Psychometric properties of the parental bonding instrument in a spanish sample

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Summary. The Parental Bonding Instrument was translated into Spanish and administered to a sample of 205 Spanish primiparae 3 days after childbirth. Reliability, factorial structure and predictive validity for affective disorders were evaluated. The Spanish version of the PBI has psychometric features similar to those described in other cultures. However, the results suggest that in future research the predictive power of the "Control" factor in affective disorders might be improved by splitting it into two subfactors: "Overprotection" and "Restraint".

The type of relationship that parents establish with their children during childhood has been of great interest in medical psychology and psychiatry, both from the aspect of its possible influence on cognitive and emotional development and because, when it is not appropriate, it can constitute a risk factor for psychiatric disorders in adult life. Bowlby [1] has highlighted two important dimensions in the optimal parental relationship: first, that the carer provide a secure base, be available, be responsible and exercise care over the child; secondly, that the carer stimulate the child into moving away from and progressively distancing himself or herself from this secure base.

Prospective studies on the influence of the parent-child relationship on adult life are plagued with so many difficulties, due to the prolonged period of follow up, that research in this field usually tends to be retrospective. With the aim of obtaining retrospective information, a number of questionnaires have been elaborated which tap the memories of the subjects and their opinions on the treatment they received from their parents during their first years of life. One of the most widely used questionnaires is the "Parental Bonding Instrument"; its popularity is due to its simplicity, ease of handling and good psychometric performance.

The Parental Bonding Instrument

The parental Bonding Instrument (PBI) was developed by G. Parker [2] for the evaluation of childrearing styles. The PBI is a self-administered questionnaire in which subjects are asked about their memories concerning the treatment received from their parents up to the age of 16, each parent being awarded a score on an individual basis.

The questionnaire consists of 25 statements, 12 of which refer to an "Affection" dimension, which includes positive feelings such as love, care and empathy, and the rest to a "Control" dimension, which includes overprotective and restraint behaviors. The items are scored on a four-step "Likert" scale, which indicates the degree of agreement of the subject with the item statement. Two scores are obtained from each questionnaire, one for "Care" (range 0–36) and the other for "Control" (range 0–39). Both scales could be combined to define four childrearing styles: "high care-low control," "high care-high control," "low care-low control," and "low care-high control" or "affectionless control."

Using samples of psychiatric patients significant correlation has been found between affectionless control and several psychiatric disorders, such as borderline personality disorder [3], chronic alcohol consumption [4, 5], suicidal behavior in women [6] and schizophrenia [7].

The association between childrearing style and development of an affective disorder in adult life has received special attention. A significant association has been described between the affectionless control pattern, especially when practiced by the mother, and development of depressive disorders [8–12], including patients affected by bipolar disorder [13].

In view of the utility of this questionnaire and considering that up to now it has not been tried out on a Spanish-speaking population, the present research was carried out with the aim of adapting the "PBI" to Spanish and analyzing some aspects of its psychometric performance in a sample of Spanish women.

Sample and method

Sample

A sample of 251 primiparae was selected at random from among the women who had given birth at the University Hospital in Valencia between May 1989 and February 1991. A psychiatric examination was carried out within 3 days after childbirth, and those who showed clinical signs of psychiatric disorder were excluded from the sample.

Instruments

The PBI was translated into Spanish and the items tested for clarity in a small sample of women. After this preliminary adaptation study it was necessary to modify the formulation of three items in order to improve the quality of understanding. The response scale was also changed. In the original English the response scale expresses extent of agreement, while in this Spanish version the scale measures frequency (never, sometimes, often, always). This version of the questionnaire was administered to 20 women on two occasions, 2 weeks apart, with the aim of calculating the stability of scores. The intraclass correlation between the two administrations was 0.69. The Spanish version, back-translated into English, can be found in the appendix to this paper.

With the aim of analyzing the Social Desirability Effect on responses to the questionnaire, the "S" scale of the "CEP" questionnaire was administered [14]. This scale contains 20 social conformism statements. With the aim of obtaining information on which to base the clinical diagnosis, a psychiatric interview was carried out and the mental state was examined by means of the "Present State Examination" [15] and Hamilton's Depression Scale [16].

Procedure

Psychiatric interviews were conducted with the women 3 days after they had given birth, and their mental state was examined with the PSE and Hamilton's Depression Scale. In the same session they answered the PBI and the S section of the CEP questionnaire.

The sample was followed up over the 6 months following childbirth, with a repetition of the clinical examination on the 10th, 90th and 180th days. The clinical diagnosis was established by consensus between two experienced psychiatrists after evaluation of all the information available from the interviews, the PSE and the Hamilton Scale. The diagnosis was typified according to Finlay-Jones's diagnostic criteria [17]. The two psychiatrists were blind to the CEP results when they made their diagnosis.

