

Validity of the Short Form of the Parenting Stress Index for Fathers of Toddlers

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Abstract We examined the psychometric properties of two scales of the parenting stress index-short form (PSI-SF) in a low-income sample of fathers of toddlers. The factor structure, reliability, and validity of the parental distress and parent-child dysfunctional interaction subscales were assessed for 696 fathers in a multi-site study of Early Head Start. Confirmatory factor analyses (CFA) compared the fit of the developer recommended two-factor scales with five-factor scales theoretically derived and supported with mothers. Our results suggested that two subscales from the PSI-SF were reliable and valid for this sample of racially diverse, low-income fathers of toddlers. However, these subscales capture multiple dimensions of parenting stress and results also supported the use of more narrowly defined aspects of parenting stress that included general distress, distress specifically related to parenting demands, problematic interactions of the father-toddler dyad, perceptions of the child, and parental perceptions of self as a parent. These unidimensional scales may prove

useful in research and clinical activities by allowing researchers to elucidate the mechanisms through which stress impacts parenting and permitting clinicians information to develop more targeted interventions for young children and their families.

Keywords Parenting stress · Fathers · Low-income families

One major dilemma facing researchers interested in studying fathering is the fact that the instruments available to measure parenting have largely been created, tested, and validated with samples of mothers (McBride 2002; Parke 2002). Although direct assessment of fathers has become commonplace, these assessments are still conducted using inventories that were psychometrically optimized for measuring parenting in women (Roggman 2002), raising questions about the accuracy of this practice for understanding fatherhood (Parke 2002). It is important for the scientific community to ensure that differences and similarities that are observed between mothers and fathers are genuine and not an artifact of applying instruments designed to measure mothering to fathering. We should, therefore, examine the psychometric properties of instruments used to assess parenting in fathers.

Because men and women almost certainly have qualitatively different parenting experiences and behaviors, the measures we use to quantify various constructs should be carefully examined. Indeed, differences in parenting behaviors between fathers and mothers have received great attention in the literature. In general, mothers spend more time with young children than do fathers (Lamb 1987). Mothers have also been shown to do more caregiving activities and fathers spend more time in social activities

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such as playing and affectionate physical contact with their children (Lamb 1987; Parke 1979; Shears and Robinson 2005; Thompson and Walker 1989). Not only are there differences in the amount of child play in which parents engage, but also in the quality of the play. Fathers' play is rougher, more tactile and physical, and less physically constraining than mothers (Horn 2000; Thompson and Walker 1989). Mothers tend to play with their children in a calmer, more verbal and educational manner and their play is more likely to involve toys or other objects (Horn 2000). Similarities between father's and mother's parenting include providing sensitive and nurturing infant care (Jain 1996; Lamb 1987). Fathers, like mothers, are responsive to infants and alter their speech by decreasing speed and increasing their pitch when speaking to an infant (Horn 2000; Parke 1979).

A key element that has been shown to influence fathering behaviors is the broader context within which parenting takes place. A review of the extant literature, suggests that fathering, more than mothering, is influenced by factors that are more distal to the immediate parent-child relationship, namely situations that occur within the family (i.e., family conflict and co-parenting relationship) and the greater parenting context (i.e., employment and financial opportunities) (Doherty et al. 1998). For example, the quality of the co-parenting relationship appears more salient for predicting the parenting behaviors of fathers than mothers (Belsky and Volling 1987; Parke 1996; Volling and Belsky 1991), moderates the relationship between parenting stress and parenting behavior for fathers but not for mothers (Deater-Deckard and Scarr 1996), and is a stronger predictor of parenting stress for fathers compared to mothers (Krauss 1993; Saloviita et al. 2003). Therefore, when compared to mothers, fathers' experience of parenting (behaviors and stress) varies more depending on the quality of their relationship to the child's mother and the broader environmental context.

Parenting stress is best characterized as a complex construct which represents a combination of parent, child, and family characteristics as they relate to the person's appraisal of his or her role as a parent (Abidin 1992). As established in the literature, parenting stress is one of many taxes to the psychological resources of parents, both men and women, which may disrupt the formation and maintenance of healthy parent-child relationships (Abidin 1992; Belsky 1984; Hillson and Kuiper 1994; Milner 1993). Although the mechanisms for the impacts of parenting stress on parenting behavior may be different for mothers and fathers (Almeida et al. 1999; Deater-Deckard and Scarr 1996), higher levels of parenting stress are related to less optimal parenting behaviors and higher rates of child maltreatment and abuse (Holden and Banez 1996).

