

A Validation Study of the Parental Bonding Instrument in a Japanese Population

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Abstract: Parker, Tupling & Brown's Parental Bonding Instrument (PBI), a self-rating scale for the measurement of perceived rearing attitudes of parents, was translated into Japanese and distributed to final-year high school students and to their parents. For each PBI score, ratings of each parent, made independently by family members, were weakly but significantly correlated. The social desirability score showed only a modest correlation to PBI scores. A factor analysis of the data, limiting the number of the factors retained to two, resulted in factor loading patterns similar to those reported by Parker, Tupling & Brown.⁷

Key Words: *parental bonding instrument, rearing, validity*

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INTRODUCTION

Despite general recognition that the rearing attitudes and behaviors of parents exert significant effects both on the psychological development of children and onset of adult mental disorders (for review see Parker⁹), few empirical studies have been conducted in psychiatry to examine these issues. Only recently have two instruments been developed to examine retrospectively the perceived rearing attitudes of parents. These are Parker, Tupling & Brown's⁷ Parental Bonding Instrument (PBI) and Perris'¹¹ EMBU: both are questionnaires which ask the subject about

his/her parents' rearing patterns, when he/she was a child or adolescent.

Parker and his coworkers demonstrated that the PBI had excellent reliability⁷ and validity⁹ and that the factor analysis of its data resulted in two factors, reflecting care and overprotection, respectively⁷. Parker also showed that PBI results could be related to some psychiatric conditions: neurotic depression was most extensively studied and found to be characterized by low care and high overprotection scores.^{8,12}

Our present report examines the validity of the Japanese version of the PBI. Firstly, the PBI care and overprotection scores, rated by high school students, will be correlated against the corresponding scores rated independently by their fathers and mothers. Secondly, the influence of social desirability on the PBI scores will be examined. Thirdly, the

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data will be factor analyzed to see whether the items of the Japanese version of the PBI can be categorized under the same rubrics as the original ones of Parker, Tupling & Brown.⁷

The relationship between perceived rearing attitudes and adolescents' psychopathology will be discussed in a companion paper.⁴

METHODS

The PBI was translated into Japanese. This version was then retranslated back into English by translators who knew nothing about the original wording to confirm that the translation was consistent with the original meaning (The retranslation of the Japanese version PBI may be available from the senior author on request). Comparison of the original and retranslated PBI items showed little, if any, differences.

Three hundred sets of questionnaires were distributed to final-year high school students and to their parents. One set contained three questionnaires—to the student, father, and mother, respectively; each questionnaire was enclosed in a sealed envelope. This set of questionnaires was handed to the student by his/her teacher in the classroom, with a request to participate in the study. The questionnaires for the father and mother were delivered to them by the student, and they were requested to rate the questionnaires independently. Completed questionnaires were returned to the investigator in a stamped envelope, which had been enclosed in the original envelope.

The questionnaires consisted of: demographic information about the respondents, the Parental Bonding Instrument (PBI), the 60-item General Health Questionnaire (GHQ)², and the Social Desirability Scale (SDS)¹. In the PBI, both the father and mother were asked to assess his/her own and her/his spouse's rearing behaviors in relation to the child before the age of 16. Thus, for example, the student was asked in the questionnaire "Did your father speak to you

warmly?" whilst the father was asked "Did you (as a father) speak to your son/daughter warmly?" and "Did your wife (as a mother) speak to your son/daughter warmly? The mother was asked to respond in the same way. This procedure resulted in three independent ratings for each PBI item for each parent.

The PBI items were rated 0 to 3, and allocated into care ($N=12$) and protection ($N=13$) categories, both of which had ordinary (i.e. care and overprotection) and reversed (i.e. low care and autonomy) items. The care and protection scores, both derived from a summation of item scores, ranged from 0 to 36 and 0 to 39, respectively. Higher scores indicate a higher level of care or protection.

The GHQ was developed to identify cases of nonorganic nonpsychotic minor psychiatric morbidity²: higher scores indicate a higher probability of the subject being a psychiatric case. The threshold score was set at between 16 and 17, as was suggested by Nakagawa & Daibo⁶ for a Japanese population; those who scored 17 or more were classified as psychiatrically disturbed and those scoring 16 or less as psychiatrically healthy.

