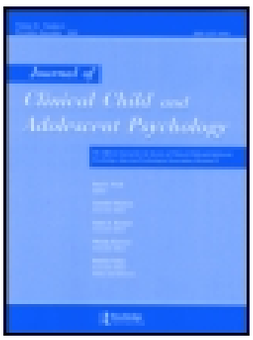

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A Critical Evaluation of the Parenting Stress Index–Short Form (PSI–SF) in a Head Start Population

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Examines psychometric characteristics of the 36-item Parenting Stress Index–Short Form (PSI–SF) in a low-income, predominantly minority population. Relations between the PSI–SF, demographic, and psychosocial factors associated with parenting stress were examined. Internal consistencies for the PSI–SF were very good to excellent. However, confirmatory factor analysis (CFA) indicated that a 3-factor model comprised of Parental Distress, Difficult Child, and Parent–Child Dysfunctional Interaction subscales was only marginally superior to a single-factor model. A series of multiple regression analyses examining the relation of psychosocial and demographic measures to PSI–SF subscales were more supportive of the 3-factor model proposed by Abidin (1995). As anticipated, the PSI–SF Difficult Child subscale was most strongly associated with a measure of child oppositionality, and the Parental Distress subscale was most highly associated with self-reported psychological symptoms and low income. Parent–Child Dysfunctional Interaction was associated with parent reports of psychological symptoms as well as low income and education. The results appear to support the use of the PSI–SF with lower socioeconomic, primarily African American mothers. Additionally, the data provide indirect support for the generalizability of a 3-factor model of parenting stress.

Psychological distress arising from parenting demands contributes to the development of dysfunctional parent–child relationships and constitutes a risk factor for both child and adult psychopathology (Abidin, 1995; Deater-Deckard, 1998). Nevertheless, conceptualization and measurement of the parenting stress construct present formidable challenges. For example, Webster-Stratton (1990) pointed to problems defining stress, noting that prominent research models seemed to conceptualize it differently. An increasingly complex and growing research literature suggests that proximal and distal, child, parent, and contextual variables all merit inclusion in contemporary parenting stress models (Ostberg & Hagekull, 2000; Patterson, Reid, & Dishion, 1992). However, greater theoretical complexity demands even more of research and clinical instruments designed to measure parenting stress (Abidin, 1992; Abidin, Jenkins, & McGaughey, 1992; Ostberg & Hagekull, 2000). To justify these theoretical models, it will be necessary to develop practical rating scales and observational techniques that can inform clinical practice.

The Parenting Stress Index (PSI; Abidin, 1995) was created to sample a diverse range of potential influences on parenting practices. The 120-item PSI is a Likert-type parent self-report questionnaire comprised of 54 parent-focused and 47 child-focused items. The Parent Domain is divided into seven subscales: Depression, Attachment, Role Restriction, Sense of Competence, Social Isolation, Relationship with Spouse, and Parental Health. The Child Domain is made up of six subscales: Adaptability, Acceptability, Demandingness, Mood, Distractability/Hyperactivity, and Reinforces Parent. Nineteen other items are devoted to general life stressors. Collectively, these 13 subscales represent Abidin's conceptualization of parenting stress. However, despite the comprehensiveness of the model, the PSI has been regarded by researchers and clinicians as too time consuming for screening purposes or when embedded in a larger battery of tests (Abidin, 1995). To address the need for a psychometrically sound but brief screening measure of parenting stress, Abidin developed the 36-item PSI–Short Form (PSI–SF).

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The PSI–SF was derived from a series of exploratory factor analyses of the full PSI (see Castaldi, 1990; Hauenstein, Scarr, & Abidin, 1987; Saft, 1990) and may be beneficial to researchers desiring a quick screen of parenting stress. One study of primarily Caucasian Head Start parents found that the internal consistency of the PSI–SF and its subscales was comparable to the full scale (Roggman, Moe, Hart, & Forthun, 1994). In addition, Abidin (1995) reported that Total Stress scores on the PSI correlated .94 with the PSI–SF total, the PSI Parent Domain correlated .92 with Parental Distress on the PSI–SF, and the PSI Child Domain correlated .87 with the Difficult Child subscale on the PSI–SF. Using items drawn from both the Child Domain and the Parent Domain of the PSI, a scale unique to the PSI–SF, Parent–Child Dysfunctional Interaction, yielded a .73 correlation with the Child Domain and .50 with the Parent Domain (Abidin, 1995).