Abidin (1992) developed a self-report questionnaire with thirteen subscales that measured both parent and child domains. These subscales work in combination to produce a comprehensive, multidimensional measure that collectively represents parenting stress (Reitman et al. 2002). However, it has become common in large research studies to narrow the operational definition to aspects of stress such as those found in the short form of the parenting stress index-short form (PSI-SF; Abidin 1995). In particular, two scales of the PSI-SF focus on the parent and the relationship of the parent-child dyad: parental distress (PD-SF) and parent-child dysfunctional interaction (PCDI-SF). Parental distress (PD-SF) is conceptualized to include a range of items intended to quantify the distress a parent experiences directly related to their role as a parent. Parent-child dysfunctional interaction (PCDI-SF) taps the parent's perception that the child did not meet his or her expectations and whether or not interactions with the child were emotionally reinforcing to the parent.

There are three voids in the existing literature that bring the use of the PSI-SF for low-income fathers into question. First, the norming sample of the parenting stress index (and the PSI-SF) was comprised of mothers who were Caucasian and married (Abidin 1992), which may limit generalizability (Lessenberry and Rehfeldt 2004); second, questions about the factor structure of the PSI-SF have been raised in applications to men as well as women; and finally, although the PSI-SF has been widely used with fathers (McBride et al. 2002), little work has validated the structure of PSI-SF with men. Four studies published to date examine the psychometric properties of the English language PSI-SF with mothers and/or fathers and, although based on diverse samples (upper-middle income mothers and fathers, ethnically diverse abusive mothers and fathers, low-income African American mothers, and low-income ethnically diverse mothers), each called the unidimensionality of the three factor conceptualization into question (Deater-Deckard and Scarr 1996; Haskett et al. 2006; Reitman et al. 2002; Whiteside-Mansell et al. 2007).

Two psychometric analyses of the PSI-SF included a sample of men. Both studies completed a confirmatory factor analysis (CFA) followed by additional exploratory methods (EFA); one utilized a sample of 589 married, upper-middle class mothers and fathers (Deater-Deckard and Scarr 1996) and one a sample of 185 abusive and non-abusive mothers and fathers from a range of socioeconomic and ethnic contexts (Haskett et al. 2006). Deater-Deckard and Scarr (1996) reported that the PSI-SF demonstrated factorial invariance (parenting stress was measured similarly across mothers and fathers) and found few differences between mothers and fathers in their reports of parenting stress. The three dimensions of the PSI-SF were not upheld, however and the authors reported discarding several items

from the scale and concluded that a single or a two-factor model for the PSI-SF provided a better solution than the three-factor model. In the more recently published study of the PSI-SF, Haskett et al. (2006) also failed to find support for the proposed three dimensions of the instrument. The authors completed an exploratory factor analysis and suggested that the instrument was better defined by two factors—personal distress and childrearing stress. Although the study included a sample of men, factorial invariance of mother and father PSI-SF responses was not reported.

The remaining two studies of psychometric properties of the PSI-SF utilize samples of low-income mothers. A confirmatory factor analysis completed by Reitman et al. (2002) used a sample of 196 low-income, African-American mothers and suggested that the original three-factor solution did not adequately describe the data. Reitman and colleagues explored models with one, two, and three dimensions; reported that not all items were needed; and concluded that the original three factor solution, despite fitting imperfectly, most closely approximated the data.

The final study of the structure of the PSI-SF, using a sample of 1,122 ethnically/racially diverse sample of low-income mothers, also demonstrated difficulties with the current conceptualization of the instrument (Whiteside-Mansell et al. 2007). This study, focused just on the parental distress (PD-SF) and parent–child dysfunctional interaction (PCDI-SF) subscales, confirmed the factor structure of the 12-item subscales; but also suggested more narrowly defined dimensions. The authors demonstrated that the 24 items of the PD-SF and the PCDI-SF subscales were more appropriately divided into five scales. The construct of PD-SF was found to contain two dimensions; (1) stress directly related to the strains and demands of parenting (parenting demands distress; PDD-5F), and (2) stress indirectly related to parenting (general distress; GD-5F). They further reported that the PCDI-SF scale was composed of two dimensions; (1) dyadic interactions included items that involved an interaction between the parent and the child’s behavior (dyadic interaction; DI-5F) and (2) the parents’ perception of the child in which the parent rated their child’s behavior compared to their perception of that of other children (perception of child; PC-5F).