Data analysis

To establish the reliability of each one of the items, the correlation between the item and the total score of the questionnaire excluding the item was calculated. With the aim of estimating the bias attributable to social conformism, the Differential Reliability Index [18] was calculated for each item. To assess the internal consistency of the questionnaire, Spearman-Brown and Rulon's "split-half" coefficients and Cronbach's "alpha" were calculated. A Principal Component Analysis was carried out to analyze the dimensional structure.

If the Affectionless Control childrearing style was a risk factor for depression and if the PBI was a sufficiently valid instrument to identify it, then we should hope that the scores obtained with the PBI at the beginning of the follow-up reflect this pattern only in the group of women who later became depressed. Assuming this, and with the aim of verifying the predictive validity of the PBI, the responses to the questionnaire by women who became depressed in the follow-up were compared with those who did not.

Results

Of the 251 women selected, 46 (18%) refused to participate in the study, so that the analysis of the internal consistency and structure of the PBI was based on a sample of 205 women. The average age of the group was 25.2 (SD = 3.8). Most (87%) were married, 12% were single and 1%, divorced. The economic and cultural level was slightly higher than that of the general population. There were no statistically significant differences in age, cultural or economic level between the group studied and the group who refused to participate.

The predictive validity study was based on 168 women whom it was possible to follow over the 6 months after childbirth (7 refused to be interviewed again and 30 were not localized). The 168 included 21 who developed a depressive episode.

The Principal Component Analysis produced six factors with eigenvalues above 1: 6.2, 3.6, 2.5, 1.4, 1.2 and 1.1. These six factors explained 64% of the total variance. In view of these values, and since the last three factors were constituted by only one item with significant loading, it was decided to repeat the factorization, this time forcing two- and three-factor solutions.

In the two-factor solution the items were distributed exactly as expected according to Parker's theory and empirical findings, that is to say one factor included all items indicative of Care and the other all items indicative of Control. In the three-factor solution the Care dimension was maintained without variations, but the Control dimension was split into two, which we will designate, according to the content of their items "Overprotection" and "Restraint." These two factors are correlated ($r = 0.38$), but the distribution of signs of the factorial loadings does not suggest the presence of a single bipolar structure. The correlation between Restraint and Care was negative and significant ($r = -0.47$, $P < 0.01$), whilst the Overprotection to Care correlation was also negative but did not reach a significant level ($r = -0.13$). Two items (p10 and p16) showed a factor loading lower than 0.4. The first factor of this trifactorial solution will be referred to from now on as "Affect" to distinguish it from the Care factor, which corresponds to the bifactorial solution.

In Table 1, differential reliability indices, reliability coefficients and factor loadings for each item and internal consistency indices for each factor of the trifactorial solution are presented. Two items (p10 and p16) have been omitted because of their low reliability coefficients. These are the same two that had low factorial loadings.

In Table 2, PBI scores are shown classified into two groups, according to whether the woman became depressed or not during the 6 months of follow-up. When scored according to Parker's model (bifactorial solution), women who became depressed showed significantly higher Control scores ($P = 0.04$) than women who did not become depressed. When scored according to the three-factor model Restraint scores, but not Overprotection scores, were significantly higher ($P = 0.01$).

A combination of low care-high control (below average score in Care and above average score in Control) hardly discriminated amongst women who became depressed and those who did not, with an odds ratio of 2.54 (kappa = 0.15). Low affect-high restraint showed a slightly better odds ratio of 3.56 (kappa = 0.20) and low affect-high overprotection an odds ratio of 1.36 (kappa = 0.04).

Discussion

Data were obtained from a sample of young women who gave birth in a public hospital, and this obviously limits the scope of the results. The fact that these women were in a postnatal situation at the time of completing the questionnaire could also introduce an element of bias to the findings.

When the results are compared with those of other authors, it also has to be taken into account that the Spanish version differs from the English one, partly because of the unavoidable changes implicit in every translation and also because the response scale is slightly different. Despite these limitations it has to be highlighted that the average scores we obtained in Care (27.5) and Control (15.2) factors are very similar to those registered by other authors from a wide range of cultures. In Australia, Parker [19] finds some average scores of 27 for Care and 13.5 for Control, whilst in the USA Plantes [11] finds 28 for Care and 12.8 for Control. This constancy of findings in such different cultures endorses the reliability of the instrument.

