captures displays when a caregiver seems emotionally uninvolved, disengaged, and unaware of the child's needs for interaction, 4) Positive regard for the child, which captures caregiver displays of warmth, acceptance and respect for the child, 5) Negative regard for the child, which captures the amount and intensity of negative affect towards the child. Dyad Ratings (Adopted from PCERA; Clark, 1999) included 3 domains: 1) Joint attention, which reflects how much the dyad is mutually engaged in the same event or activity, 2) Affective mutuality, which is displayed by dyads that are affectively in sync and seem to express positive and negative emotions freely and respond to each other's emotions in an effective, accepting, and appropriate manner, and 3) Mutual enjoyment, which reflects enthusiasm, joyfulness, and shared enjoyment within the dyad. Coding was completed by coders blind to intervention status. The team included two bachelor's level research assistants and three undergraduate research assistants, led by a PhD student with a master's degree. The coding team leader double-coded 15% of interactions to establish inter-rater reliability (IRR). Weighted kappas ranged from 0.53–0.85 at age 6 months and 0.69–0.93 at 18 months. IRR was not calculated for 24 months given the protocol was identical to 18 months.

Infant temperament: Infant temperament was assessed using the Infant Characteristics Questionnaire (ICQ; Bates et al., 1979). The ICQ is a widely used 24-item questionnaire of parental perceptions of multiple dimensions of infant temperament. The x-item difficultness subscale were administered in the present study, which assesses infant negative emotionality. Items are rated using a scale from 1 to 7 with question-specific responses (e.g., 1 [*very easy*], 4 [*about average*], 7 [*difficult*]). The difficult temperament subscale (6 items) has demonstrated acceptable reliability and validity (Bates et al., 1979). The difficult temperament items of the ICQ were administered at age 6 months ($\alpha = 0.59$).

Infant and toddler social-emotional functioning: The ITSEA is a parent-report assessing social-emotional and behavior problems or delays and social-emotional competence in young children. Items are rated regarding the child's behavior over the last month on a three-point scale from 0 (*not true/rarely*) to 2 (*very true/often*). Higher scores indicate more social-emotional or behavior problems or greater social-emotional competence, respectively. The ITSEA is a gold standard measure of social-emotional functioning in infancy and toddlerhood and has strong reliability and validity (Briggs-Gowan & Carter, 2007; Carter et al., 1999, 2003).

At 18 months, all items from the negative emotionality subscale (13 items) of the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter et al., 2003) was administered ($\alpha = 0.85$). At 24 months, all items from the ITSEA social-emotional competence scale (37 items) were administered ($\alpha = 0.87$).

Child language development: Child language development was assessed using the Communicative Development Inventory–short form (CDI; Fenson et al., 2000, 2007), which is a parent report of children’s productive vocabularies (i.e., expressive language). Parents respond by indicating which words or phrases in prespecified list their child understands and/or produces. The CDI has demonstrated acceptable reliability and validity in other studies. The total vocabulary score was used in the present study. The CDI is a widely-used tool and has previously demonstrated strong reliability and validity (Fenson et al., 2006).

Child behavior problems: At child ages 18 and 24 months, primary caregivers completed the Child Behavior Checklist (CBCL/1.5–5; Achenbach & Rescorla, 2000) CBCL/1.5–5 for ages 1.5–5. The CBCL/1.5–5 is a 99-item questionnaire that assesses behavioral problems in young children that demonstrates adequate reliability, stability, and discriminative, convergent, and predictive validities (Achenbach & Rescorla, 2001; Tan et al., 2007). The broad-band Externalizing factor (24 items; $\alpha = 0.89$ at 18 months and 0.90 at 24 months), which consists of attention problems and aggressive behavior, and the broad-band Internalizing factor (35 items; $\alpha = 0.84$ at 18 months and 0.87 at 24 months), which consists of the emotionally reactive, anxious/depressed, somatic complaints, and withdrawn scales, were used in the present study along with the total problems score (99 items; $\alpha = 0.93$ at 18 months and 0.95 at 24 months).

Engagement in smart beginnings—Engagement in the SB program was measured separately for VIP and FCU as not all families randomly assigned to the intervention group were offered FCU (i.e., based on presence of additional child or family risk factors). Caregivers were offered 9 VIP sessions between child age 6 and 30 months. Engagement in VIP was categorized into the total number of VIP sessions that caregivers completed following administration of the PYB and PTY measures at 6 and 18 months: Between 6 and 18 months (5 sessions) and between 21 and 30 months (4 sessions). Scores on the PYB domains at 6 months were used to predict engagement in VIP 6–18 months and 21–30 months. Scores on the PYT domains at 18 months were used to predict engagement in VIP 21–30 months.

Based on past research indicating that intervention effects for the FCU are linked more reliably to participating in the initial interview, assessment, and feedback sessions versus these three sessions and follow-up treatment sessions (Dishion et al., 2014), engagement was measured by participation in the feedback sessions at child ages 6-, 18-, and 30-months, coded dichotomously (1 = participated, 0 = did not participate) separately for each age.