Paralleling the work of Whiteside-Mansell et al. (2007), the purpose of this study is to examine of the underlying factor structure, reliability, and validity of two subscales of the PSI-SF—parental distress (PD-SF) and parent–child dysfunctional interaction (PCDI-SF) when used with low-income fathers of toddlers (aged 20–39 months). Given the limitations of past samples for generalizability to low-income fathers, we utilized data from a large sample of geographically and ethnically diverse low-income fathers.

Methods

Protocol

The father involvement with toddlers substudy (FITS) is a study of low-income fathers of children whose families were eligible for enrollment in Early Head Start. Early Head Start (EHS) is a two-generation program designed to provide high-quality child and family development services to low-income pregnant women and families with infants and toddlers. The FITS was conducted within an overall study of EHS impacts known as the EHS research and evaluation (EHSRE) project. EHSRE was a rigorous, experimental-design, multi-site study in which 3,001 eligible families with a child less than 1-year old were randomly assigned to receive usual community services either alone or in conjunction with EHS programming. Sites included in the EHSRE were competitively selected based on the strength of local research proposed, as well as to ensure inclusion of a diversity of participants (ethnic and environmental; rural and urban settings) and program service delivery models (Administration for Children and Families 2002).

The FITS included 12 of the 17 EHSRE research sites. In these sites, mothers were asked during the 24-month EHSRE interview about the child’s biological father and his involvement with the child. If the biological father did not live with the mother and child, mothers were asked about any man in the child’s life who was “like a father” to the child. At the end of the interview, researchers informed mothers about the father study. If mothers provided permission for researchers to interview the identified father or father figure who was most involved in the child’s life, they were also asked to help in setting up the interview. In all cases, mothers provided permission for researchers to contact the identified man, for the child to be present during the interview, and informed consent was attained from the identified father/father-figure. Institutional Review Board approval was attained at each of the 12 participating university research sites (for complete details of design and data collection for the FITS study see Boller et al. 2006).

Sample Description

We used data from fathers interviewed in English near the child’s second birthday ($M = 27$ months, $SD = 3$, range 20–39) assessment ($N = 696$). Most of the fathers were resident fathers; 420 were biological fathers and 117 were social fathers. For the resident fathers (biological and social), 74% had lived with the child since birth. The resident fathers who had not lived with the child from birth averaged 13 months in residence ($SD = 7$, range 1–29). The remaining fathers were non-resident biological ($n = 129$) and non-resident social fathers ($n = 30$), 63 and

45% of whom had lived with the child during his/her life, respectively. Most social fathers (80%) lived with the child and included related (adoptive father, grandfathers, uncle) and unrelated (mother's partner or friend) father-figures. Fathers were White (50%), African American (25%), Hispanic (15%), or of other racial/ethnic backgrounds (10%) and averaged 29 years of age ($SD = 8.3$; range 16–78). Thirty-eight percent had high school degrees or GED certificates and 43% reported a gross monthly income of less than \$1,000. Fathers reported having an average of two ($SD = 1.4$, range 0–11) biological children. Approximately half (50.6%) of the interviews were completed with fathers of children in the program group, the other half with fathers of children in the control group.

Measures

PSI Short Form (PSI-SF) The PSI-SF items represent three broadly defined latent constructs with 12 items each; parental distress (PD-SF), parent–child dysfunctional interaction (PCDI-SF), and difficult child (DC-SF). The difficult child subscale was not included in the FITS study because other more extensive assessments of child temperament and behavior were utilized. As the DC-SF scale was not collected as part of the FITS study, only the PD-SF (items 1–12) and PCDI-SF (items 13–24) were used for the current study. Items 1–23 are scored from 1 (strongly agree) to 5 (strongly disagree) with 3 (not sure) the midpoint. The response format for item 24 ranged from 1 to 5 (“I feel that I am a very good, a better than average, an average, a person who has some trouble being, and not a very good at being a parent”). With a normative sample of 800 subjects, Abidin (1995) reported Cronbach alpha reliability coefficients of 0.87 for parental distress, and 0.80 for parent–child dysfunctional interaction (test–retest: 0.85 for PD-SF and 0.68 for PCDI-SF). Using the current sample of low-income fathers, Cronbach's alpha coefficients were 0.76 and 0.71 for the PD-SF and PCDI-SF subscales.

