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The assessment of parenting using the Parental Bonding Instrument: two or three factors?

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ABSTRACT

Background. The Parental Bonding Instrument (PBI) is a widely used measure of parenting, and is usually used to measure two parenting dimensions, care and over-protection. However, there is disagreement in the research literature about whether the PBI is best used as a two-factor or a three-factor measure.

Method. PBI scores from 583 US and 236 UK students were factor analysed to assess whether a three-factor solution was more satisfactory than a two-factor solution.

Results. A three-factor (care, denial of psychological autonomy and encouragement of behavioural freedom) solution was found to be more satisfactory than a two-factor solution. Using the three-factor solution, group differences that were not apparent with the two-factor solution were identified and it was found that the parenting behaviours associated with depression could be more accurately identified.

Conclusion. The authors suggest that with modifications, the PBI could be used to measure three parenting variables (care, denial of psychological autonomy and encouragement of behavioural freedom), which would allow greater accuracy of prediction and a greater understanding of underlying processes.

INTRODUCTION

The Parental Bonding Instrument (PBI: Parker *et al.* 1979) is a two-factor (care and over-protection) measure of children's reports of their parents' behaviour towards them. It has proved to be popular among many practitioners and researchers: it is relatively quick and easy to complete and score, unlike many of the other available measures, and has been used in many studies which have investigated the relationship between parental behaviour and psychopathology (e.g. Parker *et al.* 1982, 1988; Baker *et al.* 1984; Parker & Blignault, 1985; Gotlib *et al.* 1988; Warner & Atkinson, 1988; Mackinnon *et al.* 1989; Brewin *et al.* 1992; also see Parker, 1989 and see Gerlsma *et al.* 1990). In these studies, the relationship of over-protection with psychopathology is weaker and less consistent than the relationship between care and psychopathology.

However, the Parental Bonding Instrument is unusual among multi-dimensional measures of parental rearing styles in that it has been constructed on the assumption that two dimensions, care and over-protection, adequately describe the nature of a parent's relationship with the child. Similar questionnaires typically measure three (or sometimes more) dimensions. For example, the Children's Reports of Parental Behaviour Inventory (CRPBI) measures three factors: acceptance *versus* rejection; psychological autonomy *versus* psychological control; and firm control *versus* lax control (Schaefer, 1965). It is the aim of this paper to examine the assumption that the factor structure of the PBI is two-dimensional and to consider evidence that a three-factor model is preferable.

The factorial structure of children's reports of parental behaviour through questionnaires has

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been investigated in various ways by numerous researchers, many of whom have come to the general conclusion that three factors are necessary, although, as would be expected, there has been some variation in the nature of the factors identified after rotation (Lorr & Jenkins, 1953; Roe & Siegelman, 1963; Schaefer, 1965; Cross, 1969; Goldin, 1969; Schludermann & Schludermann, 1970; Raskin *et al.* 1971; Schwarz, *et al.* 1985). Although Roe & Siegelman (1963), Schaefer (1965), and Raskin *et al.* (1971) all found that three factors emerged from their factor analyses, Parker *et al.* (1979) argued that these findings pointed to the need for only two 'principal source variables', citing Raskin *et al.*'s finding that the largest percentage of common variance was accounted for by the first two factors, while the third dimension seemed 'to have less heuristic significance.' They wrote:

> Findings from the studies reviewed here suggest that the parental contribution to bonding may be influenced by two principal source variables. The first variable clearly appears to be a care dimension. The second variable does not appear to be so readily definable but suggests a dimension of psychological control over the child. These findings suggested that in developing a parental bonding instrument it would be important to attempt to define the second dimension quite precisely and that it would be unwise to attempt to use more than a two-dimensional model.