Data Analysis Plan

The factor structure of the PYB and PYT were assessed using exploratory and confirmatory factor analysis. Model fit was evaluated based on established fit indices including chi-

square, root mean square error of approximation (RMSEA; Steiger, 1990) less than 0.05, comparative fit index (CFI; Bentler, 1990) and Tucker-Lewis index (TLI; Tucker & Lewis, 1973) 0.90 or greater, and standardized root mean square residual (SRMR; Bentler, 1995) less than 0.08. All factor analyses were completed in Mplus (version 7) with MLR estimation for missing data, a type of full information maximum likelihood estimation (FIML). Test-retest reliability, and convergent and predictive validity were assessed via partial correlations in SPSS (version 27) (adjusting for site and intervention status). Engagement in the Smart Beginnings parenting intervention was assessed via partial correlations in SPSS (version 27) (adjusting for site and intervention status).

Results

Exploratory and Confirmatory Analysis Testing

Parenting Your Baby—Items on the PYB measure (Supplementary Table 1) were examined descriptively ahead of exploratory and confirmatory factor analysis. Endorsement was high across items with means above 6.00 on the 7-point scale. On the Supporting and Enjoying your Baby domain ($M = 6.68$, $SD = 0.45$), 5 of 8 items (1, 3, 5, 6, and 7) had restricted range (4–7) on the 7-point scale. One item (16) on the Planning Ahead with your Baby domain ($M = 6.58$, $SD = 0.53$) also had 4–7 range across both samples. Based on this restricted range of variability for these items on the three scales, exploratory and confirmatory factor analysis models were run both with and without these restricted-range items to evaluate the effect of restricted range on the latent structure of the domains.

In exploratory factor models with all 16 items of the measure, the data suggested a 1-factor model. However, in confirmatory model testing, a 1-factor model demonstrated poor fit ($\chi^2 = [105] = 228.55$, $p < 0.001$, $RMSEA = 0.06$, $SRMR = 0.08$, $CFI = 0.76$, $TLI = 0.73$), with slightly improved fit for a 2-factor model ($\chi^2 = [103] = 206.43$, $p < 0.001$, $RMSEA = 0.05$, $SRMR = 0.06$, $CFI = 0.80$, $TLI = 0.77$), with items loading onto their respective Supporting and Enjoying your Baby and Planning Ahead with your Baby factors as expected. Internal consistency was acceptable for both factors (Supporting and Enjoying your Baby $\alpha = 0.67$, Planning Ahead with your Baby $\alpha = 0.66$).

In exploratory factor models excluding the six restricted range items (1, 3, 5, 6, 7, and 16), the data again suggested a 1-factor model. Confirmatory model testing revealed modest support for both the 2-factor model ($\chi^2 = [34] = 71.03$, $p < 0.001$, $RMSEA = 0.06$, $SRMR = 0.05$, $CFI = 0.85$, $TLI = 0.80$) with three items on the Supporting and Enjoying your Baby factor (2, 4, and 8) and seven items on the Planning Ahead with your Baby factor (10–15 and 17), and the 1-factor model ($\chi^2 = [34] = 51.03$, $p < 0.001$, $RMSEA = 0.05$, $SRMR = 0.05$, $CFI = 0.88$, $TLI = 0.84$). Internal consistency was low for the reduced Supporting and Enjoying your Baby factor ($\alpha = 0.47$), which is common for scales with few items, and acceptable for the reduced Planning Ahead with your Baby factor ($\alpha = 0.63$).

Primary analyses presented below were conducted with the original full item version of the PYB with 8 items on each factor. Based on results demonstrating poor fit of the confirmatory model for the full PYB measure and restricted range for several of the items,

we also provide results with an abridged revised version with restricted range items removed in the supplement (Supplementary Tables 3–6, available online).

Parenting Your Toddler—Items on the PYT measure at 18 and 24 months

(Supplementary Table 2) were examined descriptively ahead of conducting exploratory and confirmatory model testing. Average endorsement varied across items but was particularly high for the Supporting and Enjoying your Toddler items (18 months: $M = 6.20$, $SD = 0.81$, 24 months: $M = 6.18$, $SD = 0.82$) compared to items on the Planning Ahead with your Toddler domain (18 months: $M = 5.09$, $SD = 1.23$, 24 months: $M = 5.31$, $SD = 1.14$) and the Limit Setting with your Toddler domain (18 months: $M = 5.33$, $SD = 1.11$, 24 months: $M = 5.43$, $SD = 1.03$). Unlike with the PYB measure, there were no items on the 18- or 24-month PYT measures with restricted range across both samples. Thus, exploratory and confirmatory model testing proceeded with all items.