These subscales of the PSI-SF used in the EHSRE differed from the published subscales in two ways: (1) there were minor wording changes for some items, and (2) the midpoint (not sure coded 3) on the response scale was not offered during administration. Wording changes, which were done in an effort to reduce the complexity of the language for study participants, were relatively minor but reversed the scale of two items and were found in a total of eight items (# 10, 12, 18, 19, and 20). For items 1–23 the participant was offered four possible responses (coded 1, 2, 4, and 5) that excluded the mid-point (not sure). In a small number of cases, participants reported they were not sure and the item was coded 3 (not sure). The exclusion of the neutral (not sure) response option was intended to avoid the

overuse of the neutral response and the developer of the instrument concurred with this alteration (Whiteside-Mansell et al. 2007).

Paternal Depression Depression was assessed using the center for epidemiological studies depression scale (CES-D). At 24-months fathers completed the CES-D 20-item form which measures symptoms of depression and, although it does not indicate a diagnosis of clinical depression, it discriminates between depressed patients and others (Ross et al. 1983). In this study, fathers were asked the number of days in the past week they had a particular symptom (e.g. poor appetite, restless sleep, loneliness, sadness, and lack of energy). Items were coded on a four-point scale ranging from rarely (0) to most days (3), with higher scores indicate more depression symptoms. Cronbach's coefficient alpha for 24 m father's CES-D was computed as 0.75.

Index of Discipline Severity (IDS) The IDS was developed by the EHSRE consortium to measure the parent's strategies for handling four different potential conflict situations with the child: (1) the child keeps playing with breakable things; (2) the child refuses to eat; (3) the child throws a temper tantrum in a public place; (4) the child hits the parent in anger (Administration for Children and Families 2002). Discipline severity measures the degree of harshness or discipline strategies reports, on a 1–5 scale with five indicative of parents who say they would use physical punishment and 1 indicative of parents who would use the mild disciplinary techniques such as time out or removing the child from the situation across each of the four hypothetical conflict situations.

Fathering Activities Included in the father interview were a series of 30 questions, rated on a scale from 1 (never) to 6 (several times a day), about the activities the fathers did with their children in the past month. These questions were grouped into one of four meaningful engagement activities: caregiving (8 items), social (9 items), cognitive play (5 items) and physical play (8 items). Example items from each of the activity groups include “How often did you help your child get dressed?”, “How often did you take your child to visit relatives?”, “How often did you read to your child?”, and “How often did you play chasing games with your child?”. Each of the four scales demonstrated good internal consistency, with alphas ranging from 0.77 to 0.86 (Shannon et al. 2002).

Results

Factor Structure and Unidimensionality

A 5-factor theoretical model, supported by the work of Whiteside-Mansell et al. (2007) with low-income women,

was fit to the data using confirmatory factor analyses (CFA). Table 1 shows the items in order of administration and the factor membership identified by item numbers of the PSI-SF. A non-zero factor loading (discussed below) indicates that the item was expected to contribute to the factor labeled at the top of each column. In the first two columns, the traditional 2-factor structure is shown (each scale comprises 12-items). The next five columns show the proposed 5-factor scales. The model contains latent constructs ranging from 1 to 7 items created by modeling the original 12-item scales as multidimensional. Parental distress is modeled as general distress (GD-5F; not distress directly related to parenting; 7 items) and parenting demands distress (PDD-5F; 5 items). Parent–child dysfunctional interaction is modeled as dyadic interaction (DI-5F; 6 items) and perception of the child (PC-5F; 5 items)

representing parental perceptions of characteristics of the child. Finally, the single item self-rating of parenting was modeled as a separate factor, parent self-rating (PSR-5F).

Mplus 3.12 (Muthen and Muthen 2003) was used for all CFA modeling using weighted least squares estimation (WLSMV) with missing data. WLS is appropriate for use with likert ratings and where serious violations of normality occur (Muthen and Kaplan 1985). In this case, analysis of the distribution of likert ratings indicated violations of normality (skewness > 2 and kurtosis > 4; Curran et al. 1996). When using Mplus WLS estimation with missing data, Mplus computes pairwise available-case covariances. In this study, about 8% of the cases were missing at least one item on the PSI-SF.