The question of whether the PBI in fact measures three, rather than two, dimensions is one of considerable importance. At present, there are conflicting views expressed in the literature. In their original paper outlining the development and suggested use of the PBI, Parker and his colleagues (1979) reported a factor analysis carried out on the responses of 53 subjects to 99 items in a pilot study. They obtained three interpretable factors through principal components analysis accounting for 52%, 29%, and 11% of the variance which, after varimax rotation, suggested dimensions of 'care/involvement *versus* indifference/rejection', 'control/over-protection/intrusion *versus* encouragement of independence', and over-protection *versus* encouragement of autonomy. They drew the following conclusion from this analysis:

> From the results of this analysis it was felt that a two-dimensional model might be used having both a care dimension and a second dimension covering control or overprotection. Validation concentrated on detailed consideration of these two dimensions.

After removing items that did not contribute clearly to one of the first three factors, a further factor analysis was carried out on the responses of a diverse sample of 150 subjects to 48 items. The same three interpretable factors arose, this time accounting for 27%, 14%, and 5% of the variance. They wrote: 'Items weighting negatively on the second factor tended to weight positively on the third factor and vice versa, suggesting that these two factors could be collapsed into a single factor'. Items that had poor loadings on these three factors were culled, and a further factor analysis was carried out on 31 items in which the number of factors to be extracted was limited to two. Twenty-five items were retained for the final version of the questionnaire, 12 items for the care dimension and 13 items for the over-protection dimension.

Several studies have sought to explore the factor structure of the PBI further. MacKinnon *et al.* (1989) applied a confirmatory factor analysis to the responses of 386 subjects in a general population sample, specifying a two-factor solution. No tests of a three-factor solution were reported. Others also claim to have verified the two-factor structure of the PBI, but again appear to have pre-specified two factors and not to have tested a three-factor solution (Arrindell *et al.* 1989; Kazarian *et al.* 1987).

However, other researchers have identified three dimensions within the PBI. In a study of 2147 Australian adolescents, Cubis *et al.* (1989) suggested that a three-factor solution was the most satisfactory for their data (although it is not clear whether they used any other method apart from the eigenvalue-greater-than-one rule to determine the number of factors). Gomez-Beneyto *et al.* (1993) identified a three-factor solution in a Spanish version of the PBI administered to 205 Spanish women. In both studies, one factor corresponds to Parker *et al.*'s (1979) original care factor, and the other two factors together correspond to the original over-protection factor. The items chosen and loadings for these second two factors differ somewhat, but in both cases, one factor corresponds to the

degree to which the child was denied appropriate psychological autonomy (termed protection–personal domain in the first of these studies and over-protection in the second) and the second factor corresponds to the degree to which the parent discouraged behavioural freedom (termed protection–social domain in the first of these studies and restraint in the second).

In their study of 2147 Australian adolescents, Cubis *et al.* (1989) found that a three-factor solution uncovered gender differences in the parent–child relationship that were not apparent with the two-factor solution. These included that daughters gave their fathers higher scores in the denial of psychological autonomy dimension (or in their terminology, higher scores in the protection–personal domain) than did sons, and that daughters gave their mothers lower scores in the discouragement of behavioural freedom dimension (or in their terminology, lower scores in the protection–social domain) than did sons. In addition, Cubis *et al.* found that, overall, the adolescents gave their mothers higher denial of psychological autonomy scores than fathers. These are differences that are not apparent using the original over-protection dimension.

Using a three-factor solution, Gomez-Beneyto and colleagues (1993) found that depression in their sample of Spanish mothers was associated with discouragement of behavioural freedom (or, using their terminology, restraint) but not with denial of psychological autonomy (or, using their terminology, over-protection). This finding indicates that a three-factor model, in which discouragement of behavioural freedom and denial of psychological autonomy are separately identified, may give a more accurate indication of the precise relationships between aspects of parental bonding and psychopathology than if the two-factor model is used.

Given the inconclusive nature of the available data, the aim of the present study was to examine the Parental Bonding Instrument scores from both US and UK samples to determine whether a three-factor solution was preferable to a two-factor solution, to see whether our data replicated the gender differences reported by Cubis *et al.* (1989), and to see if it supported the finding that depression was associated with behavioural freedom but not with psychological autonomy (Gomez-Beneyto *et al.* 1993).

