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ADAPTATION OF THE RUSSIAN-LANGUAGE VERSION OFTHE PARENTAL BONDING INSTRUMENT

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Abstract

The article presents the results of the adaptation of the Russian-language version of The Parental Bonding Instrument, mother and father versions (Parker et al., 1979). The questionnaire was created to study the perception of parental attitudes by adolescents of high school age. The study involved 173 native Russian high school students (42.6 % males, mean age = 16.7 years, SD = 0.9) who filled out the questionnaire. The structure of the questionnaire was tested using exploratory factor analysis of the correlation matrix of the responses to 25 items. The method of principal components was applied. Following the confirmatory factor analysis, the two-factor structure of the questionnaire was confirmed, with the following scales: Care and Overprotection. For reliability assessment, the scales were tested with the Cronbach's alpha coefficient of internal consistency. Satisfactory internal consistency was showed. The Cronbach's alphas reach satisfactory values both for Care and Overprotection scales. The effects of age and gender on the questionnaire scores were estimated. It was shown that the effect of age was statistically significant for Overprotection, Paternal attitude only, with a small effect size. There are no sex differences of perception of Maternal and Paternal attitude in both Care and Overprotection scales. The effect of interaction of age and sex was statistically significant for Care, Paternal attitude only, with a small effect size.

Keywords: Parental attitude, Perception of maternal attitude, Perception of paternal attitude, Questionnaire, Adolescents, High school years

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1. Introduction

Several researchers have investigated family risk factors in child development including individual, structural, social and cross-cultural risks as a context for explaining the variation in children's academic achievement (e.g., Tikhomirova & Malykh, 2017; Pougnet et al., 2011; Kordi & Baharudin, 2010), intelligence (e.g., Von Stumm & Plomin, 2015; Deater-Deckard et al., 2009; Nisbett et al., 2012), behavioral disorders (e.g., Petrill et al., 2004), etc. Among family factors, an important role of parent-child interactions in the variation of the children's developmental and educational outcomes has been shown in a number of studies from different countries (e.g., Tikhomirova et al., 2017; Cheung & Pomerantz, 2011; Harold et al., 2007).

At the same time, aspects of parent-child interactions can be considered both from the point of view of parents and of a child. Previous studies reported there had been some disassociation between the scores of parents and adolescents who filled out the same questionnaire (correlation coefficients vary from 0.11 to 0.41; Tsaousis et al., 2012). One of the possible reasons of observed differences in these scores is unique individual experience of children (Tikhomirova & Malykh, 2017).

Two major aspects reflecting the parental attitude to a child might be singled out: (1) the degree of emotional acceptance of the child and (2) a type of involvement in the child's activities (e.g., Kagitcibasi, 2005). These aspects of perception of the parental attitude are associated with individual differences in psychological traits and educational achievement among children of school age (Tikhomirova et al., 2017; Pougnet et al., 2011; Roy & Kwon, 2007; Kordi & Bahamdin, 2010; Harold et al., 2007).

According to previous studies, mothers and fathers organize the relationships with their child, participate in children's activities and demonstrate their attitude in different ways (Tikhomirova & Malykh, 2018). Previous studies demonstrated that the differences are related to the level of involvement in child's activities, satisfaction of child's needs and desires, and support of the information flow. Regarding the perception of attitudes, differences were revealed between maternal and paternal attitude both for Acceptance and Positive Involvement. In particular, primary school children assessed maternal attitude as more emotionally accepting than paternal attitude (Tikhomirova & Malykh, 2018).

2. Problem Statement

To analyze the perception of parent-child relationships on the samples of children of primary school age and young adolescents, was adapted the Russian-language version of the Children's Report of Parental Behavior Inventory (Tikhomirova & Malykh, 2017a; Tikhomirova et al., 2013).

The Parental Bonding Instrument was developed specifically to study the perception of parental attitude on samples of high school students (Parker et al., 1979). The original version of this questionnaire includes two parts: Maternal and Paternal attitude, which allows studying an adolescent's perception of mother's and father's attitude separately. Each of the two parts consists of the same 25 items.

3. Research Questions

The Parental Bonding Instrument was created to investigate the perception of parental attitudes by children of high school age (Parker et al., 1979; Safford et al., 2007). The central question of the article is the adaptation of the Russian-language version of the Parental Bonding Instrument. In this context, the

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factor structure of the questionnaire was studied on a sample of high school students using exploratory and confirmatory factor analyses. We tested the internal consistency of the questionnaire scales Care and Overprotection and assessed the effects of gender and age, and its interaction.

4. Purpose of the Study

The purpose of this work was to adapt the Russian-language version of the Parental Bonding Instrument including both Maternal and Paternal attitudes. To accomplish this goal, the factor structure of the questionnaire was revealed, the internal consistency of the questionnaire scales was tested and the effects of gender and age were considered.

