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Validity of the Parenting Stress Index-Short Form in a Sample of Spanish Fathers

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The purpose of this study was to analyze the psychometric properties of the Spanish version of the *Parenting Stress Index-Short Form* in a sample of 115 fathers of infants aged between ten and thirty-nine months old. The exploratory factor analysis revealed three reasonably distinct factors, as in the original version of the instrument. The three extracted factors: *Parental Distress*, *Parent-Child Dysfunctional Interaction* and *Difficult Child* accounted for 47.48 % of the variance. The internal consistency coefficients were high in each factor or subscale. These results provided empirical evidence in favour of the reliability and validity of the *Parenting Stress Index-Short Form* in Spanish fathers, and can be useful to elucidate the mechanisms through which stress impacts parenting and permitting to develop more targeted interventions for infants and their families.

Palabras clave: parenting stress, self-report, validity, reliability.

El propósito de este estudio fue analizar las propiedades psicométricas de la versión española del *Parenting Stress Index-Short Form* en una muestra de 115 varones, padres de niños con edades comprendidas entre 10 y 39 meses de edad. El análisis factorial exploratorio destacó tres factores razonablemente distintos, al igual que en la versión original del instrumento. Los tres factores extraídos, denominados *Malestar Paterno*, *Interacción Disfuncional Padres-Hijo y Niño Dificil* explicaron el 47.48% de la varianza. Los coeficientes de consistencia interna fueron elevados en cada uno de los factores o subescalas. Estos resultados aportaron evidencia empírica a favor de la fiabilidad y validez del *Parenting Stress Index-Short Form* en hombres españoles, pudiendo ser útil como instrumento para esclarecer los mecanismos por los que el estrés influye en los padres y para elaborar mejores intervenciones para los niños y sus familias.

Keywords: estrés parental, autoinforme, validez, fiabilidad.

In traditional society most men have not played an active role in raising children (Lamb, Pleck, & Levine, 1987). While roles have changed in recent years (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000) and there is greater involvement of men in the care and bringing-up of children, there are still many who are not prepared to carry out a proper parental role. This fact could be due to men not having had many social opportunities to prepare for fatherhood in addition to a lack of institutional support to develop this role. This absence of preparation and social support has limited the ability of many men to deal with changing expectations about their involvement in the development of paternity, resulting in high levels of stress when faced with situations of parenting.

Stress in the family unit, especially during the first years of a child's life can be considered an important risk-factor for all components, since it seems to interfere significantly in the psychological health and functioning of the parents in establishing the first adult-child interaction, and in the emotional and behavioral development of the child (Coyl, Roggman, & Newland, 2002; Crnic, Gaze, & Hoffman, 2005; Deater-Deckard, 2005; Dopke, Lundahl, Dunsterville, & Lovejoy, 2003; Gutermuth Anthony et al. 2005).

In order to detect the stress level, various questionnaires or measures of self-report have been developed in the English language, which can be quite useful (see Lessenberry & Rehfeldt 2004, for a review). But if we refer to specific instruments to measure stress generated by carrying out the parental role we can highlight, for its psychometric properties, the *Parental Stress Scale* (PSS; Berry & Jones, 1995) and the *Parenting Stress Index* (PSI; Abidin, 1983). As for the first of these scales, there is a Spanish adaptation developed, some years ago by Oronoz, Alonso-Arbiol, and Balluerka (2007) that proved to have suitable levels of reliability and validity.

However, the instrument most used to assess parental stress has been the PSI, both in clinical and research settings. There are two versions of this instrument designed by Abidin (1983, 1995) the full form and the short form. The full version, despite its powerful psychometric properties has presented some limitations in its use such as the length of the questionnaire and amount of time required for its administration.

Aiming to solve these deficiencies, Abidin (1995) developed a short version of the *Parenting Stress Index* derived from the full version. It is a parent self-report questionnaire consisting of 36 items, which can be completed quickly allowing us to easily identify families needing intervention or follow-up. As for the psychometric properties of the instrument, Abidin (1995) through exploratory factor analysis, highlighted the existence of three factors, composed of 12 items each, called: *Parental Distress*, *Parent-Child Dysfunctional Interaction* and *Difficult Child*. These factors showed appropriate values of internal consistency ranging between .80 and .87.