METHOD

Responses to the Parental Bonding Instrument from three groups were used, collected as part of larger studies. The first sample consisted of 583 US undergraduate students enrolled in psychology classes in Lowell, Massachusetts (51·9% male, 48·1% female, mean age 20·2 years), and the second of 117 UK high school students (50·4% male, 49·6% female, mean age 17·7 years) attending school in the counties of Buckinghamshire and Berkshire. PBI scores were taken from these subjects as part of a study examining changes in attitudes towards physical punishment in response to various types of information, and a five-point Likert scale was used, item scores scaled to lie on a range of 0–3. The third sample consisted of 119 UK medical school students (36·1% male, 63·9% female, mean age 20·5 years). PBI scores on a four-point Likert scale were taken from these subjects as part of a study of self-criticism (Brewin *et al.* 1992); depression was also assessed in this sample using the depression subscale for the Symptom Check List-90 (Derogatis *et al.* 1973).

RESULTS

Factor analyses

Principal component analyses with oblimin rotation were performed on the data from the 583 US subjects. The analysis of the maternal scores produced four factors with eigenvalues greater than one. The eigenvalues of these factors were 7·55, 3·47, 1·66, and 1·05, and these factors account for 30%, 14%, 7%, and 4% (total 55%) of the total variance. A scree plot clearly indicated that more than two factors should be extracted. The analysis of the paternal scores produced four factors with eigenvalues greater than one. The eigenvalues of these factors were 8·71, 3·82, 1·54, and 1·07, and these factors accounted for 35%, 15%, 6%, and 4% (total 61%) of the total variance. Again, a scree plot clearly indicated that more than two factors should be extracted. Three interpretable factors were found for both parents. (When a larger number of factors was specified, the factors became uninterpretable.)

The pattern matrix is shown in Table 1. A loading of 0·4 was taken as the criterion for deciding whether an item would be retained in

Table 1. *US sample pattern matrix of scale items after principal components analysis and oblimin rotation (loadings less than 0·2 are not reported; M = mother; F = father)*

	Factor loadings					
	Factor 1 Care		Factor 2 Denial of psychological autonomy		Factor 3 Encouragement of behavioural freedom	
Item	M	F	M	F	M	F
1 Spoke to me with a warm and friendly voice	0·739	0·749	—	—	—	—
18 Did not talk with me very much	−0·738	−0·758	—	—	—	—
6 Was affectionate to me	0·734	0·778	—	0·216	—	—
11 Enjoyed talking things over with me	0·730	0·761	—	—	—	—
4 Seemed emotionally cold to me	−0·710	−0·779	—	—	—	—
17 Could make me feel better when I was upset	0·702	0·759	—	—	—	—
12 Frequently smiled at me	0·697	0·764	—	—	—	—
5 Appeared to understand my problems and worries	0·690	0·749	—	—	—	—
2 Did not help me as much as I needed	−0·677	−0·628	—	—	—	—
16 Made me feel I wasn't wanted	−0·619	−0·649	—	—	—	—
14 Did not seem to understand what I needed or wanted	−0·588	−0·641	0·255	0·331	—	—
24 Did not praise me	−0·547	−0·703	—	—	—	—
13 Tended to baby me	0·264	0·232	0·777	0·802	—	—
8 Did not want me to grow up	—	—	0·713	0·726	—	—
19 Tried to make me dependent on him/her	—	—	0·669	0·609	—	—
23 Was over-protective of me	—	—	0·657	0·681	−0·267	—
20 Felt I could not look after myself unless she/he was around	−0·207	−0·217	0·520	0·515	−0·224	—
9 Tried to control everything I did	—	−0·274	0·512	0·415	−0·317	−0·330
10 Invaded my privacy	−0·310	−0·296	0·423	0·306	—	−0·256
22 Let me go out as often as I wanted	—	—	—	—	0·861	0·903
21 Gave me as much freedom as I wanted	—	—	—	—	0·860	0·868
25 Let me dress in any way I pleased	—	—	—	—	0·653	0·714
3 Let me do those things I liked doing	0·214	0·211	—	—	0·570	0·681
15 Let me decide things for myself	0·265	—	−0·276	—	0·535	0·677
7 Liked me to make my own decisions	0·242	—	−0·279	—	0·429	0·620