5. Research Methods

5.1. Sample

The study involved 173 schoolchildren including 68 students from Grade 9 (44.1 % males, mean age = 15.8 years, SD = 0.4), 52 students from Grade 10 (34.6 % males, mean age = 16.8 years, SD = 0.4), and 53 students from Grade 11 (49.1 % males, mean age = 17.7 years, SD = 0.4). These three groups of adolescents were combined within one age category for further exploratory and confirmatory analysis of the structure of the questionnaire (42.6 % males, mean age = 16.7, SD = 0.9).

Written informed consent was obtained from the parents of all participants. The data was collected anonymously with each participant having been assigned a personal identification number.

5.2. Method

All participants filled out a Russian-language version of the Parental Bonding Instrument to identify the perception of maternal and paternal attitudes separately. This procedure was conducted anonymously in the classroom under the supervision of a researcher.

Direct and reverse translation of the questionnaire items, names of scales and instructions were carried out by Russian and English speaking specialists in the psychology of child-parent relations.

The Parental Bonding Instrument includes two parts: Maternal and Paternal attitude, each of them consists of the same 25 statements concerning mother's and father's attitude to the adolescent. The students fill out two identical variants of the questionnaire relating to the relationship with both parents by choosing one of the four possible responses: Very like, Moderately like, Moderately unlike and Very unlike.

According to the original English-language version of the Parental Bonding Instrument, aspects of parental attitudes should be considered as the scores of the following scales:

1) Care,

2) Overprotection (or Control).

The Care scale consists of 12 item questions (e.g., "Seems emotionally cold to me", "Enjoys talking things over with me"); the scale of Overprotection includes 13 items (e.g., "Lets me decide things for myself', "Was overprotective of me"). Not all items are scored in the same direction.

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5.3. Analysis

The structure of the questionnaire was analyzed using exploratory factor analysis of the correlation matrix of responses to each item. The revealed structure was tested using the method of the principal components with Varimax rotation as the most appropriate one for generalizing the available data and reducing the number of variables. In order to confirm the identified structure of the questionnaire, confirmatory factor analysis was applied.

The following indices were used as criteria for models' fit to empirical data: CFI – Comparative Fit Index, TLI – Tucker-Lewis index, RMSEA – root mean square error of approximation, WRMR – weighted root mean square residual. The CFI and TLI values above 0.9, the RMSEA value below 0.05, and the WRMR value being close to 1 indicated a good fit. The ratio of the chi-square to the number of degrees of freedom (df) below 3 was considered as the relative compliance index (Geiser, 2012). For reliability assessment, the questionnaire scales were tested with the Cronbach's alpha coefficient of internal consistency. Statistical package MPlus was used.

6. Findings

6.1. Exploratory factor analysis

The factor analysis of the correlation matrix of the responses for Maternal attitude variant with the method of principal components with Varimax rotation revealed two factors with 50.87% explained variance on the sample of high school students. The factor analysis of the correlation matrix of responses for Paternal attitude by the method of principal components with Varimax rotation revealed two factors with 53.6 % explained variance. Thus, based on the analysis of the scree plot and on the eigenvalues of the factors, a two-factor solution was chosen as the most adequate for describing the empirical data.

6.2. Confirmatory factor analysis

The achieved structure of the questionnaire was analyzed using confirmatory factor analysis. Table 01 presents the results of the confirmatory factor analysis.

Table 01. Fit indices for the two-factor model of the Parental Bonding Instrument, mother and father versions

Model	$\chi 2$/df	TLI	CFI	RMSEA	WRMR	90 % CI
Maternal attitude	1.59	0.90	0.90	0.035	1.07	0.030–0.040
Paternal attitude	1.84	0.91	0.89	0.042	1.02	0.036–0.048

Note: χ^2/df– the ratio of the chi-square to the number of degrees of freedom; TLI – Tucker-Lewis index; CFI – Comparative Fit Index; RMSEA – root mean square error of approximation; WRMR – weighted root mean square residual, 90 % CI – 90 % confidence interval.

In accordance with the above mentioned fit criteria, the two-factor confirmatory model describes well the data on perception of both Maternal and Paternal attitude in high school age.

6.3. Internal consistency

Table 02 presents descriptive statistics and the internal consistency coefficients of the scales of the Parental Bonding Instrument.

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Table 02. Statistics and Cronbach's alpha coefficients for the scales of the Parental Bonding Instrument, mother and father versions

Scales		**M**	**SD**	**Cronbach's Alpha**
Care	Maternal attitude	20.06	2.72	0.73
	Paternal attitude	19.49	3.9	0.84
Overprotection	Maternal attitude	17.85	2.41	0.74
	Paternal attitude	17.28	3.0	0.76

Note: M – mean, SD – standard deviation.

As Table 02 shows, the Cronbach's alphas reach satisfactory values for each scale of both Maternal and Paternal attitude: from 0.73 to 0.84. These results confirm the reliability of the scales of the Parental Bonding Instrument.

6.4. ANOVA

In order to study the effects of gender and age and its interaction, two-way analysis of variance was carrying out.