In exploratory factor models, the data suggested a 3-factor solution at ages 18- and 24-months, with items roughly mapping onto the expected Supporting and Enjoying your Toddler, Planning Ahead with your Toddler, and Limit Setting with your Toddler domains. In confirmatory model testing, the 3-factor model demonstrated good fit to the data at both 18- ($\chi^2 = [186] = 272.65$, $p < 0.001$, RMSEA = 0.04, SRMR = 0.05, CFI = 0.92, TLI = 0.91) and 24-months ($\chi^2 = [186] = 270.87$, $p < 0.001$, RMSEA = 0.04, SRMR = 0.05, CFI = 0.94, TLI = 0.93). At 18-months, internal consistency was good across all domains (Supporting and Enjoying your Toddler $\alpha = 0.73$; Planning Ahead with your Toddler $\alpha = 0.74$; Limit Setting with your Toddler $\alpha = 0.76$). Values were also good at 24-months (Supporting and Enjoying your Toddler $\alpha = 0.78$; Planning Ahead with your Toddler $\alpha = 0.78$; Limit Setting with your Toddler $\alpha = 0.78$).

Test-retest Reliability

The Supporting and Enjoying your Baby domain of the PYB at 6 months demonstrated strong test-retest reliability with the Supporting and Enjoying your Toddler domain at 18 and 24 months, as did the Planning Ahead with your Baby domain with the Planning Ahead with your Toddler domain at 18 and 24 months (Table 1). There was also adequate cross-domain test-retest reliability. Omitting the items on the PYB with restricted range resulted in slightly weaker test-retest reliability for the abridged version (Supplementary Table 3). The domains of the PYT at 18 months demonstrated strong test-retest reliability within and across domains on the PYT at 24 months.

Convergent Validity

The Supporting and Enjoying your Baby and Planning Ahead with your Baby domains of the PYB at 6 months demonstrated convergent validity with self-report (Table 2) and observational measures (Table 3) of parenting behavior at child age 6, 18, and 24 months, both concurrently and longitudinally. Slightly weaker associations with other measures of parenting were observed (Supplementary Table 4) and observations of parenting (Supplementary Table 5) for the abridged version of the PYB.

The Supporting and Enjoying your Toddler, Planning Ahead with your Toddler, and Limit Setting with your Toddler domains of the PYT at 18 months demonstrated convergent validity with self-report and observational measures of parenting at child age 18 and 24 months. The Supporting and Enjoying your Toddler, Planning Ahead with your Toddler, and Limit Setting with your Toddler domains of the PYT at 24 months demonstrated convergent validity with self-report measures of parenting at child age 24 months but weak convergent validity with observed parenting behavior at child age 24 months. The Supporting and Enjoying your Toddler and Planning Ahead with your Toddler 24-month domains demonstrated convergent validity with observations of maternal detachment, and dyadic affective mutuality (Supporting and Enjoying your Toddler only), and mutual enjoyment codes, whereas the Limit Setting with your Toddler 24-month domain was not associated with any aspects of parenting or parent-child dyadic behavior.

Predictive Validity

Higher scores on the Supporting and Enjoying your Baby and Planning Ahead with your Baby domains of the PYB were associated with lower scores on infant difficult temperament and higher total social-emotional problems at 6 months (Table 4). Higher scores on both the Supporting and Enjoying your Baby and Planning Ahead with your Baby were also associated with lower negative emotionality and internalizing problems, but not externalizing problems, and higher child conceptual vocabulary at 18 months. Finally, higher scores on the Supporting and Enjoying your Baby and Planning Ahead with your Baby domains of the PYB at 6 months were also associated with higher social-emotional competence at 24 months. Weaker associations with child social-emotional and cognitive outcomes were found for the abridged version of the PYB (Supplemental Table 6).

Maternal reports on the Supporting and Enjoying your Toddler, Planning Ahead with your Toddler, and Limit Setting with your Toddler domains of the PYT at 18 months were associated with lower negative emotionality and internalizing and externalizing behavior problems and higher vocabulary scores concurrently at 18 months, and negatively associated with internalizing and externalizing behavior problems and positively associated with vocabulary scores at 24 months. Additionally, higher scores across all three domains of the PYT at 18 months were also associated with higher social-emotional competence and vocabulary scores at 24 months.

Finally, higher scores on the Supporting and Enjoying your Toddler, Planning Ahead with your Toddler, and Limit Setting with your Toddler at 24 months were concurrently associated with lower internalizing and externalizing behavior problems and higher social-emotional competence and vocabulary scores at 24 months.

Predicting Engagement in Parenting Intervention

In addition to examining frequency of different parenting behaviors, we examined whether parents' endorsement of desire for change was associated with engagement in the VIP or FCU components of the Smart Beginnings tiered intervention program. Desire for change was measured using a single, separate item within each domain where the caregiver indicated whether they desired change in that domain (e.g., Planning Ahead). We also

examined average/overall desire for change across all the desire for change items at each wave.

Desire for change scores at 6 months of age in each domain and averaged across domains was not associated with number of VIP sessions 6 to 18 months or 18 to 24 months (Table 5). Conversely, average desire for change at 18 months was associated with greater number of VIP visits from 18 to 24 months. More specifically, desire for change in the domains of Supporting and Enjoying and Planning Ahead (but not Limit Setting) at 18 months were associated with greater number of VIP visits from 18 to 24 months.

Desire for change scores at 6 months of age averaged across domains and within the supporting and enjoying domain was not associated with engagement in FCU at 6 or 18 months (Table 5). Desire for change scores averaged across all three domains and within each domain at 18 months was associated with engagement in FCU at 18 months.