The psychometric study by Abidin (1995) on *Parental Stress Index-Short Form* (PSI-SF) was based on a sample of Caucasian mothers married with children under four years showing no type of problem. The correlation between the total scores of the full and short forms of the PSI was very high (.94) in these samples. However, its validation requires further study.

A review of the literature showed little research (Deater-Deckard & Scarr, 1996; Haskett, Ahern, Ward, & Allaire, 2006; McKelvey et al., 2009; Reitman, Currier, & Stickle, 2002; Whiteside-Mansell et al., 2007) that had examined the psychometric properties of PSI-SF. In these works, various types of samples were used such as mothers and fathers of different ethnicity and socio-economic status, mothers and fathers from clinical samples, etc. Nevertheless, in very few of these studies (Reitman, Currier, & Stickle, 2002) were results found which corroborated the factor structure of the original version.

A study carried out by Deater-Deckard and Scarr (1996) with 589 mothers and fathers of a middle to high socio-economic level with infants aged between 12 and 60 months indicated that the proposed three factor model did not fit the data. Subsequently, on the basis of an exploratory factor analysis, 17 items were removed, thereby improving the adjustment for the three factor model.

In addition, Reitman et al. (2002), using confirmatory factor analysis, found a good fit for the three factor model but results revealed that a one-factor solution adjusted somewhat better to data than the two or three-factor solutions. The sample used here included 196 African-American mothers of low socio-economic status.

Haskett et al. (2006), employing a sample of 185 abusive mothers and fathers of different ethnicities and socio-economic levels, also failed to confirm the original structure of the scale. In this work, through exploratory factor analysis, it was found that the instrument was better defined by two factors called *Personal Distress* and *Child-Rearing Stress*.

Other more recent studies (McKelvey et al., 2009; Whiteside-Mansell et al., 2007) on the dimensionality of PSI-SF were done with a wide sample of mothers and fathers of low socio-economic level. The aim of researchers in both studies was to analyse the factor structure, reliability and validity of the subscales of *Parental Distress* and *Parent-Child Dysfunctional Interaction* of the *Parental Stress Index-Short Form*. Results derived from these studies indicated that both subscales had good levels of reliability. As for the factor structure the authors concluded that these two subscales for both fathers and mothers were more appropriately divided into five more specific subscales, allowing a more targeted intervention for children and their families.

On the basis of data provided by all these studies we can infer the following issues: Firstly, in most of these studies the factor structure of the original scale could not be confirmed. Secondly, another aspect to consider is that these works, unlike the original study by Abidin (1995), were done on clinical

populations or ones at risk. Finally, research carried out on the psychometric properties of parental stress scales has focused almost exclusively on mothers, based on the assumption that they are the primary caregivers. Indeed, although PSI-SF has been used in some studies with males (McBride, Schoppe, & Rane, 2002) there have been few which have validated the factor structure with this population. Therefore, given that in today's society fathers are becoming increasingly more involved in the care and rising of children, it is necessary to perform studies on the psychometric characteristics of PSI-SF with males and not simply extrapolate the results obtained with women. All this could help with designing more precise scales to evaluate parental stress.

Bearing in mind the limitations of studies made so far, our work aims to assess the psychometric properties of the Spanish version of *Parenting Stress Index-Short Form* (Abidin, 1995) in a non-clinical sample of fathers.

Method

Participants

This sample was made up of parents who attended the Prevention Service, Promotion of Child Development and Early Intervention (SEPRODIAT) at the University of Murcia during the academic years 2007-2008 and 2008-2009. This service was carried out on demand therefore no type of sampling was used to make the definitive sample.