Existing research suggests that the PSI–SF would perform similarly to the PSI. For example, an exploratory factor analysis of the PSI in a primarily minority sample produced a parent–child interaction factor comparable to that found in the PSI–SF (Hutcheson & Black, 1996). Other studies involving mothers of children with developmental disabilities (Innocenti, Huh, & Boyce, 1992) and a cross-cultural sample (Solis & Abidin, 1991) also support the robustness of the model. However, caution is warranted as the PSI–SF standardization sample described by Abidin (1995) was 88% married and 87% Caucasian. The PSI–SF has yet to undergo serious empirical scrutiny in a lower socioeconomic status (SES) or minority population.

This study sought to extend the existing parenting stress literature through an evaluation of the psychometric characteristics of the PSI–SF. Despite its potential utility, very little research on the PSI–SF has been conducted specifically with minorities, single parents, or parents of lower SES, and there are concerns about the applicability of the parenting stress literature to these populations (Deater-Deckard & Scarr, 1996; McLoyd, 1997; Okazaki & Sue, 1995). Though differences between African American and Caucasian populations should not be interpreted as "deficiencies" in African American parenting, important differences may nevertheless exist (Gorman & Balter, 1997). For example, whereas physical discipline appears to be related to behavioral problems in Caucasian samples, this finding was not replicated in a study involving African Americans (Deater-Deckard, Dodge, Bates, & Pettit, 1996). Further, among low-income African Americans, there are proportionally more single mothers, differences in the utilization of mental health care, and differences in the trajectory out of poverty that may mediate the impact of stressors on these families (Brooks-Gunn & Duncan, 1997; McLoyd, 1990; Randolph, 1995; Sue & Sue, 1999). Possibly, socioeconomic rather than ethnic differences pose the greatest threats to the psychometric integrity of the PSI–SF and other self-report instruments (Brody, Flor, & Gibson, 1999; Gutman & Eccles, 1999; Okazaki & Sue, 1995). Though these issues are not directly addressed here, evidence that the PSI–SF proved psychometrically sound in a lower SES, primarily African American sample would lend credence to earlier claims of its robustness as a research and clinical screening measure. Finally, child age might also influence ratings of parenting stress (Deater-Deckard & Scarr, 1996), so users of the PSI–SF should be cognizant of this variable when interpreting test data. Indeed, young children who enter poverty earlier and remain in poverty for greater lengths of time may be more negatively affected than those entering poverty later (Brooks-Gunn & Duncan, 1997).

Caveats regarding the standardization and use of the PSI–SF have both clinical and research significance, as the PSI–SF appears to enjoy considerable popularity. A PsycINFO search conducted by the first author produced over 40 citations since 1995. Notably, two studies employing the PSI–SF were conducted with low-income African American mothers of young children (Bhavnagri, 1999; Kelley, 1998). A third study utilized the PSI–SF with a large representative sample of mothers (Briggs-Gowan, Carter, Moye Skuban, & McCue Horwitz, 2001). Finally, a study in a pediatric setting utilized the PSI–SF as a concurrent validation measure (Kazak, Penati, Waibel, & Blackall, 1996). Interestingly, despite the fact that the two studies conducted with lower SES mothers diverged significantly from the composition of the PSI–SF standardization sample (e.g., Bhavnagri, 1999; Kelley, 1998), these studies did not report sample specific alpha reliability or in any way question the appropriateness of using the PSI–SF in these populations. In fact, most simply cited reliability data from the PSI–SF Professional Manual (Abidin, 1995) or stated that "the PSI–SF was widely used" (see Kazak et al., 1996), rather than appealing to peer-reviewed validation studies.