Discussion

Validated parent-reported measures of parenting that also measure desire for change in parenting could help identify caregivers who are both in need of intervention and also likely to engage in such interventions. Perhaps more importantly, such information could also help identify parents who may demonstrate concerns in their parenting but be *unlikely* to engage in interventions, thus requiring individually tailored approaches to facilitate engagement (e.g., use of motivational interviewing or other approaches to increase concern about their child's welfare). In the present study, we established acceptable reliability and validity of the Parenting Your Baby (PYB) and Parenting Your Toddler (PYT) self-report measures of parenting. Furthermore, we demonstrated that parent-reported desire for change in parenting during toddlerhood (on the PYT but not PYB) was associated with engagement in parenting interventions, particularly 18 through 30 months of age.

Evaluating the Psychometric Properties of the PYB and PYT

The PYB demonstrated acceptable test-retest reliability and convergent and predictive validity; however, there were some weaknesses in its factor structure and internal consistency. Specifically, there was restricted range across five items on the Supporting and Enjoying your Baby factor and with one item on the Planning Ahead factor. It may be that the behaviors depicted in these items (e.g., responding when baby cries, cuddling baby, knowing how to get baby to smile) are universally exhibited at high levels by all parents or that parents feel uncomfortable or embarrassed endorsing low levels of such positive and important behaviors. To better understand whether the items with restricted range were related to the psychometric properties of the measure, we examined the reliability and validity of the full item versus abridged versions of the Supporting and Enjoying and Planning Ahead factors, removing items with restricted range for the abridged version (available online in the supplement). Differences were observed more often between the full and abridged versions of the Supporting and Enjoying factor than the Planning Ahead factor, likely because the former lost 5 items to restricted range whereas the latter only lost one item. Thus, despite issues with restricted range on some items of the PYB, we recommend using all items on the PYB to assess self-reported parenting.

The factor structure for the PYT at 18 and 24 months was stronger relative to the PYB, with acceptable values for internal consistency and good statistical support for all three factors. Similar to the PYB, the PYT demonstrated strong test-retest reliability, convergent validity, and predictive validity. Higher (more positive) scores on both the PYB and PYT were associated with higher scores on self-reports and observations of positive aspects of parenting both concurrently and longitudinally. These findings suggest that the PYB and PYT can identify parents experiencing caregiving difficulties. Additionally, scores on the PYB and PYT had strong concurrent and longitudinal associations between the PYB and PYT and various indices of infant and toddler functioning and, thus, could also be used to identify very young children at risk for poor subsequent social-emotional and cognitive outcomes.

Predicting Engagement in Parenting Intervention

Beyond validating the PYB and PYT as measures of parenting, we were also interested in testing whether responses to the desire for change in parenting items would predict engagement in social learning theory-derived parenting interventions designed to support parents in making changes to their parenting. Scores on the desire for change items at 18 months (but not 6 months) were associated with concurrent engagement in two different parenting interventions: Family Check-Up (FCU) and Video Interaction Project (VIP). The lack of association between desire for change scores at 6 months and engagement in parenting interventions at 6 or 18 months may be due to the presence of a “honeymoon” phase in the parent–child relationship before the difficulties of toddlerhood surface. In fact, many parents have reported thoughts of “perfection” regarding their 3–4 month old children and parents of 12-month old children report more pleasure in parenting compared to parents of 18 month old (Fagot & Kavanagh, 1993; Leckman et al., 1999). It is well known that the increased mobility and autonomy seeking of toddlerhood coupled with under-developed language and emotional regulation abilities can create challenging behaviors for many parents to manage (Bridgett et al., 2009; Lieberman, 2018; Lipscomb et al., 2011; Partridge & Lerner, 2007; Shaw & Bell, 1993). The challenges of toddlerhood may more readily signal a need for support around parenting during the toddler years compared to mental health challenges during infancy. However, it could also be that we did not find associations between desire for change and engagement in intervention because the PYB does not adequately capture the challenges of parents of infants. More work is needed to understand whether desire for change in other domains outside of supporting and enjoying their baby and planning ahead with their baby are associated with increased engagement in parenting intervention.

It is also possible that challenges with parenting and within the parent–child relationship in the first year of life are more centrally located within the parent (e.g., postpartum depression) rather than the child and may not be as readily identified as “parenting” challenges in need of parenting intervention compared to challenging toddler behavior. Perinatal mental health, particularly depression, has long been associated with suboptimal parenting behavior in the first year of life (Albright & Tamis-LeMonda, 2002; Lovejoy et al., 2000; Paulson et al., 2006); however, parents may be less apt to recognize mental health challenges as parenting challenges. We did not measure prenatal mental health in the

present study and were under-powered to test the moderating effect of postpartum mental health on the relation between desire for change in parenting and engagement in a parenting intervention. More work is needed to better understand what motivates parents to engage in parenting interventions in the first year of life.