the construction of a scale. The 12 items which have a loading of greater than 0·4 on the first rotated factor correspond exactly to the original PBI care scale (Parker *et al.* 1979). The items which have a loading of greater than 0·4 on the second rotated factor suggest a denial of psychological autonomy dimension, and the items which have a loading of greater than 0·4 on the third rotated factor suggest an encouragement of behavioural freedom dimension.

These are clearly three separate, although correlated, factors. The correlations between the care factor and the denial of psychological autonomy factor are −0·166 for mothers and −0·109 for fathers; between the care factor and the encouragement of behavioural freedom factor are 0·290 for mothers and 0·375 for fathers; and between the denial of psychological autonomy factor and the encouragement of behavioural freedom factor are −0·309 for mothers and −0·352 for fathers.

Because item 10 did not load sufficiently on any factor for both parents, it was omitted from further analyses. A principal components analysis of the US data excluding item 10 gave the same factor structure. Care, denial of psychological autonomy, and encouragement of behavioural freedom scores were constructed by summing item scores (which all lay in the range 0 ('very unlike') to 3 ('very like') with the exception of items 2, 4, 14, 16, 18, and 24, which lay in the same range but were reverse coded). Items 1, 2, 4, 5, 6, 11, 12, 14, 16, 17, 18, and 24 were used for the care scores; items, 8, 9, 13, 19, 20, and 23 for the denial of psychological autonomy scores; and items 3, 7, 15, 21, 22, and 25 for the encouragement of behavioural freedom scores. Reliability analyses gave alpha

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Table 2. *UK sample pattern matrix of scale items after principal components analysis and oblimin rotation, omitting item* 10 (*loadings less than* 0·2 *are not reported*; *M = mother*; *F = father*)

	Factor loadings					
	Factor 1 Care		Factor 2 Denial of psychological autonomy		Factor 3 Encouragement of behavioural freedom	
Item	M	F	M	F	M	F
1 Spoke to me with a warm and friendly voice	0·717	0·830	—	—	—	—
18 Did not talk with me very much	−0·689	−0·684	—	—	—	—
6 Was affectionate to me	0·820	0·783	—	—	—	—
11 Enjoyed talking things over with me	0·642	0·797	—	—	—	—
4 Seemed emotionally cold to me	−0·696	−0·818	—	—	—	—
17 Could make me feel better when I was upset	0·704	0·667	—	—	—	—
12 Frequently smiled at me	0·803	0·736	—	—	—	—
5 Appeared to understand my problems and worries	0·714	0·710	—	—	—	—
2 Did not help me as much as I needed	−0·530	−0·718	—	—	—	0·250
16 Made me feel I wasn't wanted	−0·662	−0·679	—	—	—	—
14 Did not seem to understand what I needed or wanted	−0·654	−0·588	—	—	—	—
24 Did not praise me	−0·664	−0·630	—	—	—	—
13 Tended to baby me	—	—	0·816	0·789	—	—
8 Did not want me to grow up	—	—	0·758	0·726	—	—
19 Tried to make me dependent on him/her	−0·350	−0·213	0·597	0·655	—	—
23 Was over-protective of me	—	—	0·620	0·587	−0·352	−0·356
20 Felt I could not look after myself unless she/he was around	—	—	0·766	0·563	—	−0·278
9 Tried to control everything I did	−0·260	—	0·405	0·356	−0·271	−0·311
22 Let me go out as often as I wanted	—	—	—	—	0·922	0·900
21 Gave me as much freedom as I wanted	—	—	—	—	0·922	0·873
25 Let me dress in any way I pleased	—	—	—	—	0·456	0·615
3 Let me do those things I liked doing	—	—	—	—	0·643	0·633
15 Let me decide things for myself	0·221	—	−0·325	−0·244	0·390	0·532
7 Liked me to make my own decisions	0·253	0·223	−0·281	−0·330	0·369	0·457

values of 0·895, 0·778 and 0·814 respectively for these scales for mothers and 0·921, 0·775 and 0·883 for fathers.