CFA model fit was assessed with a two-index strategy as recommended by Hu and Bentler (1999) using the root

Table 1 Standardized CFA factor loadings of the parenting stress index-short form and the proposed 5-factor model for fathers of children 28 months-of-age

Item	Original PSI-SF		Five-factor PSI construction				
	Parental distress (PD-SF)	Parent–child dys-functional interaction (PCDI-SF)	General distress (GD-5F)	Parenting demands distress (PDD-5F)	Parent self rating (PSR-5F)	Dyadic interaction (DI-5F)	Perception of child (PC-5F)
1 Can't handle things	0.55	–	0.57	–	–	–	–
2 Give up on life	0.50	–	–	0.55	–	–	–
3 Trapped by parenting	0.69	–	–	0.76	–	–	–
4 Can't do new things	0.60	–	–	0.66	–	–	–
5 Can't do thing I like	0.65	–	–	0.72	–	–	–
7 Things bother me	0.56	–	0.59	–	–	–	–
8 Problems with men ^a	0.60	–	–	0.65	–	–	–
9 Feel alone	0.69	–	0.72	–	–	–	–
10 Bad time at party ^a	0.65	–	0.68	–	–	–	–
11 Less interest in people ^a	0.64	–	0.67	–	–	–	–
12 Enjoy things less ^a	0.70	–	0.73	–	–	–	–
6 Unhappy w/purchase	0.56	–	0.58	–	–	–	–
13 Rarely makes me feel good	–	0.68	–	–	–	0.69	–
14 Child doesn't like	–	0.59	–	–	–	0.59	–
15 Smiles less at you	–	0.75	–	–	–	0.76	–
16 Not appreciated	–	0.68	–	–	–	0.69	–
17 Rarely giggles ^a	–	0.60	–	–	–	–	0.66
18 Learn slower ^a	–	0.65	–	–	–	–	0.82
19 Smiles less ^a	–	0.73	–	–	–	–	0.86
20 Does less ^a	–	0.77	–	–	–	–	0.53
21 New things hard	–	0.46	–	–	–	–	0.72
23 Expected closer	–	0.74	–	–	–	0.75	–
24 Bothers me—mean	–	0.38	–	–	–	0.38	–
22 Very good/not very good at being a parent	–	0.40	–	–	1.00	–	–

Note: “–” in cell indicates that the item was not hypothesized to load on the construct. Items are in order of administration (Item 6 was administered out of order compared to the standard PSI-SF). Items are referred to with abbreviated labels because of copyright restrictions. Item numbers refer to the item number of the PSI-SF

^a Minor modifications in wording were made to items 8, 10, 11, 12, 17, 18, 19, and 20

mean squared error of Approximation (RMSEA; Steiger 1990) and the comparative fit index (CFI; Bentler 1990). RMSEA values close to zero (<0.06) and CFI values above 0.90 (above 0.95 excellent) indicate that the data and model fit (Steiger 1990; Vandenberg and Lance 2000). To test the comparative fit of nested models, a significant chi-square difference test ($\Delta\chi^2$) or a change in the CFI larger than or equal to 0.01 indicates that the more general model fits substantially better than the nested alternative model (Cheung and Rensvold 2002).

The 2-factor PSI model fit the data only moderately well (RMSEA = 0.059, CFI = 0.895) and was significantly worse than the fit of the 5-factor PSI model (RMSEA = 0.049, CFI = 0.929, $\Delta\chi^2 = 83.00$, $p = 0.00$, $\Delta CFI = 0.034$). Table 1 shows the factor loadings for each model. All loadings were significantly greater than zero based on the *t*-values and modification indices were small. Table 2 shows the correlation coefficients among the parenting stress subscales. Parental distress and parent-child dysfunctional interaction were correlated ($r = 0.43$). The new scales created from each of the original 12-item factors were correlated. For example, the dimensions of parental distress were moderately correlated (e.g. general distress and parenting demands distress was correlated 0.50) as were the dimensions of parent-child dysfunctional interaction ($r = 0.38$). The single item of self report perception of parenting quality had consistently lower correlations with all other parenting stress dimensions (r ranging from 0.15 to 0.23).