One important next step is to identify and better understand barriers to engagement for families who indicate desire for change in parenting but do not engage in parenting intervention. Understanding the barriers that prevent engagement in parenting interventions will be helpful in developing targeted tools and strategies to enhance engagement for such families. When thinking about the barriers to accessing parenting intervention, it is important to consider the roles providers and systems can play in facilitating engagement (Snell-Johns et al., 2004), to avoid placing the onus on families to be solely responsible for their engagement. Provider- and system-related variables that may be related to engagement include stigma around mental health and help-seeking (particularly for families of color), trust in mental health providers, and poor therapeutic alliance (Bower et al., 2020; Dempster et al., 2015; Staudt, 2007). Research is needed to further understand the role that these potential barriers play in family engagement and to better understand how researchers and intervention program leaders and providers can contribute to local and systemic changes that address justice, equity, and inclusion in relation to the communities that they aim to serve. Participatory action research and liberation psychology frameworks, among others, can help guide efforts to reduce stigma and address systemic racism (e.g., Minkler et al., 2018; Watkins & Shulman, 2008).

Potential family-related barriers include logistical issues such as lack of transportation or other factors related to accessibility (e.g., obtaining child care, especially for single-parent families), low social support and social isolation, and low motivation (Finan et al., 2018; Morawska & Sanders, 2006; Snell-Johns et al., 2004; Staudt, 2007; Winkworth et al., 2010). Home-based models, like the FCU, can address issues regarding transportation and childcare needs by providing intervention in the home. However, not all families are comfortable with in-home services and home visiting programs still experience challenges with parent engagement (Bower et al., 2020). This likely reflects the inconsistent evidence for any single factor in predicting parental engagement, and that engagement may be affected by more complex systems of inter-related factors (Finan et al., 2018). Importantly, health care settings, particularly pediatric primary care, offer opportunities to facilitate universal engagement in parenting interventions (Garner & Yogman, 2021; Roby et al., 2021)

Perhaps paradoxically, barriers to engagement could also include a lack of significant psychosocial stressors such that parents' level of distress is not great enough to motivate intervention despite indicating desire for change in parenting behavior (McCurdy & Daro, 2001). In fact, past work on engagement in FCU identified that caregivers with higher levels of distress, which included symptoms of depression, low parental satisfaction, and high parenting hassles, were more likely to engage in FCU than caregivers with low levels of distress (Smith et al., 2018). Similarly, attendance at VIP sessions is higher among caregivers with low parenting self-efficacy (Miller et al., 2019). Thus, it could be that parents who indicate desire for change in parenting but do not engage in parenting interventions are not at a level of distress that is sufficiently high to motivate

engagement. Such parents, despite indicating desire for change in parenting behavior, may not require more in-depth parenting interventions like FCU or even low to medium intensity interventions such as VIP, but may be more likely to engage in and benefit from even lighter-touch interventions such as texting programs or engagement with parenting/toddler groups at local community centers.

Limitations and Conclusion

Some limitations merit consideration, including a sample comprised of large percentages of Latinx and African American participants in two urban contexts in the Eastern United States. The demographics of the sample matched the demographics of the clinics from which the participants were drawn and are certainly in part a strength of the study. However, despite strong reliability and validity for both the PYB and PYT in this sample, it is important to note that further validation across different samples is needed, such as other racial/ethnic groups and rural communities. Future validation work is also needed to test measurement invariance and psychometric properties *across* racial and ethnic groups. Furthermore, as the current study utilized a longitudinal design, there was attrition across waves that may have limited statistical power and our ability to detect associations at later waves of data collection, however, attrition was fairly low (18% by 24 months). Finally, the PYB and PYT were administered as interviews for many participants at the ****Blinded**** site due to literacy challenges, which may have altered responses due to positive response biases (i.e., a desire to present oneself as a good parent). Future work is needed to explore whether there are differences in responses to the items on the PYB and PYT when administered as an interview compared to administration as a self-report. Relatedly, future work, such as cognitive interviewing, will be useful in exploring respondents' interpretation of the items and whether the items are assessing desire for change in parenting as intended.

In sum, the PYB and PYT represent reliable and valid self-report measures of parenting for infants and toddlers and can be used to identify parents and children at risk for poor parenting and child behavior outcomes. In addition, desire for change in parenting reported during toddlerhood was linked to engagement in parenting interventions and thus the measures could be used to identify those parents of toddlers more likely to engage in parenting interventions. More work is needed to better understand engagement in parenting interventions during infancy and barriers to engagement for those who report desire for change but do not engage in treatment. Such information will inform strategies to engage difficult-to-reach families.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Parenting Your Baby and Parenting You Toddler are adequately valid and reliable self-reports of the parenting of infants and toddlers.
- Parent-reported desire for change in parenting at 18 months predicted engagement in parenting intervention 18 to 30 months.
- Work is needed to support engagement in intervention for those who report desire for change in parenting but do not engage.