A principal components analysis with oblimin rotation excluding item 10 was then performed on both UK samples. The analysis of the maternal scores produced four factors with eigenvalues greater than one. The eigenvalues of these factors were 7·59, 3·26, 1·77, and 1·03, and these factors accounted for 32%, 14%, 7% and 4% (total 57%) of the total variance. A scree plot clearly indicated that more than two factors should be extracted. The analysis of the paternal scores also produced four factors with eigenvalues greater than one. The eigenvalues of these factors were 7·99, 3·17, 1·88, and 1·16, these factors accounted for 33%, 13%, 8% , and 5% (total 59%) of the total variance. Again, a scree plot clearly indicated that more than two factors should be extracted. Three interpretable factors were found for both parents. (When a larger number of factors was specified, the factors became uninterpretable.) The pattern matrix is shown in Table 2. As can be seen from this table, the basic factor structure for this UK sample is the same as that of the US sample. There are three items which do not meet the 0·4 cut-off criterion, but we would suggest that this is probably due to the smaller sample size. In this sample, the correlations between the care factor and the denial of psychological autonomy factor are −0·207 for mothers and −0·184 for fathers; between the care factor and the encouragement of behavioural freedom factor are 0·300 for mothers and 0·319 for fathers; and between the denial of psychological autonomy factor and the encouragement of behavioural freedom factor are −0·317 for mothers and −0·247 for fathers. These are similar to the factor correlations for the US sample. Our data therefore show that the

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Table 3. *Mean parenting scores*

Variable	US		UK	
	Daughter $N = 216$	Son $N = 252$	Daughter $N = 128$	Son $N = 97$
Care				
Mother				
Mean	28·06	27·56	29·19	27·54
S.D.	7·52	6·23	6·36	5·59
Father				
Mean	24·14	22·15	26·25	24·42
S.D.	8·95	7·91	8·16	6·34
Over-protection				
Mother				
Mean	13·80	13·38	10·64	13·36
S.D.	7·33	7·10	6·08	6·93
Father				
Mean	13·42	9·90	10·09	9·96
S.D.	7·96	7·25	6·07	6·00
Denial of psychological autonomy				
Mother				
Mean	6·40	6·39	4·19	5·98
S.D.	4·01	4·01	3·41	3·83
Father				
Mean	6·25	3·85	4·20	3·75
S.D.	4·09	3·42	3·17	3·18
Encouragement of behavioural freedom				
Mother				
Mean	11·54	12·03	12·36	11·52
S.D.	3·81	3·62	3·15	3·38
Father				
Mean	11·40	12·56	12·59	12·49
S.D.	4·54	4·15	3·59	3·28

proposed factor structure is valid for both the US and UK sample.

Care, denial of psychological autonomy, and encouragement of behavioural freedom scores were calculated for the UK data in the same way as they had been calculated for the US data.

Analyses of group differences

Mean parenting scores from the US sample and the combined UK samples are shown in Table 3 (data from care-givers other than parents, such as step-parents and grandparents, are omitted). These were analysed using a mixed-model ANOVA.

Overall, mothers were given significantly higher care scores than fathers ($F(1, 689) = 125{\cdot}53$, $P < 0{\cdot}001$); there was also a small significant country by parent interaction effect, reflecting the fact that US fathers were given particularly low care scores ($F(1, 689) = 5{\cdot}62$, $P < 0{\cdot}05$). Daughters gave their parents significantly higher care scores than sons ($F(1, 689) = 9{\cdot}01$, $P < 0{\cdot}005$), and the UK subjects gave their parents significantly higher care scores than the US subjects ($F(1, 689) = 7{\cdot}63$, $P < 0{\cdot}01$).