Reliability

Table 2 shows the reliability coefficients for the subscales of the 2- and 5-factor models. Scale reliabilities for the

5-factor solution were lower than for the global PSI-SF scales for fathers in this sample. The newly constructed general distress (GD-5F) scale with 7 items had a Cronbach's coefficient alpha of 0.69, the parenting demands distress (PDD-5F) scale with 5 items had a Cronbach's coefficient alpha of 0.63, the dyadic interaction (DI-5F) scale with 6 items and had a Cronbach's coefficient alpha of 0.53, and the perception of child (PC-5F) scale with 5 items demonstrated a Cronbach's coefficient alpha of 0.55.

Two scales in the 5 factor model have internal consistency coefficients below 0.60: dyadic interaction (0.53) and perception of the child (0.55). Further examination indicated that the internal consistency of dyadic interaction would improve to 0.59 if the item describing the child as 'mean' were removed (#24). This item had previously been identified as having little contribution to the factor. The internal consistency of perception of the child is improved to 0.58 when item #21 is removed ('it takes a long time and it is very hard for child to get used to new things').

Concurrent Validity

Validity of the five factors of the PSI-SF was assessed by examining the relationship between those factors and concurrently assessed measures. For the low-income fathers in our study, the PSI scales are associated with depressive symptomatology as measured by the CES-D; the associations are strongest with the general distress (GD-5F) of the parent subscale (see Table 3) indicating that increased stress is associated with increased depressive symptomatology. The 5-factor PSI scales are related to the severity of discipline for fathers. In particular, discipline severity is related to stress that is specifically related to parenting (PDD-5F) and less optimal paternal reports of

Table 2 Descriptive statistics, reliability estimates, and correlations among scales for the parenting stress index-short form and the proposed 5-factor model for fathers of children 28 months-of-age

Factor	Original PSI-SF	Five-factor PSI construction					<i>M</i> ^a	SD	α
		Parental distress (PD-SF)	General distress (GD-5F)	Parenting demands distress (PDD-5F)	Parent self rating (PSR-5F)	Dyadic interaction (DI-5F)			
Original PSI-SF									
Parental distress (PD-SF)	1					12	22.3	7.6	.76
Parent-child dysfunction (PCDI-SF)	.43	1				12	17.0	4.8	.65
Five-factor PSI									
General distress (GD-5F)		1				7	12.7	5.0	.69
Parenting demands distress (PDD-5F)		.50	1			5	9.6	3.8	.73
Parent self rating (PSR-5F)		.23	.15	1		1	1.9	0.9	–
Dyadic interaction (DI-5F)		.36	.36	.22	1	6	8.6	3.1	.53
Perception of child (PC-5F)		.23	.20	.15	.38	5	6.4	2.3	.55

Note: ^a Higher scores indicate more stress; α = Cronbach's Alpha

Table 3 Correlations among scales for the parenting stress index-short form and the proposed 5-factor model for with validity constructs

Construct	Original PSI-SF		Five-Factor PSI Construction				
	Parental distress (PD-SF)	Parent–child dysfunction (PCDI-SF)	General distress (GD-5F)	Parenting demands distress (PDD-5F)	Parent self rating (PSR-5F)	Dyadic interaction (DI-5F)	Perception of child (PC-5F)
Paternal depressive symptoms	.48**	.28**	.53**	.27**	−.18**	.26**	.18**
Index of discipline severity	.09*	.08	.06	.09*	−.01	.10**	.02
Paternal caregiving behavior score	.04	−.06	.02	.05	.14**	−.02	−.05
Paternal social play score	−.09*	−.08	−.09*	−.06	.18**	−.02	−.06
Paternal cognitive play score	−.08*	−.19**	−.10*	−.03	.28**	−.11**	−.16**
Paternal physical play score	−.01	−.14**	−.04	.01	.15**	−.06	−.16**

$N = 646$; * $p \leq 0.05$, ** $p \leq 0.01$

father–child interaction (DI-5F). Both relationships suggest that increased stress is associated with increased severity of discipline.