The total number of participants was 130 fathers of whom 15 (11.5%) were excluded due to errors and omissions in their responses. The final sample comprised 115 males, married, with a middle-income socio-economic level and who resided in the Autonomous Region of Murcia. The children were aged between 10 and 39 months ($M = 26.2$; $DT = 5.45$). All children (73 boys, 57 girls) were born full-term (between 39 to 41 weeks of pregnancy), without pre/postnatal complications, and with normal birth-weight and size (between 2,500 to 4,050 kg. and 41 to 56 cm., respectively).

The average age of fathers was 33.69 years ($DT = 4.41$), ranging between 25 and 49 years. As for their level of studies, approximately 10.9% had higher education, 35.9% had finished secondary education and 52.3% had primary education. The number of children, around 5.4%, had 3 or 4 children, 44.2% had two children and the remaining 50.4%, one child. Most children occupied the first (61.2%) or second place (33.3%) within the group of brothers. All fathers agreed voluntarily to form part of the study and provided informed consent.

PSI-SF Items Forward-Backward Translation

All items were translated using the back-translation method (Hambleton, 2005). The original version was firstly translated into Spanish by a native speaker, fluent in both

English and Spanish and with knowledge of both Spanish and American cultures. Once the Spanish translation was complete, it was back-translated once again into English by a native English translator, with a degree in Spanish and knowledge of both cultures. The original version was then compared to the back-translation and corrections were made to the final Spanish version.

The 36 items of the English version of PSI-SF were considered relevant in evaluating the stress levels of parents in Spain. No item had to be eliminated or significantly modified in the translation process.

Once the final wording of the 36 statements was decided this became the form of a questionnaire. Participants were asked to value each of the statements on a 5-point Likert-type scale. The statements appeared in the same order as in the original version of the PSI-SF in English.

Instrument

The PSI-SF (Abidin, 1995) is a questionnaire or self-report measure comprising 36 items in its short version to which parents must respond on a 5-point Likert-type scale. It attempts to evaluate stress experienced during paternity/maternity, assuming that this can be produced by the characteristics of the parents, by certain child behavioral traits and/or situation variables directly related to the parental role.

Consisting of three subscales of 12 items each. The *Parental Distress* subscale (items 1 to 12) determines distress experienced by parents in exercising the parental role, caused by personal factors directly related to the exercise of functions under this role (sense of competence, stresses associated with restrictions on other functions that are developed in life, conflicts with the other parent of the child, lack of social support, depression, etc.). The subscale of *Parent-Child Dysfunctional Interaction* (items 13 to 24) focuses on the perception that parents have as to what extent their child meets expectations or not, and the degree of reinforcement their child provides them with as parents. The third subscale called *Difficult Child* (items 25 to 36) provides an assessment of how parents perceive the ease or difficulty of controlling their children in terms of their behavioral traits. However, it also includes learned patterns of defiance, disobedience, and demanding behavior. High scores on this variable suggest that children may be experiencing significant problems in the processes and mechanisms of self-regulation.

From the sum of these three subscales a final overall score is obtained called Total Stress. The score on this variable indicates the degree of stress that parents experience in their role as parents. More specifically, this assessment reflects the tensions found in the areas of the parents' personal distress, tensions arising from interaction with the child, and those whose origins lie in the behavioral characteristics of the child.

Procedure

All parents attended the SEPRODIAI at the Research Support Service (RSS), University of Murcia. In this service, periodic assessments of the development of children aged between 0 and 3 years are performed, whose parents belong to the university community and the general population. The main aim of this service is to enhance the development capabilities and welfare of children from birth to age three, encouraging the mutual adaptation of the family and children, as well as their autonomy. Following these evaluations, fathers were asked to complete the questionnaire *Parenting Stress Index-Short Form*. In addition, a previously trained investigator was present to resolve any doubts that arose, but trying not to influence responses, and stressing the need not to leave any item unanswered. The average time taken to complete the test was 10-15 minutes.

Data Analysis

In order to analyze the underlying structure in the sample of fathers, a principal axis factor analysis was carried out on matrices of polychoric correlations with promax rotation using the program *WinFACT 2.1* (Waller, 2002).