The denial of psychological autonomy scores, encouragement of behavioural freedom scores, and over-protection scores showed similar effect patterns, but in all cases the effect sizes for the denial of psychological autonomy scores were considerably greater than those for the encouragement of behavioural freedom scores, indicating that the differences in over-protection scores between groups arises primarily through differences in the denial of psychological autonomy scores.

The US subjects gave their parents significantly higher denial of psychological autonomy scores than the UK subjects ($F(1, 689) = 22{\cdot}05$, $P < 0{\cdot}001$); there was no significant country effect for the encouragement of behavioural freedom scores; and the US subjects' over-protection scores, as expected, were significantly higher than those of the UK subjects ($F(1, 689) = 10{\cdot}67$, $P < 0{\cdot}001$). For all three sets of scores,

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there was a small but significant country by gender of subject interaction ($F(1,689) = 13{\cdot}45$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}019$ for the denial of psychological autonomy scores; $F(1,689) = 5{\cdot}50$, $P < 0{\cdot}019$, $\eta^2 = 0{\cdot}008$ for the encouragement of behavioural freedom scores; and $F(1,689) = 11{\cdot}03$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}016$ for the over-protection scores). This interaction reflects the fact that US female subjects reported rather high denial of psychological autonomy scores, low encouragement of behavioural freedom scores, and high over-protection scores.

Mothers were given significantly higher denial of psychological autonomy scores than fathers ($F(1,689) = 53{\cdot}39$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}072$) and significantly lower encouragement of behavioural freedom scores than fathers ($F(1,689) = 7{\cdot}32$, $P < 0{\cdot}005$, $\eta^2 = 0{\cdot}011$). This led to the over-protection scores for mothers being significantly higher than those for fathers ($F(1,689) = 42{\cdot}96$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}059$), although the effect sizes show that this difference was primarily due to the difference in denial of psychological autonomy scores. There was also a significant parent by gender of subject interaction effect for all of these scores ($F(1,689) = 47{\cdot}49$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}064$ for the denial of psychological autonomy scores; $F(1,689) = 5{\cdot}66$, $P < 0{\cdot}05$, $\eta^2 = 0{\cdot}008$ for the encouragement of behavioural freedom scores; and $F(1,689) = 24{\cdot}98$, $P < 0{\cdot}001$, $\eta^2 = 0{\cdot}035$ for the over-protection scores). This interaction reflects the fact that sons gave their fathers particularly low denial of psychological autonomy, high encouragement of behavioural freedom, and therefore low over-protection scores, although, again, the difference in over-protection scores is primarily due to the difference in denial of psychological autonomy scores.

Correlations with depression measure

Denial of psychological autonomy scores and encouragement of behavioural freedom scores were correlated with the depression measure for female subjects in the third sample in order to see if our data replicated Gomez-Beneyto *et al.*'s (1993) finding that depression in females was particularly associated with discouragement of behavioural freedom. If this is the case, this would provide further evidence that the PBI may provide a more accurate model of depression if a three-factor solution is used (although, as discussed in the next section, we would suggest that it would be desirable if modifications were to be made to the PBI before a full model is attempted).

In this sample of female subjects, significant correlations ($P < 0{\cdot}05$) were found between depression and encouragement of behavioural freedom for both mothers ($r = -0{\cdot}248$, $P < 0{\cdot}05$, $N = 76$) and fathers ($r = -0{\cdot}348$, $P < 0{\cdot}005$, $N = 76$). Significant correlations were not found between depression and denial of psychological autonomy scores at the 0·05 level. Two standard multiple regressions (one for mothers and one for fathers) were performed between depression as the dependent variable and encouragement of behavioural freedom and denial of psychological autonomy as the independent variables. In the case of mothers, neither variable contributed significantly to the prediction of the depression score ($\beta = -0{\cdot}200$, $t = -0{\cdot}57$, $P > 0{\cdot}05$; $\beta = 0{\cdot}104$, $t = 0{\cdot}815$, $P > 0{\cdot}05$ resp.). However, in the case of fathers, encouragement of behavioural freedom contributed significantly to the prediction of the depression score ($\beta = -0{\cdot}356$, $t = -2{\cdot}73$, $P < 0{\cdot}01$) whereas denial of psychological autonomy did not ($\beta = -0{\cdot}016$, $t = -0{\cdot}12$, $P > 0{\cdot}05$).