The internal consistency results we obtained (alphas from 0.77 to 0.93) are adequate and coincide with those recorded by other authors. Thus, the recent review carried out by Parker himself [20] shows a range of 0.74–0.95, with the majority of alpha indices clustered around 0.90. All items show an IDF above 0.60, which points to a relative absence of contamination by social desirability. However, owing their low reliability indices two items had to be suppressed in the Spanish version (p10 and p16).

The internal structure initially described by Parker and currently generally accepted, corresponds to two factors, Care and Control. However, the three-factor solution of Affect, Restraint and Overprotection, which coincides with that found by Cubis [21] in a sample of teen-

Table 1. Differential reliability indices (IDF), coefficients of reliability (CF) and loading factors (L) of the items distributed for factors. Internal consistency indices of each factor

	IDF	CF	L		
Affect					
p6	0.80	0.79	0.81		
p12	0.80	0.80	0.81	Split-half:	0.87
p18	0.80	0.75	0.79	Spearman-Brown:	0.93
p17	0.78	0.77	0.79	Rulon:	0.92
p2	0.75	0.75	0.79	Cronbach's alpha:	0.93
p5	0.76	0.73	0.74		
p1	0.68	0.67	0.61		
p14	0.66	0.66	0.67		
p11	0.71	0.66	0.67		
p4	0.61	0.54	0.59		
Restraint					
p21	0.76	0.70	0.87		
p20	0.79	0.72	0.85	Split-half:	0.80
p15	0.77	0.67	0.66	Spearman-Brown:	0.89
p24	0.62	0.54	0.64	Rulon:	0.87
p3	0.65	0.57	0.62	Cronbach's alpha:	0.85
p7	0.64	0.59	0.52		
Overprotection					
p22	0.74	0.53	0.77		
p13	0.73	0.52	0.73	Split-half:	0.79
p25	0.70	0.55	0.66	Spearman-Brown:	0.79
p19	0.72	0.57	0.64	Rulon:	0.79
p8	0.59	0.36	0.55	Cronbach's alpha:	0.77
p9	0.65	0.48	0.52		

Table 2. Scores obtained by the women at the beginning of the study, classified into two groups according to if they became depressed (DEP) or not (NDEP) during follow-up

	GLOBAL		DEP		nDEP		P
	Mean	SD	Mean	SD	Mean	SD	
2-Factor solution							
Care	27.5	6.9	25.5	7.8	27.8	6.8	0.15
Control	15.5	6.9	17.9	6.01	14.8	6.9	0.04
3-Factor solution							
Affect	24.9	6.6	23.0	7.3	25.1	6.5	0.17
Restraint	7.9	3.9	9.8	3.2	7.6	4.0	0.01
Overprotection	6.7	3.8	7.1	3.4	6.4	3.8	0.42

agers from the general population, seems more accurate, not only because the content of the items of these new factors corresponds to clinically significant dimensions that enrich the questionnaire, but also because the Restraint factor discriminates somewhat better against women who are more vulnerable to postnatal depression than the Control factor in the two-factor solution. The low affect-high restraint pattern could be considered as a risk factor for postnatal depression, albeit with a weak effect.

Altogether, it can be concluded that the Spanish version of the PBI presents psychometric features similar to those described in other cultures. However, the results suggest that in future research the predictive power of the Control factor in affective disorders might be improved by splitting it into two subfactors: Overprotection and Restraint.

Appendix

Back-translation of the Parental Bonding Instrument

1. Spoke to me in a warm and gentle voice ("Affect")
2. Helped me whenever I needed it ("Affect")
3. Let me do what I liked ("Restraint")
4. Was cold towards me ("Affect")
5. Seemed to understand my worries ("Affect")
6. Was loving towards me ("Affect")
7. Liked me to make my own decisions ("Restraint")
8. Didn't want me to grow up ("Overprotection")
9. Tried to control everything I did ("Overprotection")
10. Didn't respect my privacy
11. Liked to talk about things with me ("Affect")
12. Often smiled at me ("Affect")
13. Used to treat me like a child („Overprotection")
14. Seemed to understand what I needed ("Affect")
15. Let me decide things for myself ("Restraint")
16. Made me feel I wasn't loved
17. Cheered me up when I was down ("Affect")
18. Talked to me a lot ("Affect")
19. Tried to make me independent ("Overprotection")
20. Gave me as much freedom as I wanted ("Restraint")
21. Let me go out as often as I wanted ("Restraint")
22. Was too overprotective ("Overprotection")
23. Praised me when I deserved it ("Affect")
24. Let me dress how I liked ("Restraint")
25. Thought I couldn't look after myself if she wasn't around ("Overprotection")

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