A final study concern relates to the statistical techniques used to develop the PSI–SF. The PSI–SF was developed using exploratory factor analytic procedures. Unfortunately, exploratory factor analysis has limited utility for instrument development and tends to be highly sensitive to sample characteristics (Gorsuch, 1983; Loehlin, 1998; Watson, Clark, & Harkness, 1994). By contrast, confirmatory factor analysis (CFA) turns the weaknesses of exploratory factor analysis into strengths by providing empirical tests of a theory-driven, a priori factor structure, as well as estimates of trait and method variance. Many exploratory factor analyses of the PSI have been performed (e.g., Castaldi, 1990; Hutcheson & Black, 1996). These analyses suggest a fairly robust three-factor composition labeled by developers as Parental Distress, Parent–Child Dysfunctional Interaction, and Difficult

Child. Whether fewer factors might adequately reproduce the correlation matrix has not been investigated, and the extent to which the reported three-factor solution reproduces the observed data in those samples has not been tested statistically (Loehlin, 1998). These questions are important for both psychometric understanding of the PSI and for informing its clinical use and interpretation. Whether the majority of the variance in the PSI–SF is equally well explained by a single, general distress factor, distress predicted by child problems, or factors specific to parenting apart from general distress remains unknown. Also unknown is whether any of these models possess incremental validity (Sechrest, 1963). If the PSI–SF can be shown to retain a favorable psychometric profile and demonstrate a pattern of relations with other measures that appears consistent with previous research in Caucasian populations, a stronger case can be made for the generalizability of existing data regarding parenting stress and child behavior problems.

We hypothesized that the PSI–SF and its subscales would demonstrate good internal consistency and satisfy criteria for goodness of fit derived from a CFA of the proposed factor structure (Bentler & Bonnett, 1980). We also expected that measures of parent psychopathology, demographic variables, and a measure of child behavior problems would exhibit statistically significant relations with the three PSI–SF factors. Specifically, it was hypothesized that measures of child behavior problems and parental psychopathology would be positively correlated and account for the greatest variance in the Difficult Child and Parental Distress factors of the PSI–SF, respectively. Following a study conducted by Brody and Flor (1998) linking demographic factors and problematic parent–child interactions to child competence, we anticipated a correspondence between the Parent–Child Dysfunctional Interaction scale and a diverse range of factors. Specifically, we anticipated that parent psychopathology and child behavior problems would be positively correlated with the Parent–Child Dysfunctional Interaction, whereas negative correlations were expected with income and educational achievement.

Method

Participants

Participants were 196 preschool children ages 3 to 5 years and their mothers, drawn from a Head Start program in the rural Southeast. Participants were recruited during a mandatory orientation meeting held at the beginning of the academic year. Almost all (85%) of the mothers enrolling in the Head Start program consented to participate. Mothers were not compensated for their participation but were offered the opportunity to obtain child behavior management training free of charge. The mean age of the mothers was 27.15 years (*SD* = 4.18), and the median family income was $7,242 per year. Table 1 shows additional demographic information for the sample. Of the original 196 mothers, 4 mothers did not complete the surveys or turned in an invalid protocol. Of the 192 active participants, valid response protocols varied by measure from 170 to 192.

Procedure

The PSI–SF, Conners' Parent Rating Scale–Revised: Long Form (CPRS–R:L; Conners, 1997), and Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) were administered in counterbalanced order to mothers at the intake meeting. Informed consent was obtained informally and in writing. Teachers, teacher's aides, and research assistants were available to the mothers to answer questions regarding individual items or to orally administer the measures to those mothers that could not read them. Demographic information was collected from the child's Head Start application form. Full oral administration occurred in only three instances, with requests for more informal assistance (e.g., queries about time frame for response or word meaning) more commonly encountered. A review of the subscale means for those completing the measures orally revealed that the results were generally within a standard deviation of those derived from independently completed protocols.