Other findings supported the 5-factor PSI structure for fathers and related to differences demonstrated in self-reported fathering activities. There were four types of fathering behaviors assessed as a part of the interview: caregiving, social activities, cognitive play, and physical play. Caregiving, although unrelated to the original PSI scales, was related to the parent self rating scale (PSR-5F) indicating that fathers who reported more caregiving activities rated themselves as better parents. Fathers reporting more social activities with children also rated themselves as better parents (PSR-5F) and also reported lesser distress (GD-5F). Although fathers' level of cognitive play with child was related to the PD-SF scale, using the 5-factor solution results in somewhat different conclusions. Namely, paternal cognitive play with his child was related solely to general distress (GD-5F) of the parent and not to stress related to parenting demands (PDD-5F). Cognitive play was also found related to the dyadic interaction (DI-5F), perception of child (PC-5F), and parent self-rating (PSR-5F) scales. Physical play demonstrated similar relationships. Although significantly related to the original PCDI-SF, in the 5-factor model, paternal physical play was related to the parent self-rating (PSR-5F) and to the perception of the child's ability subscales (PC-5F), but not to father–child dyadic interaction (DI-5F).

Discussion

Our findings support the use of two scales of the PSI-SF developed by Abidin (1995) in a racially diverse sample of low-income fathers of toddlers. Paralleling analyses conducted by Whiteside-Mansell et al. (2007) with a racially diverse, low-income sample of mothers, our analyses evaluated the usefulness of proposed subscales that

represented more narrowly defined aspects of two broad domains of the parental distress and parent–child dysfunctional interaction scales. As was found in earlier examinations of the PSI-SF conducted with samples of mothers (Deater-Deckard and Scarr 1996; Haskett et al. 2006; Reitman et al. 2002; Whiteside-Mansell et al. 2007) our analyses demonstrated that the instrument was not unidimensional when utilized with fathers. Furthermore, our findings moderately support the theoretically ascribed subscales and structure that was demonstrated with low-income mothers (Whiteside-Mansell et al. 2007). The more narrowly defined subscales of the PD-SF and PCDI-SF were found to have moderate internal consistency and to correlate with validity constructs in patterns that suggest they provided a more focused assessment of the broader constructs.

The broad construct of parental distress (PD-SF) was found to contain two dimensions; those being directly related to the demands and stresses of parenting (parenting demands distress; PDD-5F) and those being indirectly related to parenting (general distress; GC-5F). Parenting demands distress included items that focused on the parents' perception of how parenting the child impacted their feelings and lives. For example, these items included parent report of problems with others caused by having the child or feelings of isolation as a result of being a parent. The general distress subscale included items that assessed a factor thought to be closer to general depressive symptoms, such as feeling overwhelmed and disinterested in other people, rather than distress specific to parenting.

The pattern of validity coefficients supported the usefulness of the sub dimensions of PD-SF scale for low-income fathers. Although paternal depressive symptomatology was related to each of the sub-dimensions of the PD-5F, it was the general distress of the parent (GD-5F), made up of items such as feeling alone and without friends, that was most related to depressive symptoms. Other support for the PDD-5F and GD-5F subscales of the PS-SF

comes from a closer examination of discipline severity. Examining the relationships between discipline and the 5-factor solution shows relationships between distress that is specific to the demands of parenting, such as feeling “trapped” by parenting responsibilities for example (PDD-5F), but not to general distress as described above.

The parent–child dysfunctional interaction (PCDI-SF) scale was found to be composed of three sub-dimensions; dyadic interaction (DI-5F), perception of child (PC-5F), and parent self-rating (PSR-5F). The dyadic interaction subscale included items that involved the parent’s perception of their interactions with their child, such as the parent feeling that their child did not smile at them or appreciate them. The perception of child items were related to the parents’ observations of the child. For example, items on this scale included observations on the frequency that the child smiled at other children. Although both of these sub-dimensions were supported with CFA, they demonstrated relatively low internal consistency reliability (0.53 and 0.55). Follow up analyses identified items that contribute little to the constructs. In studies of father stress of toddlers, it may be useful to exclude these items; however, because the PSI-SF is often used to compare parenting stress in mothers and fathers, retaining the items may serve useful. It is also important to note that the internal consistency reliability coefficients for the original PCDI-SF scale is lower for fathers than was demonstrated for mothers (as reported in Whiteside-Mansell et al. 2007) which may be an indication that the items in which parents rate expectations of their child relative to others may not function as well for men as for women. A full examination of measurement invariance between upper-income fathers and mothers was completed by Deater-Deckard and Scarr (1996), resulting in the elimination of items to achieve equivalent instruments across men and women, but this effort is needed to create comparable scales for those of lesser income. The final dimension contained within the PCDI-SF was the parent self-rating, which includes one item on the original PSI-SF. The multidimensional factor structure examined in our study (and by Whiteside-Mansell and collaborators with low-income mothers) modeled this item as a separate factor. Treating the item as a separate factor was supported by the fit of the CFA and the lack of indication from measure of local fit (i.e. no high modification fit indices suggested it fit with another subscale). This finding may have been impacted by the unique rating of this item compared to the other items. Regardless, it was difficult to justify the inclusion of the item with another proposed subscale for theoretical reasons and validity coefficients supported the rating item as useful.