To obtain a factor solution with WinMFACT it is necessary to specify the number of factors. The program will then obtain some indices of goodness-of-fit and residual statistics allowing us to make the right decision on the number of relevant factors. The program also provides a scree-plot of Cattell (1966) to complement the decision of the goodness-of-fit statistics. Then the factor solution was

appropriate when the *GFI* was greater than .95 (McDonald, 1999) and the residual mean square was less than .008. Moreover, to support the factor solution, the bias and kurtosis of the residuals were obtained. In this case, an adequate factor solution is that whose distribution of residuals was unbiased and was approximately mesokurtic. Finally, to analyze the internal consistency of the scale Cronbach alpha coefficients were obtained (Cronbach, 1951) for each of the factors or subscales and for the total score.

Results

Construct Validity: Factor Structure

The exploratory factor analysis (EFA) revealed that the three-factor solution was the most appropriate to interpret the scale of parental stress in fathers. This factor solution supported by the *scree-plot* pointed to a three-factor solution (see Figure 1). Table 1 presents the goodness-of-fit statistics obtained for one-factor, two-factor, and three-factor solutions.

As shown in this table, the three-factor structure was the best solution since the *GFI* fit index was above .95 and the average residual was less than .008. Therefore, the three-factor solution was that which produced a normal distribution of residuals, having a lower bias and whose distribution was approximately mesokurtic.

Table 2 shows the factor loading matrix and structure matrix of exploratory factor analysis of the *Parenting Stress Index-Short Form*.

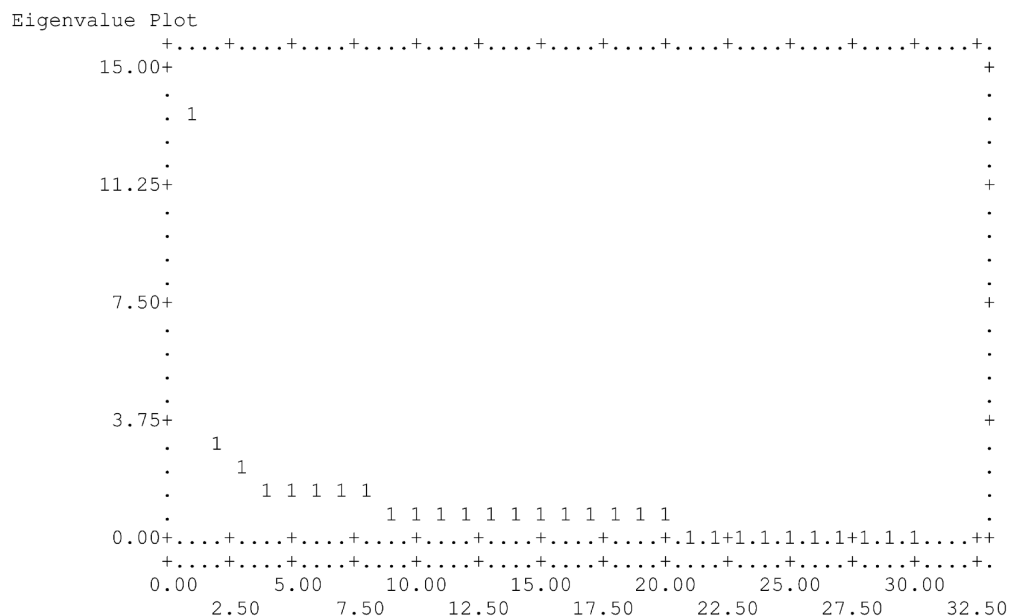


Figure 1. Scree-plot: Number of factors.