DISCUSSION

The results of our factor analyses suggest that for both our US sample and our UK sample a three-factor solution is more satisfactory than a two-factor solution. In this, we follow the findings of Cubis *et al.* (1989) and Gomez-Beneyto *et al.* (1993). We obtained factors that were very close to those obtained by Gomez-Beneyto *et al.* and not dissimilar to those obtained by Cubis *et al.* We have found that using the denial of psychological autonomy scores and encouragement of behavioural freedom scores rather than only the over-protection scores gives a more detailed description of the ways that these scores differ between groups. In particular, it can be seen that there is considerably more variation in denial of psychological autonomy scores between groups than there is in encouragement of behavioural freedom scores. These results in part replicate the findings of Cubis *et al.* but are not directly comparable because of the different rotated factor structure selected.

In addition, we have replicated the finding of Gomez-Beneyto *et al*. (1993) that discouragement of behavioural freedom is associated with depression in female subjects but that denial of psychological autonomy is not, although our data only show this in the case of fathers. This provides further evidence of the importance of considering denial of psychological autonomy and encouragement of behavioural freedom separately.

We have not been able to find any empirical justification for the claim that the second and third factors should be seen as subdimensions of an overall over-protection dimension: rather they appear to be separate dimensions in their own right. This is shown by the fact that when the number of factors in the factor analysis is not constrained, three factors repeatedly emerge. Although denial of psychological autonomy and encouragement of behavioural freedom are correlated, encouragement of behavioural freedom and care are equally correlated: the correlation between denial of psychological autonomy and encouragement of behavioural freedom does not justify a two-factor solution. The differential relationship between these variables and a third variable is a further indication that the second and third factors may not be 'subfactors' of an overall over-protection factor.

Various concerns remain. First, the items that were originally chosen for the PBI assumed that a two-factor solution would be used, and so there are few items which have high loadings ($> 0{\cdot}7$) on the denial of psychological autonomy and encouragement of behavioural freedom dimensions. This means that the factors are not as stable as they could be, and makes it more likely that different researchers will obtain different factors after rotation. It is also possible that the different factor structures are due to cultural differences, but this cannot be tested until a more stable factor structure is constructed. It is notable that the care dimension, which has several clear marker items, is remarkably stable across replications.

Secondly, the over-protection items have been chosen in such a way that the items that load positively on the original over-protection dimension are mostly concerned with what we have termed denial of psychological autonomy and the items that load negatively on the over-protection dimension are mostly concerned with what we have termed encouragement of behavioural freedom, resulting in two unipolar factors in the three-factor solution. It would be more satisfactory if items were designed so that both these factors were bipolar.

Thirdly, the participants in many studies using the PBI have been adolescents or young adults. It is unclear at present how stable the factor structure is across a wider age range.

We would, therefore, suggest that the PBI would benefit from the following modifications.

(1) Appropriate items should be added so that (*a*) there are several marker items for each of the three factors and (*b*) each of the factors is bipolar.

(2) Factor analyses used to establish whether stable reliable factors are obtained should use an adequately large sample (Guadagnoli & Velicer, 1988), should be carried out separately for female and male subjects for each parent, and should take into account that the factor structure may vary with age.

(3) The three scales (care, denial of psychological autonomy, and encouragement of behavioural freedom) should be validated against scores from, for example, the CRPBI.

We believe that with these changes, the PBI will be found to be of even greater use among researchers and practitioners than it is now, and will enable greater accuracy of prediction and a greater understanding of the processes involved.

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