The SDS¹ was designed to measure the tendency to give socially desirable responses to questions. Ten of the original 33 items of the SDS were extracted by Kitamura & Suzuki⁴ as being appropriate for a Japanese population, and a summation of the scores of these 10 items was designated as the total score of the SDS. Higher SDS scores indicate a stronger tendency to seek social desirability.

At least one member responded out of each of 98 families making a total of 84 students, 79 fathers, and 79 mothers. The students were 24 males and 59 females (one of unknown gender), all aged 18. The fathers were aged 40 to 67 (mean 48.4 SD 5.1), and the mothers 36 to 54 (mean 44.1 SD 4.3). Because of a relatively small number of students, male and female samples were combined for the present analyses. Social class was not examined in the current study since no consensus has been

reached as to the definition of social class in Japan.

Confidentiality was assured by the anonymity of completed responses.

RESULTS

Correlations of the Assessments

For each parent's rearing behavior, the PBI scores were correlated within each possible pair of the three family members (see Table 1): the assessment of the rearing behavior was weakly but significantly intercorrelated with each family member. The statistical significance was slightly lower when the student's assessment of the parental care was involved. The fathers and mothers agreed fairly well on the ratings of their rearing attitudes.

Similar findings were observed when the data were reanalyzed, after family members who showed GHQ scores higher than 16 were excluded (see Table 2). The significance

levels here were lower probably due to a smaller number of cases. Here again, the correlations which involved the student's assessment of the parental care were lower.

Differences between the Assessments

For each parent's rearing score, the means of ratings made by any two of the family members were compared. A significant difference was found only between the maternal protection scores recorded by the students (mean 12.4 SD 6.2) and those by the fathers (mean 14.0 SD 5.0), the latter being higher than the former ($N=57$, two-tailed $t=2.20$, $p<0.05$). The remaining comparisons failed to show any significant differences.

Influence of Social Desirability

The SDS scores had few correlations with the PBI scores: only the two correlations were at the significance level of 0.05, in the expected direction [Students ($N=81$) rating maternal care $r=0.247$ $p<0.05$, maternal protection $r=-0.146$, paternal care $r=$

Table 1: Correlations of the PBI Scores between the Student, Father and Mother

PBI Scores	Correlations of the Assessments		
	Student's vs. Father's	Student's vs. Mother's	Father's vs. Mother's
Maternal care	.255* (62)	.328** (66)	.545*** (61)
Maternal protection	.521*** (57)	.460*** (63)	.572*** (47)
Paternal care	.318* (60)	.317** (68)	.382** (61)
Paternal protection	.399** (57)	.358** (67)	.382** (59)

Pearson correlation * $p<0.05$; ** $p<0.01$; *** $p<0.001$; N of pairs in brackets.

Table 2: Correlations of the PBI Scores between the Student, Father and Mother Excluding Those with Higher GHQ Scores

PBI Scores	Correlations of the Assessments		
	Student's vs. Father's	Student's vs. Mother's	Father's vs. Mother's
Maternal care	.016 NS (39)	.225 NS (28)	.530*** (40)
Maternal protection	.356* (38)	.377 NS (27)	.351* (33)
Paternal care	-.038 NS (31)	.240 NS (46)	.380** (45)
Paternal protection	.464* (26)	.259 NS (44)	.329* (39)

Pearson correlation NS not significant; * $p<0.05$; ** $p<0.01$; *** $p<0.001$; N of pairs in brackets.

0.143, paternal protection $r = -0.234$, $p < 0.05$; fathers ($N=76$) rating maternal care $r = 0.083$, maternal protection $r = 0.038$, paternal care $r = 0.173$, paternal protection $r = -0.084$; mothers ($N=78$) rating maternal care $r = -0.066$, maternal protection $r = -0.099$, paternal care $r = -0.044$, paternal protection $r = 0.073$]. The student's assessment of his/her maternal care had a slightly significant positive correlation with the SDS score, while the student's assessment of the paternal protection had a negative correlation. No other scores showed significant correlations with the SDS score.