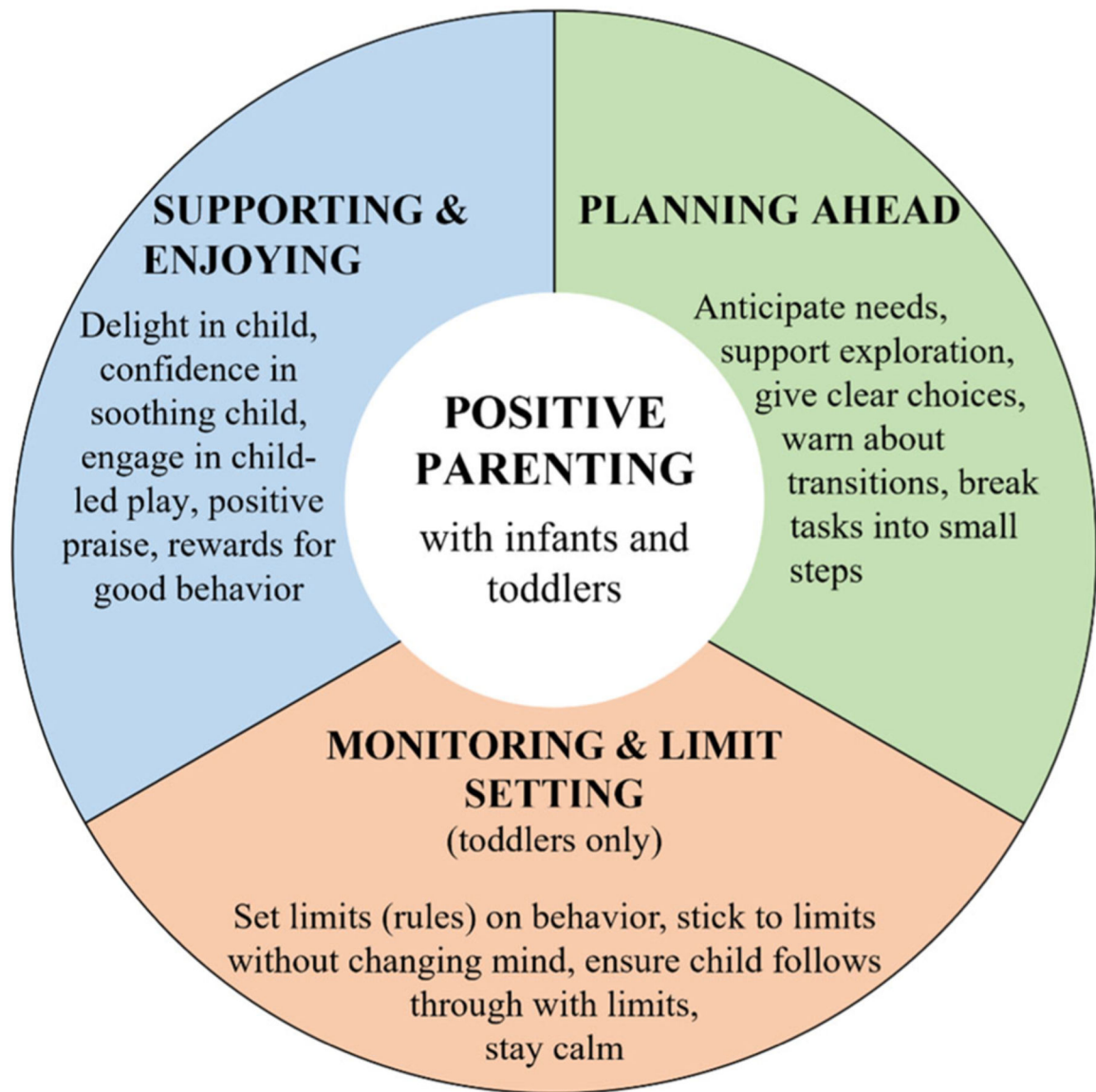


Fig. 1.
Parenting domains assessed by the Parenting Your Baby (PYB) and Parenting Your Toddler (PYT) parent-reports of positive parenting