Measures

The demographic information form included data on race, sex, age, marital status, educational level, occupational status, and income. The complete PSI–SF,

Table 1. *Demographic Data for Head Start Mothers and Their Children*

Number of parent–child participants	192
Mean age of caretaker in years (*SD*)	27.15 (4.18)
Mother's highest educational level	
Grades 0–11	31.0%
Certificate of attendance	12.2%
High school or equivalent	36.6%
Some college	18.2%
College graduate or post-graduate	2.0%
Marital status	
Single (never married)	65.0%
Married	18.0%
Separated/widowed/divorced	15.0%
Median family income	$7,242
Mean age of Head Start child in years (*SD*)	4.14 (.48)
Cultural background	
African American	85.0%
Caucasian	15.0%
Sex of Head Start child	
Female	51.5%
Male	48.5%

CPRS–R:L, and BSI were also administered and are described in the following.

PSI–SF (Abidin, 1995). The PSI–SF is a 36-item questionnaire designed to measure stress in the parent–child system and identify those families most in need of follow-up services. The PSI–SF consists of three subscales: Parental Distress, Parent–Child Dysfunctional Interaction, and Difficult Child. Each subscale consists of 12 items rated from 1 (*strongly disagree*) to 5 (*strongly agree*). Subscale scores therefore range from 12 to 60, whereas the total score ranges from 36 to 180. High scores on the subscales and PSI–SF total score indicate greater levels of stress. The Parental Distress subscale reflects a parent's perception of child-rearing competence, conflict with his or her spouse or partner, social support, and stresses associated with the restrictions placed on other life roles. The Parent–Child Dysfunctional Interaction subscale assesses a parent's perception that the child does not meet expectations and that interactions with the child are not reinforcing. The Difficult Child subscale surveys the parent's view of the child's temperament, defiance, noncompliance, and demandingness.

CPRS–R:L (Conners, 1997). The CPRS–R:L comprises 80 items that are subdivided into 14 subscales and assesses both internalizing and externalizing problems in children between ages 3 and 17. Individual items are rated on a scale from 0 (*not true at all*) to 3 (*very much true*). All subscales have moderate to very good internal consistency, ranging from .75 to .90, good test–retest reliability, from .60 to .90, and established validity with well-constructed and representative normative samples. Although many subscale scores were available for analyses, we used the 10-item Oppositional subscale as an index of problem behavior. Oppositional behavior has been identified as an important early predictor of later behavior problems (Campbell, Shaw, & Gilliom, 2000; Patterson et al., 1992; Yoshikawa, 1994). Additionally, the Oppositional scale is highly correlated with other externalizing scales and was intended to serve as a concurrent validity measure for the PSI–SF Difficult Child subscale. The Oppositional subscale had an internal consistency of .89 in this sample.

BSI (Derogatis & Melisaratos, 1983). The BSI is a 53-item self-report of psychological symptoms and the amount of discomfort the individual has caused in the past month. Items are rated on 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). The total score (also known as the Global Severity Index) was used here and therefore ranges from 0 to 212. Higher scores indicate greater levels of psychological problems, albeit without regard to distinctions among anxiety, mood, or aggressive or other problems. Both test–retest and internal consistency reliabilities are good for the primary symptom dimensions of the BSI. Mothers' scores on the BSI were compared to adult female, nonpatient norms ($N = 480$; 85% Caucasian and 60% married). The BSI served as a concurrent validity indicator for the PSI–SF Parental Distress scale and yielded a coefficient alpha of .95.

Results

Means, standard deviations, ranges, and standardized scores (e.g., percentiles or *T* scores) for the PSI–SF, CPRS–R:L, and BSI are presented in Table 2. Mothers' reports of psychological symptomology (BSI), parenting stress (PSI–SF), and reported frequencies of child behavior problems (CPRS–R:L, Oppositional subscale) were within a standard deviation of the normative range for these measures (Abidin, 1995; Conners, 1997; Derogatis & Melisaratos, 1983), suggesting that mothers in this Head Start sample were

Table 2. *Means and Standard Deviations for Measures of Parenting Stress, Child Behavior Problems, and Psychiatric Symptoms*