Factor Validity

A factor analysis with varimax rotation

was conducted for the PBI items for each parent assessed and for each rater (the student, the father and mother) separately. Since Parker, Tupling & Brown⁷ postulated two distinct rearing categories—care and protection—the number of factors in the current analyses was restricted to two. Six factor analyses showed that the factor loading of most PBI items was generally in the expected direction (see Tables 3, 4 and 5).

The PBI items rated by the students (see Table 3) demonstrated bimodality on each dimension, but the overprotection items on one parent, rated by another, failed to show clear bimodality (see Tables 4 and 5). For the mothers' ratings, the reversed overprotection (autonomy) items, both about the father's

Table 3: Factor Loadings after Varimax Rotation of Scale Items for Father and Mother Rated by the Student

Item No.	Group	Students Scoring Fathers		Students Scoring Mothers	
		I	II	I	II
1	CR	70	-08	75	07
2	CR*	-46	18	-46	23
3	OP*	02	-77	29	-49
4	CR*	-57	41	-56	19
5	CR	52	-22	70	-28
6	CR	72	-17	70	-05
7	OP*	52	-37	47	-37
8	OP	08	55	-37	56
9	OP	-19	68	-20	68
10	OP	-20	54	-30	56
11	CR	80	-02	74	03
12	CR	70	07	77	15
13	OP	42	34	09	71
14	CR*	-42	49	-51	56
15	OP*	26	-39	25	-61
16	CR*	-36	36	-32	16
17	CR	46	03	72	-10
18	CR*	-62	12	-68	01
19	OP	-01	17	-11	53
20	OP	-00	32	12	56
21	OP*	19	-71	27	-52
22	OP*	-13	-45	01	-57
23	OP	43	22	10	20
24	CR*	-37	34	-60	22
25	OP*	06	-31	07	-51
Variance explained		24%	11%	28%	12%

CR: care item; OP: overprotection item; *: reversed item. Decimal points are omitted.

Table 4: Factor Loadings after Varimax Rotation of Scale Items for Father and Mother Rated by the Fathers

Item No.	Group	Fathers Scoring Themselves		Fathers Scoring Mothers	
		Factors		Factors	
		I	II	I	II
1	CR	60	06	-57	32
2	CR*	10	34	-08	-19
3	OP*	20	-33	-02	58
4	CR*	-57	23	48	06
5	CR	68	-22	-71	-05
6	CR	64	-23	-72	-01
7	OP*	26	-36	-56	18
8	OP	-06	06	27	05
9	OP	07	67	28	12
10	OP	-12	55	31	24
11	CR	71	11	-50	-16
12	CR	74	13	-64	10
13	OP	12	43	01	09
14	CR*	-50	44	42	28
15	OP*	-26	-43	-23	58
16	CR*	-31	40	71	35
17	CR	61	07	-37	15
18	CR*	-68	-26	72	25
19	OP	-23	62	24	62
20	OP	-03	68	44	39
21	OP*	07	-58	-10	65
22	OP*	-33	-32	13	71
23	OP	05	45	37	32
24	CR*	-64	24	69	15
25	OP*	04	-11	10	61
Variance explained		19%	14%	22%	11%

CR: care item; OP: overprotection item; *: reversed item. Decimal points are omitted.

and mother's attitudes, appeared very close to the care items on a two-dimensional plot (the plot is not shown).

DISCUSSION

Although the PBI aims at quantifying the perceived attitudes of parents when the informant was a child, it still requires to be validated against an external criterion. A direct observation of the parents' rearing behaviors might be ideal from this point of view, but is not practical. An alternative method is to examine ratings of the rearing behaviors, carried out by independent informants. Parker⁸ used the subjects' siblings as these informants, finding significant corre-

lations between the subjects' own and the siblings' ratings.