Levene's test for the equality of variances was applied to test all distributions of the analyzed variables. For all scales of The Parental Bonding Instrument, excluding Overprotection of the Maternal attitude, the significance level was more than 0.05 suggesting the equality of variances on the analyzed indicators.

The Age factor represents the age of participants in the study expressed as belonging to Grade 9 (Mean age = 15.8 years (SD = 0.4)), 10 (Mean age = 16.8 years (SD = 0.4)) or 11 (Mean age = 17.7 years (SD = 0.4)). The Gender factor is the gender of participants in the study. The dependent variables are the two scales of the Parental Bonding Instrument, Maternal and Paternal attitude. Means and standard deviations (in brackets) for all scales are presented in Table 03.

Table 03. Descriptive statistics for scales of the Parental Bonding Instrument at three age groups of adolescents

Scales		**Grade 9**	**Grade 10**	**Grade 11**
Care	Maternal attitude	31.97 (0.9) 29.94 (1.1)	31.08 (1.0) 32.42 (1.1)	29.14 (1.2) 30.08 (1.1)
	Paternal attitude	29.75 (1.3) 24.63 (1.5)	27.16 (1.5) 31.35 (2.0)	25.07 (2.0) 25.69 (1.6)
Overprotection	Maternal attitude	13.63 (1.0) 12.95 (1.3)	13.41 (1.1) 11.50 (1.5)	12.07 (1.5) 12.39 (1.2)
	Paternal attitude	11.00 (1.1) 11.63 (1.5)	10.04 (1.3) 7.57 (1.7)	7.85 (1.7) 7.83 (1.3)

Note: top line – means and standard deviations (in brackets) for females, bottom line –for males.

The results of the two-way analysis of variance are presented in Table 04.

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Table 04. Assessment of the effects of age and gender on Care and Overprotection scales, Maternal and Paternal attitude

Analyzed effect	**Scale**		**Sum of squares (SS)**	**Fisher's value (F)**	**Significance level (p)**	**Effect size (η^2)**
Age	Care	Maternal	81.69	1.42	0.25	0.02
		Paternal	267.00	2.3	0.10	0.03
	Overprotection	Maternal	26.02	0.39	0.68	0.00
		Paternal	301.83	3.84	0.03	0.06
Gender	Care	Maternal	0.09	0.01	0.96	0.00
		Paternal	1.45	0.03	0.87	0.00
	Overprotection	Maternal	15.59	0.50	0.48	0.01
		Paternal	26.41	0.61	0.44	0.01
Age x Gender	Care	Maternal	76.74	1.33	0.27	0.02
		Paternal	499.73	4.35	0.02	0.07
	Overprotection	Maternal	22.06	0.33	0.72	0.01
		Paternal	92.62	1.07	0.35	0.02

As Table 04 shows, the Age factor effect was statistically significant for Overprotection, Paternal attitude with 6% effect size ($p < 0.05$). The Bonferroni correction showed significant differences only between two age groups of participants – the adolescents from Grade 9 (Mean score = 11.32) and the adolescents from Grade 11 (Mean score = 7.84). Thus, older adolescents perceive the attitude of their fathers as less controlling than younger adolescents. Regarding the Care scale, for both Maternal and Paternal attitude, and Overprotection scale, for Maternal attitude, the Age factor's effect was not significant.

The analysis of variance of all scales of the Parental Bonding Instrument for both Maternal and Paternal attitude did not show the effect of sex ($p > 0.05$). Thus, there are no differences between males and females regarding the perception of Maternal and Paternal attitude on Care and Overprotection scales.

However, the effect of interaction of age and sex was statistically significant for Care, Paternal attitude, with 7% effect size ($p < 0.05$). According to the results, the statistically significant differences between males and females from Grade 9 were found. Thus, in Grade 9 girls perceive paternal attitudes as more emotionally supportive than boys (mean scores on Care were 29.75 and 24.26, respectively).

7. Conclusion

According to the psychometric indicators presented in this paper, the Russian-language version of the Parental Bonding Instrument can be a reliable tool to measure high school students' perception of the parental attitude. The exploratory and confirmatory factor analysis demonstrated a two-factor structure of the Russian-language version of the questionnaire, mother and father versions, with two obtained scales: Care and Overprotection.

The effects of the age and gender factors were assessed. It was shown that Age factor's effect was statistically significant for the Overprotection, Paternal attitude, with 6% effect size, suggesting that older adolescents perceive the attitude of their fathers as less controlling than younger adolescents.There were no

differences between boys and girls regarding their perception of Maternal and Paternal attitude on both Care and Overprotection scales. However, the effect of interaction of age and sex was statistically significant forCare, Paternal attitude only, with 7% effect size. Thus, in Grade 9 girls perceive paternal attitudes as more emotionally supportive than boys.

The Parental Bonding Instrument can provide analysis of the perception of parent-child relationships with research purposes on a Russian sample of high-school students, which opens the possibility of cross-cultural studies. In addition, the presence of the Maternal attitude and Paternal attitude versions makes this questionnaire applicable to differentiate the perception of each of the two parents.

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