	Scale			
	M	*SD*	Range	Standardized Score[a]
PSI–SF total	73.44	25.56	41–179	60
Parental distress	24.67	9.13	14–59	50
Dysfunctional interaction	22.22	8.90	13–60	65
Difficult child	26.61	9.69	14–58	60
Conners' Parent Rating Scale				
Oppositional: Boys	6.58	5.60	0–29	50
Oppositional: Girls	5.01	4.43	0–19	50
Brief Symptom Inventory (GSI)	21.53	6.48	2–212	57

Note: PSI–SF = Parenting Stress Index–Short Form; GSI = Global Severity Index; Sample *n*s: PSI–SF = 192, Conners Parent Rating Scale = 189, Brief Symptom Inventory = 192.

[a]Scores for the PSI–SF are percentiles; scores for the Conners' Parent Rating Scale and Brief Symptom Inventory are *T* scores. *T* scores and percentiles for all instruments are derived from scoring profiles or normative tables most appropriate reference group. Conners' Parent Rating Scale norms for boys and girls were employed as appropriate. Maternal GSI scores were compared to a nonpatient, women's sample. PSI–SF norms do not appear in the PSI Manual (Abidin, 1995) but were derived from the scoring profile sheet included with the PSI–SF.

very representative in terms of self-reported stress, endorsement of psychological problems, and ratings of their children's behavior. Additionally, Cronbach's α was calculated for each subscale and the Total Stress score to estimate internal consistency. The following internal consistencies were obtained: Parental Distress, .88; Parent–Child Dysfunctional Interaction, .88; Difficult Child, .89; and Total Stress, .95.

To begin a critical examination of the PSI–SF, several sets of analyses were undertaken. A CFA using M*plus* software (Muthén & Muthén, 1998) assessed whether the generally reported three-factor solution adequately reproduced the observed data in our sample. Following this analysis, we evaluated whether a two-factor solution (Parental Distress and Difficult Child) would adequately reproduce the data. This model was constructed by fixing the covariance between Factor 2 (Parent–Child Dysfunctional Interaction) and Factor 3 (Difficult Child) to 1, thus making it a single factor with the indicators as the items from each of those subscales. Conducting the analysis in this fashion has the additional advantage of making it nested within the three-factor model and the model comparison amenable to statistical testing by the hierarchical chi-square test. Finally, we tested whether a one-factor model (general distress) with all 36 items as its indicators would adequately reproduce the observed data. Again, the single-factor model is nested within the three-factor model by fixing covariances between factors, and the model comparisons can be examined statistically. To more easily compare models, they are reported in descending order of degrees of freedom (see Table 3).

The nested model comparisons reported in Table 3 yielded mixed results. All models provide indications of approximately the same fit to the observed data. However, none demonstrate a fit close enough to indicate that any of these are the "correct" model. First, all the chi-square goodness-of-fit tests are significant, indicating that the residual variation in the observed data differs significantly from that predicted by the model. That is, by the chi-square indicator, none of these models explain the systematic variation satisfactorily. The chi-square test, however, is often significant even for otherwise apparently good-fitting models. As a result, alternative tests of fit have been developed that may be less sensitive to sample size and degrees of freedom (Bentler & Bonnett, 1980). One such test, the comparative fit index, ranges from 0 to 1, with 0 indicating no systematic fit to the data and 1 indicating perfect fit. Generally, a fit of .90 to .95 is considered "good," and .95 and greater is considered "excellent." By the comparative fit index, all these models fit the data equally and adequately.

The third model fit index, the root mean squared error of approximation (RMSEA) gives a value of 0 for perfect fit, with values of .05 or less considered close fit to the data, values of .08 considered reasonable error of approximation (or "good" fit), and values of .10 or greater considered unacceptable (Browne & Cudek, 1993). By RMSEA, all three models provide about the same fit to the data. It should be noted that a desirable property of the RMSEA is that it allows the computation of confidence intervals about the estimate. It is interesting to note that with all three models the upper interval of the 90% confidence interval is below .08 and that the lower limit is greater than .05. This allows rejection of the hypothesis that the fit of the model in the population is poor (i.e., >.10) for all models (Loehlin, 1998). The lower limit, however, indicates that the hypothesis of close fit in the population is rejected.