As the external source of information, siblings may be inadequate, due to memory distortion which may well be of a similar extent to that of the subjects. However, parents are alternative sources of information, and indeed Parker⁸ compared PBI ratings by the subjects of maternal attitudes with those by their mothers, though he did not examine the fathers' views. In the present study, three ratings were made for each PBI item—by the high school student, the father and mother—and these were compared with each other. The fathers and mothers agreed fairly well on the ratings of their rearing attitudes. But the students agreed less well with either of the

Table 5: Factor Loadings after Varimax Rotation of Scale Items for Father and Mother Rated by the Mothers

Item No.	Group	Mothers Scoring Fathers		Mothers Scoring Themselves	
		I	II	I	II
1	CR	70	-34	51	14
2	CR*	-14	06	-46	-17
3	OP*	59	-08	27	10
4	CR*	-38	57	-62	15
5	CR	58	-15	34	-16
6	CR	52	-06	44	-13
7	OP*	43	-10	20	-01
8	OP	-29	53	-26	58
9	OP	08	64	-08	77
10	OP	-08	64	01	42
11	CR	80	-12	71	17
12	CR	72	-27	77	18
13	OP	08	36	11	67
14	CR*	-36	54	-48	40
15	OP*	46	06	11	-13
16	CR*	-29	59	-63	15
17	CR	60	-08	14	29
18	CR*	-60	26	-72	18
19	OP	-08	60	-21	74
20	OP	-11	70	-14	72
21	OP*	59	-02	26	-11
22	OP*	52	07	21	-14
23	OP	41	54	11	83
24	CR*	-40	47	-47	12
25	OP*	46	-04	60	-01
Variance explained		26%	11%	19%	14%

CR: care item; OP: overprotection item; *: reversed item. Decimal points are omitted.

parents, particularly for ratings of maternal and parental care scores. In Parker's study, the correlations of maternal care and maternal overprotection scores, rated by the students and by the mothers themselves, were 0.44 and 0.55, respectively; corresponding figures in the present investigation were 0.33 and 0.48. The Japanese version of the PBI appeared, therefore, to be fairly equally valid, though the small differences from those of the original English version warrant further investigation.

A potential for bias in the PBI ratings is the coexistence of psychiatric illness in the raters: ratings made by those with psychiatric disorders may be distorted in one direction or another. If either informant were suffering

from a psychiatric disorder, the correlations of the ratings made by the two informants would be expected to be reduced. However, the present study demonstrated that the correlation had not in fact been elevated but rather reduced, when those with psychiatric morbidity (identified by high GHQ scores) were removed. Because we have already observed significant *negative* correlations between the GHQ and SDS scores among the current population (students $r = -0.610$, $p < 0.001$; fathers $r = -0.334$, $p < 0.01$; mothers $r = -0.510$, $p < 0.001$),⁴ one may argue that the GHQ positive subjects are *less* likely to be influenced by social desirability in estimating their own and other family member's rearing attitudes. By administering the PBI to de-

pressed patients and repeating it when they remitted, both Parker¹⁰ and Gotlib, Mount, Cordy & Whiffen³ found that the care and protection scores of the PBI were stable over time. Therefore, the coexistence of psychiatric illness cannot be a source of bias for PBI ratings.

Social desirability, another potential source of bias, showed a little correlation with the PBI ratings. The correlation, if any, was slight and in an expected direction. Parker¹⁰, using the Lie Scale of the Eysenck Personality Inventory, showed that the PBI was little influenced by social desirability.

Relating low response rates observed among the current students and parents may cause a concern in that, for example, uncaring or overprotective parents may tear their questionnaire up. Nevertheless, what we were interested in are the degree to which *two* (not three) family members agree in estimating the rearing attitude of the third member. We believe, therefore, that lack of reports from an uncaring parent does not influence the result very much.

The last validity measure to be studied in this report was factor structure. Of interest was whether the same PBI items would have the same relationship to the PBI factor dimensions. The present findings showed that at least among the ratings made by the students, factor structures were similar to those of Australian samples. In regard to both parents the students seemed to perceive differentially high and low levels of care, and overprotection and autonomy. The parents, however, seemed not to discriminate between overprotection and autonomy, the mothers appearing to regard care and overprotection as equivalent.

The present study found some support for the view that the Japanese version of the PBI was no less valid than the English version, in terms of comparison with the other informants' ratings, the influence of social desirability, and the structure of factors. Because rearing habits are often assumed to be culturally determined, the present findings are encouraging in that the PBI may extract rear-

ing patterns independent on cultural factors, and warrant further studies on the relationship between early rearing experiences and psychiatric disorders in adulthood.

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