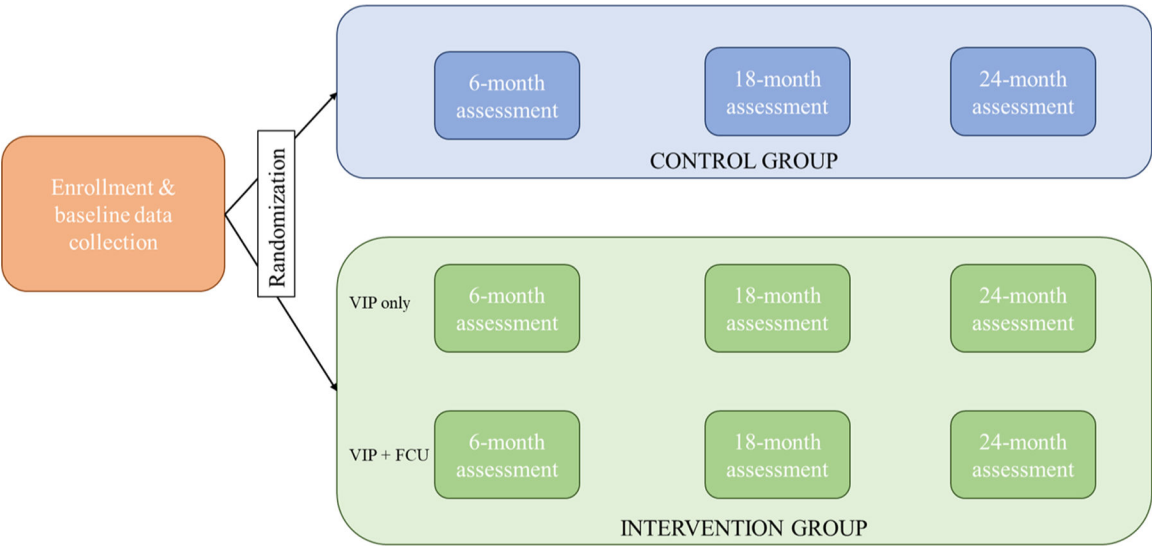


Fig. 2.
Study flow and timing of assessments

Table 1

Partial correlations between domains of the PYB and PYT

	SE-B	PA-B	SE-T	PA-T	LS-T	SE-T	PA-T
	6 months	6 months	18 months	18 months	18 months	24 months	24 months
SE-B 6 months	1						
PA-B 6 months	0.66***	1					
SE-T 18 months	0.37***	0.48***	1				
PA-T 18 months	0.26***	0.36***	0.53***	1			
LS-T 18-months	0.24***	0.35***	0.49***	0.62***	1		
SE-T 24 months	0.40***	0.43***	0.65***	0.44***	0.44***	1	
PA-T 24 months	0.26***	0.33***	0.43***	0.58***	0.48***	0.54***	1
LS-T 24 months	0.21***	0.30***	0.41***	0.44***	0.60***	0.53***	0.61***

Correlations are adjusted for site and intervention status

SE-B Supporting and Enjoying your Baby, PA-B Planning Ahead with your Baby, SE-T Supporting and Enjoying your Toddler, PA-T Planning Ahead with your Toddler, LS-T Limit Setting with your Toddler

p < 0.001

Table 2

Partial correlations between PYB and PYT domains and measures of parenting behavior

	SE-B	PA-B	SE-T	PA-T	LS-T	SE-T	PA-T	LS-T
	6 months	6 months	18 months	18 months	18 months	24 months	24 months	24 months
6 months								
Stim-Q-I READ	0.19**	0.24***						
Stim-Q-I PIDA	0.12†	0.19**						
Stim-Q-I PVR	0.24***	0.35***						
HOME Responsivity	0.29***	0.24***						
HOME Acceptance	0.06	0.07						
HOME Involvement	0.02	0.06						
18 months								
Stim-Q-T READ	0.16*	0.17**	0.39***	0.45***	0.32***			
Stim-Q-T PVR	0.27***	0.34***	0.48***	0.37***	0.35***			
Harsh Discipline	-0.18**	-0.18**	-0.28***	-0.16*	-0.24***			
HOME Responsivity	0.15*	0.23***	0.24***	0.23***	0.24***			
HOME Acceptance	-0.00	-0.00	0.01	0.04	0.06			
HOME Involvement	0.16*	0.15*	0.13*	0.17**	0.23***			
24 months								
Stim-Q-T READ	0.05	0.12†	0.32***	0.40***	0.41***	0.35***	0.35***	0.33***
Stim-Q-T PIDA	0.18**	0.18**	0.36***	0.32***	0.22***	0.30***	0.31***	0.19***
Stim-Q-T PVR	0.23***	0.32***	0.49***	0.34***	0.42***	0.44***	0.42***	0.39***
Harsh Discipline	-0.11†	-0.19**	-0.31***	-0.25***	-0.30***	-0.25***	-0.21***	-0.37***
HOME Responsivity	0.13*	0.16*	0.23***	0.24***	0.29***	0.18**	0.16**	0.17**
HOME Acceptance	0.00	0.00	0.09	0.09	0.10	0.05	0.01	0.01
HOME Involvement	0.06	0.13*	0.10	0.15*	0.22**	0.12*	0.02	0.12*

Values are adjusted for site and intervention status

SE-B Supporting and Enjoying your Baby, PA-B Planning Ahead with your Baby, SE-T Supporting and Enjoying your Toddler, PA-T Planning Ahead with your Toddler, LS-T Limit Setting with your Toddler, READ Reading Activities, PIDA Parental Involvement in Developmental Advance, PVR Parent Verbal Responsivity

100.0 > d ***
10.0 > d **
50.0 > d *
01.0 > d_j

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Table 3
Partial correlations between PYB and PYT domains and observed parenting behavior