The chi-square difference test indicates limited improvement of the two-factor model over the one-factor model and the three-factor model over the two-factor model. Although the two- and three-factor models showed some improvement over the one-factor model, none of these models appear to provide a close fit to the data. Moreover, because the collective fit indicators (comparative fit index, RMSEA, chi-square) suggest that all three models have essentially the same fit to the data, the most parsimonious interpretation is that a single factor model describes the data as well as two- or three-factor models. Finally, although the one-factor model has a slight preference on statistical grounds, a three-factor model may still be more useful clinically. To further examine support for the three-factor model, we conducted regression analyses examining concurrent validity.

Concurrent validation is established when a test score and criterion measures collected at the same time are found to be related (Campbell & Fiske, 1959). PSI–SF subscales were included in a series of multiple regressions to examine the relation of demographic and psychological factors to each subscale (Table 4).

Table 3. *Nested Model Comparisons of PSI–SF Factor Structure*

Model	χ^2	Model *df*	*p* <	CFI	RMSEA (90% CI)	$\Delta\chi^2$	Δdf	*p* <
One factor	790.10	406	.01	.90	.071 (.063 – .078)	—	—	—
Two factor	782.44	404	.01	.90	.070 (.063 – .078)	7.66	2	.05
Three factor	771.69	403	.01	.90	.070 (.062 – .077)	10.75	1	.05

Note: PSI–SF = Parenting Stress Index–Short Form; CFI = comparative fit index; RMSEA = root mean square error of approximation. $\Delta\chi^2$ and Δdf indicate changes in model relative to the preceding model in the table.

Table 4. *Regressions for Parenting Stress Index/Short Form (PSI–SF) Subscales*

Variable	Beta	*t*	Sig.	Zero-Order	Semipartial
Difficult Child subscale[a]					
Oppositional behavior	.46	5.53	.000	.58	.36
Brief symptom inventory	.30	1.99	.049	.47	.13
Income	–.20	–1.96	.050	–.20	–.13
Education	–.14	–1.51	.133	–.11	–.10
PCDI subscale[b]					
Brief Symptom Inventory	.30	3.17	.002	.37	.25
Income	–.20	–2.69	.008	–.21	–.16
Education	–.14	–1.92	.050	–.09	–.07
Oppositional behavior	.09	.97	.335	.27	.04
Parental Distress subscale[c]					
Brief Symptom Inventory	.32	3.31	.001	.38	.23
Income	–.17	–2.20	.030	–.24	–.20
Education	–.07	–.93	.352	–.16	–.14
Oppositional behavior	.05	.57	.569	.30	.07

Note: Oppositional Behavior subscale derives from Conners' Parent Rating Scale–Revised: Long Form; PSI–SF = Parenting Stress Index–Short Form; PCDI = Parent–Child Dysfunctional Interaction; Education = mothers highest level of education; Income = yearly family income.
[a]$R = .62^{**}$, $R^2 = .38$. [b]$R = .46^{**}$, $R^2 = .21$. [c]$R = .42^{**}$, $R^2 = .17$
$^{**}p < .001$.

Regressions focusing on semipartial correlations were employed to provide a better accounting of the variables that contributed unique variance to each subscale of the PSI–SF (Tabachnic & Fidell, 1989). Table 4 displays the results of regressions on each of the PSI–SF subscales. For each subscale the following variables were entered simultaneously: CPRS–R:L Oppositional subscale, BSI, family income, and mother's highest level of education. For the Difficult Child subscale, both child oppositionality and, to a much lesser extent, level of maternal symptomology and income made significant contributions, accounting for almost 40% of the variance in the Difficult Child subscale. For the Parent–Child Dysfunctional Interaction scale, a linear combination of self-reported psychological symptoms, family income, and maternal education made contributions, accounting for about 22% of the variance in subscale scores. Finally, a linear combination of maternal psychological symptoms and family income accounted for about 17% of the variance in the Parental Distress factor.