Table 1

Goodness-of-fit statistics for one-factor, two-factor, and three-factor solutions of the Parenting Stress Index-Short Form

	<i>GFI</i>	<i>MSR</i>	<i>RMSR</i>	<i>MR</i>	<i>Skewness</i>	<i>Kurtosis</i>
One factor	.926	.012	.110	-.001	-.564	1.159
Two factor	.950	.008	.090	-.001	-.286	.874
Three factor	.966	.005	.075	-.000	-.140	-.086

Note. GFI: Goodness-of-fit index; MSR: Mean square residual; RMSR: Root mean square residual; MR: Mean residual

Table 2

Parenting Stress Index-Short Form: Factor Structure in a Spanish sample of fathers

Factor Loadings Matrix				Structure Matrix		
Item	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 1	FACTOR 2	FACTOR 3
1			.57			.53
2			.71			.64
3			.63			.68
4			.41			.59
5			.53			.67
6			.48			.58
7			.30			.34
8			.51			.55
9			.45			.57
10			.46			.63
11			.50			.58
12			.61			.72
13	.55			.65		
14	.65			.70		
15	.87			.80		
16	.76			.75		
17	.72			.68		
18	.66			.82		
19	.86			.91		
20	.59			.76		
21	.46			.68		
22	.25			.27		
23	.42			.66		
24	.23			.48		
25		.49			.66	
26		.46			.61	
27		.56			.59	
28		.64			.67	
29		.77			.77	
30		.59			.67	
31		.23			.36	
32	.44			.46		
33		.67			.53	
34		.66			.66	
35		.62			.81	
36		.52			.73	

Table 3
Correlation matrix among Parenting Stress Index-Short Form factors

	Parent-Child Dysfunctional Interaction	Difficult Child	Parental Distress
Parent-Child Dysfunctional Interaction	1.00	.49	.48
Difficult Child		1.00	.34
Parental Distress			1.00

Table 4
Item Analysis in a Spanish sample of fathers

	Mean	Standard Deviation	Item-test correlation
Item 1	2.24	.96	.26
Item 2	2.24	1.08	.36
Item 3	1.99	.93	.48
Item 4	2.00	.99	.51
Item 5	1.86	.75	.59
Item 6	1.66	.76	.40
Item 7	2.45	1.11	.21
Item 8	1.99	1.01	.44
Item 9	1.54	.67	.45
Item 10	1.59	.73	.42
Item 11	1.85	.93	.40
Item 12	1.78	.94	.47
Item 13	1.20	.46	.43
Item 14	1.37	.65	.43
Item 15	1.34	.59	.43
Item 16	1.35	.56	.44
Item 17	1.40	.64	.34
Item 18	1.45	.59	.63
Item 19	1.34	.49	.62
Item 20	1.44	.58	.61
Item 21	1.57	.60	.56
Item 22	2.54	.77	.21
Item 23	1.43	.53	.57
Item 24	1.68	.82	.39
Item 25	1.68	.75	.57
Item 26	1.77	1.00	.41
Item 27	2.42	1.11	.40
Item 28	1.86	.99	.39
Item 29	2.58	1.18	.51
Item 30	1.93	.88	.52
Item 31	2.18	1.20	.33
Item 32	2.86	.91	.37
Item 33	1.17	.42	.22
Item 34	1.83	.91	.41
Item 35	1.34	.54	.66
Item 36	1.60	.73	.63

As shown in this table, from EFA three factors were extracted that explained 47.48% of total variance. The first factor, *Parent-Child Dysfunctional Interaction*, explained 19.26% of variance and consisted of 13 items (13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 32). The second factor, called *Difficult Child*, explained 15.37% of variance and included 11 items (25, 26, 27, 28, 29, 30, 31, 33, 34, 35 and 36). The third factor, *Parental Distress*, explained 12.85% of variance and comprised 12 items (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12). The correlation between the three factors was high (see Table 3).

Item analysis and reliability

Table 4 presents the descriptive statistics of the items and item-test correlations. It was observed that most item-test correlations showed higher values with the exception of four items (item 1 = .26; item 7 = .21; item 22 = .21; item 33 = .22).

The internal consistency coefficients obtained were .84 (*Parent-Child Dysfunctional Interaction*), .82 (*Difficult Child*), .82 (*Parental Distress*) and .90 for *Total Stress*. These values showed a high internal consistency between the scores on each subscale and total scale in the sample evaluated.

Discussion and conclusions

The results of this research provided empirical support to the reliability and validity of the Spanish version of the *Parenting Stress Index-Short Form* (Abidin, 1995) in a sample of fathers. Exploratory factor analysis identified three factors, reflecting in large measure the three scales of the PSI-SF (Abidin, 1995), which accounted for 47.48% of the total variance. This factor structure supported the multidimensional nature of the construct and use of the PSI-SF to identify men who experience high stress levels in the performance of fatherhood.