	SE-B	PA-B	SE-T	PA-T	LS-T	SE-T	PA-T	LS-T
	6 months	6 months	18 months	18 months	18 months	24 months	24 months	24 months
6 months								
Sensitivity	0.16*	0.12 [†]						
Intrusiveness	-0.10	-0.06						
Detachment	-0.07	-0.06						
Positive regard	0.18**	0.16*						
Negative regard	-0.02	0.02						
Dyadic joint attention	0.16*	0.18***						
Dyadic affective mutuality	0.18***	0.19***						
Dyadic mutual enjoyment	0.20***	0.20***						
18 months								
Sensitivity	0.21***	0.18*	0.21***	0.27***	0.22***			
Intrusiveness	-0.20***	-0.13*	-0.10	-0.14*	-0.18*			
Detachment	0.04	0.01	-0.17*	-0.29***	-0.20***			
Positive regard	0.22***	0.22***	0.27***	0.26***	0.26***			
Negative regard	-0.06	-0.02	-0.01	-0.01	-0.06			
Dyadic joint attention	0.09	0.13*	0.19***	0.32***	0.22***			
Dyadic affective mutuality	0.15*	0.17*	0.20***	0.29***	0.19***			
Dyadic mutual enjoyment	0.05	-0.01	0.15*	0.12 [†]	0.00			
24 months								
Sensitivity	0.02	0.01	0.10	0.13*	0.13*	0.08	0.03	0.03
Intrusiveness	-0.07	-0.04	-0.02	-0.09	-0.09	-0.01	0.02	0.03
Detachment	-0.04	-0.10	-0.11 [†]	-0.15*	-0.10	-0.16*	-0.06	0.00
Positive regard	-0.02	0.05	0.13*	0.12 [†]	0.08	0.09	0.06	0.05
Negative regard	-0.03	-0.03	-0.06	0.02	-0.04	0.02	0.06	0.04
Dyadic joint attention	-0.05	-0.04	0.10	0.18***	0.12 [†]	0.08	0.02	0.02

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	SE-B 6 months	PA-B 6 months	SE-T 18 months	PA-T 18 months	LS-T 18 months	SE-T 24 months	PA-T 24 months	LS-T 24 months
Dyadic affective mutuality	0.05	0.05	0.15 *	0.13 *	0.10	0.13 *	0.09	0.06
Dyadic mutual enjoyment	0.09	0.04	0.10	0.04	0.05	0.13 *	0.12 *	0.04

Values are adjusted for site and intervention status

SE-B Supporting and Enjoying your Baby, PA-B Planning Ahead with your Baby, SE-T Supporting and Enjoying your Toddler, PA-T Planning Ahead with your Toddler, LS-T Limit Setting with your Toddler

† $p < 0.10$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 4
Partial correlations between PYB and PYT domains and infant and toddler social-emotional and cognitive outcomes

	SE-B	PA-B	SE-T	PA-T	LS-T	SE-T	PA-T	LS-T
6 months	6 months	6 months	18 months	18 months	18 months	24 months	24 months	24 months
6 months								
ICQ difficult temperament	-0.23***	-0.25***						
18 months								
ITSEA negative emotionality	-0.14*	-0.16*	-0.24***	-0.21**	-0.29***			
CBCL internalizing problems	-0.17**	-0.14*	-0.21**	-0.25***	-0.25***			
CBCL externalizing problems	-0.05	-0.08	-0.14*	-0.21**	-0.33***			
CBCL total problems	-0.11†	-0.11†	-0.19**	-0.26***	-0.33***			
CDI total vocabulary score	0.13*	0.12†	0.19**	0.13*	0.15*			
24 months								
ITSEA competence	0.29***	0.30***	0.41***	0.38***	0.44***	0.49***	0.49***	0.45***
CBCL internalizing problems	-0.08	-0.09	-0.22***	-0.23***	-0.24***	-0.23***	-0.21***	-0.20***
CBCL externalizing problems	-0.05	-0.08	-0.21***	-0.25***	-0.37***	-0.24***	-0.26***	-0.29***
CBCL total problems	-0.04	-0.07	-0.21***	-0.27***	-0.32***	-0.24***	-0.26***	-0.26***
CDI total vocabulary score	0.09	0.07	0.25***	0.29***	0.27***	0.32***	0.31***	0.20***

Values are adjusted for site and intervention status

SE-B Supporting and Enjoying your Baby, PA-B Planning Ahead with your Baby, SE-T Supporting and Enjoying your Toddler, PA-T Planning Ahead with your Toddler, LS-T Limit Setting with your Toddler, ICQ Infant Characteristics Questionnaire, ITSEA Infant-Toddler Social-Emotional Assessment, CBCL Child Behavior Checklist, CDI Communicative Development Inventory

† $p < 0.10$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 5

Partial correlations between the desire for change in parenting behavior items on the PYB and PYT and engagement in the components of the smart beginnings program

	Number of completed VIP visits		FCU feedback session completed (yes/no)	
	6–18 months	21–30 months	6 months	18 months
Average desire for change at 6 months	–0.05	0.07	–0.11	0.02
Supporting and enjoying	–0.03	0.02	–0.12	–0.03
Planning ahead	–0.05	0.10	–0.07	0.07
Average desire for change at 18 months		0.17*		0.29**
Supporting and enjoying		0.17*		0.21*
Planning ahead		0.16*		0.29**
Limit setting		0.10		0.21*

Values are partial correlations controlling for study site. Desire for change items were reverse-scored such that higher values indicate a greater desire for change

VIPVideo Interaction Project, FCUThe Family Check-up

* $p < 0.05$

** $p < 0.01$