Discussion

The purpose of this study was to replicate earlier research on the scale consistency and factor structure of the PSI–SF in a sample of primarily low-income, African American mothers, as well as to examine its concurrent validity. The study is notable for its focus on a Head Start population as well as for its use of CFA. As has been found in previous studies, the PSI–SF was highly internally consistent (Abidin, 1995; Hutcheson & Black, 1996; Innocenti et al., 1992; Roggman et al., 1994). PSI–SF means (see Table 2) were also comparable to those found in the manual and in other studies of lower SES women with young children (Bhavnagri, 1999) but lower than those found for substance-abusing mothers (Kelley, 1998).

The results of the CFA and multiple regression analyses were somewhat contradictory. Parsimony appears to favor a single factor model. Yet whereas chi-square tests seem to indicate that all models were essentially equivalent, they did reveal statistically significant improvement for the three-factor model (see Table 3). Further support for the three-factor model derives from its greater clinical utility and support in previous research (see Abidin, 1995, for a review). Given the ambiguous support for either the one- or three-factor model of parenting stress in the CFA, we proceeded with a series of multiple regressions examining the concurrent validity of the PSI–SF subscales.

In general, the regression analyses supported the construct validity of the PSI–SF. That is, maternal report of child behavior problems was most strongly associated with the Difficult Child domain of the PSI–SF. The CPRS–R:L Oppositional subscale accounted for the greatest variance in the PSI–SF Difficult Child subscale and replicates the work of many researchers in diverse populations who have found PSI Child Domain scores strongly associated with externalizing behavior (Bendell, Stone, Field, & Goldstein, 1989; Breen & Barkley, 1988; Cuccaro, Holmes, & Wright, 1993; Donnenberg & Baker, 1993). Additionally, Webster-Stratton and Hammond (1988) found depressed mothers to be more critical of their children's behavior than nondepressed mothers, though child behavior was not significantly different between the two groups of children. The relation between maternal ratings of psychological symptomology, family income, and parenting stress found here lends additional support to the contention that multiple factors (e.g., economic stress,

depression) may affect maternal perceptions of parenting and child behavior problems (Middlebrook & Forehand, 1985).

BSI scores, followed by income, were associated with the Parent–Child Dysfunctional Interaction and Parental Distress subscales, and child oppositionality did not contribute significantly to the explained variance in these factors. These results suggest that, at least for young Head Start children, mothers' reports of competence in the parenting role and general satisfaction with the child seem more strongly related to their own emotional state and economic situation than to child behavior. In this study, 81% of the mothers were single parents who had never been married or were widowed, separated, or divorced. Inasmuch as single parenting may be considered an additional stressor, the influence of chronic family crises on parental tolerance for disruptive child behaviors may be exacerbated (Patterson, 1983). Of course, given their close correspondence, it is worth considering whether maternal reports of psychiatric symptoms and parenting stress should really be considered distinct. As noted by Deater-Deckard (1998):

> The first issue to be addressed—and perhaps the most critical one—regards the measurement of parenting stress. Specifically, there is a need for research that focuses on deriving measures that discriminate pervasive emotional states and aspects of adult personality (e.g., depressed mood, neuroticism, and emotional lability) from stress reactions to the demands of parenting. Although there is probably adequate support for the face validity and external validity of commonly used measures of parenting stress, it is not yet clear whether these measures have discriminant and convergent validity. … For instance, as reviewed here, depressive symptoms and parenting stress covary. (p. 323)

Although such issues can not be fully addressed here, caution in interpreting the results of this or any study of parenting stress should take these psychometric issues seriously. For example, researchers hoping to utilize these measures as outcome indicators or as screening devices should use caution, as the discriminant validity of these measures remains in doubt.