When we compared the factor structure obtained in this work with the structure of the original scale, we saw a large concordance in the configuration of factors. Thus, the first factor extracted, which we called *Parent-Child Dysfunctional Interaction* was related to the perception of parents as to what extent their child meets their expectations and positively reinforces their role as parents. This factor included items

13 to 24 as in the English version, but in our sample item 32 was also included. One possible explanation for the inclusion of this item is that its content is related to this factor, since it is formulated as follows: "I have found that getting my child to do something or stop doing something is: (a) much harder than I expected, (b) somewhat harder than I expected, (c) about as hard as I expected, (d) somewhat easier than I expected, (e) much easier than I expected". Consequently, it could lead to a malfunction in adult-child interaction.

The second factor, *Difficult Child*, offered an assessment of how parents perceive the ease or difficulty of controlling their children in terms of their behavioral traits. This subscale in the Spanish version consisted of 11 items, and the only difference to the original version is that it did not include item 32 which presented a higher loading on the subscale of *Parent-Child Dysfunctional Interaction*, as we have mentioned. As for the third factor of the PSI-SF, its structure in the Spanish version was also identical to the original scale. This factor, called *Parental Distress* was composed of the first 12 items in both versions of the instrument.

Moreover, as to the homogeneity of items, all obtained values between .30 and .70 (Crocker & Algina, 1986), except for items 1, 7, 22 and 33 which we believe should be reformulated to increase their correspondence with the rest of the scale. We preferred this option rather than discarding them to avoid altering the internal structure of the original scale. Except for the inadequate functioning of these items, both correlations between the scales and their internal consistency were appropriate and similar to those obtained by Abidin (1995). Therefore, the results of this study greatly replicated the original structure of the *Parenting Stress Index-Short Form*, and contradicted earlier findings in other research conducted with fathers (Deater-Deckard & Scarr, 1996; Haskett et al., 2006; McKelvey et al., 2009).

In short, this study showed that the Spanish version of the PSI-SF had adequate psychometric properties, high reliability and multi-dimensional structure (construct validity). This instrument would provide a measure of parental stress levels in a short time, and could be used as a means to detect fathers with high levels of stress, whether caused by their own personal characteristics or by the behavioral characteristics and temperament of their children.

The PSI-SF is a particularly useful working tool that would allow us to design programs of prevention, intervention or follow-up depending on the areas or subscales most concerned with the development of fatherhood. From a clinical point of view, clarification of the components of parenting and their stressors may help in defining and redefining program goals and objectives. For example, fathers with high scores on the subscale of *Parent-Child Dysfunctional Interaction*, which measures the perception of parents of difficulties in relationships with their child may need intervention programs aimed at improving father-child interactions promoting the development of secure attachment. In contrast, fathers who

score high in *Parental Stress* may require more focused interventions in stress management caused by life events in the wider context, whereas those whose scores are highest in the *Difficult Child* subscale may need training programs and management of their child's behavior. Evaluating more specific elements or variables that cause parenting stress not only could reinforce the ability of researchers to understand and predict ways in which stress and coping behaviors interact with parenting, but also help them in the design and development of more individually tailored interventions for fathers and children.

However, our work presents a series of limitations that should be taken into account for future adaptations of the instrument. One of the major constraints is the size of the sample. Therefore, future work should include a larger number of participants, and vary the sample under study incorporating more specific populations (parents with older children, adoptive parents, primiparous parents, risk and clinical samples ...) to assess their consistency. At the same time, issues to be considered in future research would be to further study the temporal stability of the PSI-SF (test-retest reliability), to analyze its diagnostic usefulness (predictive validity) and explore its relationship with other similar and different assessment tools (convergent and discriminant validity). Finally, it would be desirable in subsequent work to collect further data on the socio-demographic characteristics of children and parents to carry out empirical validation studies of the scale.

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