Examples of support for the new sub-dimensions of the PCDI-SF can also be found when examining paternal discipline severity. Discipline severity, according to the

original PSI-SF scales, was found related to PD-SF, but not to dysfunctional interaction (PCDI-SF). However, a relationship between the PCDI-SF scale and discipline severity should be expected in that fathers who draw less pleasure from interactions with their children due to depression are known to be more hostile in discipline and interactions with their children (Crook et al. 1981). When examining the narrow subscales, the DI-5F items assess the parent’s satisfaction with their interactions with their child (e.g. “child rarely does things for you that make you feel good”) and higher scores on this scale is indeed related to more severe styles of discipline. In addition, examining the patterns of fathering behaviors provide support for the sub-dimensions of the PCDI-SF, with the self-rating being related to each of the fathering dimensions, and physical play specifically related to paternal perception of child scores, but not to dyadic interaction.

Our study is limited in that it only examined two of the PSI-SF scales. The two scales of the PSI-SF examined focus primarily on the distress of the parent and parental perceptions of the parent–child relationship. A second limitation of our study is that the PSI-SF was modified for the EHSRE and FITS studies. Wording changes, while relatively minor, could have impacted the psychometric examinations. However, preliminary analyses of the PSI-SF without modification in a large sample of mothers of preschool children suggest that the findings of this study are robust (Whiteside-Mansell et al. 2007).

Future studies of the psychometric properties of the PSI-SF with fathers could include an examination of the instrument across demographic and other characteristics that have been shown to impact parenting stress for men. For fathers more than mothers, parenting has been found to be more strongly impacted by the quality of their relationship with their partner (Deater-Deckard and Scarr 1996). This finding should be confirmed by examining the relation between fathers’ responses to items of the PSI-SF and their reported level of marital discord. Also, fathers tend to interact with their children differently than mothers, but when the father is the primary caregiver of a child, his parenting behaviors become more like that of a mother (Lamb 1987). Therefore, differences in the amount of time that men father may also warrant further psychometric study.

We demonstrated that two subscales from the parenting stress index-short form, parental distress and parent–child dysfunctional interaction, were reliable and valid for this sample of racially diverse, low-income fathers of toddlers. However, these subscales capture multiple dimensions of parenting stress. Our results supported the use of more narrowly defined aspects of parenting stress that included general distress, distress specifically related to parenting demands, problematic interactions of the father–toddler

dyad, perceptions of the child, and parental perceptions of self as a parent. These more narrowly defined subscales parallel those demonstrated with low-income mothers (Whiteside-Mansell et al. 2007).

These new scales may prove useful in research and clinical activities. It has been consistently demonstrated that stress is one of the principle taxes to optimal parenting (Abidin 1992; Belsky 1984; Hillson and Kuiper 1994; Milner 1993). However, some studies of social support, for instance, have shown that social support moderates the effects of parenting stress on discipline behaviors, warmth, sensitivity (Crnic et al. 1983; Rodgers 1998) and mother–child interaction (Crnic and Greenberg 1990), while other studies have failed to find this buffering effect. This leads some researchers to posit that social support functions differently in distinct stress conditions (Quittner et al. 1990). The ability to differentiate stress conditions, using these new scales could help clarify the mechanisms through which stress and protective factors impact parenting behaviors.

Using these scales allows more targeted screening of parents with the ability to differentiate parents who are experiencing general life stress from those struggling with stress related directly to their role as parents. These more precise measures would facilitate targeted interventions for young children and their families. For example, parents who have high scores on the dyadic interaction subscale which measures parent perception of difficulties in their relationship with their child may need an infant mental health intervention directed at improving child attachment and the parent–child relationship (Fitzgerald and Barton 2000). Parents who score highly on General Distress may need an intervention targeting stress management of broader contextual life events. Measuring more specific elements that contribute to parenting stress will not only permit researchers the ability to understand and predict the ways stress and coping interact with parenting behaviors, but will also assist in the development of more individually tailored interventions for parents and children.

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