In addition to maternal report of psychological symptoms, family income and maternal education accounted for a significant amount of variance in the Parent–Child Dysfunctional Interaction subscale. These results are consistent with studies indicating that a parent's perception of financial resource adequacy is related to changes in parenting behavior and the subsequent development of child behavioral and academic problems (Brody & Flor, 1997; Brody et al., 1999; Gutman & Eccles, 1999). These results are also consistent with research showing that younger, less educated, poorer mothers evidence greater stress than older, better educated, more affluent families (Bhavnagri, 1999; Briggs-Gowan et al., 2001). By contrast, in a primarily middle-class sample, Anastopoulos, Guevremont, Shelton, and DuPaul (1992) found that family variables, including income, did not account for significant variance in PSI scores beyond that explained by child and parent characteristics. Indeed, researchers finding income influential (e.g., Gutman & Eccles, 1999) appear to have sampled either lower SES or economically diverse populations. It is interesting to note that in a high-income population (median income = $60,000) where all parents had resources adequate to pay for private childcare, ethnicity was unrelated to parenting stress and child functioning (Deater-Deckard & Scarr, 1996). In future research, it will become increasingly important to attempt to disentangle the influence of ethnic and socioeconomic factors on parenting. Finally, Goldberg et al. (1997) found that parents' level of education was related to PSI–SF scores. Education was also associated with parenting stress in this study but only minimally and in relation to parent–child conflict. This study therefore supports a theory suggesting that both family income and education should be related to parenting stress (Abidin, 1992; Bronfenbrenner, 1986).

Taken together, the CFA and multiple regression data seem to favor a three-factor interpretation of the data, although CFA results for the three-factor model indicated only minimal improvement over the single-factor model. Clinically, the three-factor model seems to yield important information that would be lost in a single-factor model. For example, mothers scoring high on Parental Distress but low on Difficult Child might require a different form of intervention than if scores were reversed (e.g., in the former case, individual therapy for a mother might be indicated, whereas child behavior management training might be emphasized in the latter case). Future research illuminating the predictive validity of the PSI–SF subscales would be of great value to researchers and clinicians alike.

This study is one of the first to examine the psychometric characteristics of the PSI–SF outside of a population of predominantly Caucasian, married mothers. Importantly, the PSI–SF appeared to retain its desirable psychometric qualities (e.g., high internal consistency, factor structure) even when subjected to tests in a population quite different from the standardization sample. Consequently, researchers and clinicians working in lower SES, non-Caucasian populations may be more confident that the PSI–SF will perform as expected (see Bhavnagri, 1999; Kelley, 1998). Nevertheless, there remains much to do before anyone can conclude that the PSI–SF possesses adequate criterion or predictive validity. Indeed, a number of considerations may limit the generality of our own findings. For example, we did not draw a random sample from lower socioeconomic groups, and it is possible that mothers choosing to enroll their children in Head Start may vary in some way from mothers that do

not do so. Also, we cannot say whether these findings would generalize to parents of older children or lower-SES youth and their families referred for treatment. On the other hand, means and standard deviations were characteristic of other studies that have utilized the PSI–SF and suggest that mothers enrolling their children in Head Start are comparable in many ways to the normative sample obtained by the PSI developers.

Other limitations of our study include a relatively weak measure of concurrent validity for the Parent–Child Dysfunctional Interaction scale. Certainly, it would be desirable to obtain ratings of parent–child interaction either via direct observation or through measures of attachment or family environment (e.g., the Family Environment Scale; Moos & Moos, 1983). Indeed, multiple measures of parenting stress and related factors would reduce ambiguities introduced by method (rater) variance. Finally, the relatively small sample size for estimating the CFA models should also be taken into consideration in the interpretation of these results.

In summary, this study provides much needed evidence supporting the suitability of the PSI–SF for screening Head Start families in need of more intensive services. Because high levels of stress, as reported on the PSI–SF, correspond closely to maternal ratings of child problems, as reported on the CPRS–R:L, mothers scoring in the clinically significant range on the PSI–SF could be primary targets for early intervention. Following Beitchman, Inglis, and Schacter (1992), it would be useful to examine the predictive validity of PSI–SF scores, particularly in relation to outcomes such as academic achievement, early-onset disruptive behavior disorders, or response to treatment. In the interim, research is desperately needed to elaborate the utility of the PSI–SF in increasingly ethnically and culturally diverse settings (Sue & Sue, 1999).

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