



## Research Articles

# Hungarian Version of the Family Relationship Questionnaire (FRQ)

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## Abstract

The purpose of this paper is to examine the validity of the Family Relationship Questionnaire (FRQ) in Hungary. The FRQ was filled out together with the Parental Bonding Instrument (PBI) by 1017 healthy Hungarian people. The original factor structure of the FRQ did not fit well in the Hungarian sample, but with some modifications – based on modification indices – adequate fit indices could arise. The FRQ scales showed significant relations (moderate to high) with the PBI which confirmed the convergent validity of the scales. Four of the FRQ scale turned to be cross-culturally valid scales. The reliability and validity of Dominance scale in Western cultures should further be examined.

*Keywords:* parental rearing style, family relationship, abuse, overprotection, attachment

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The relations of parental behaviour and parental rearing style to personality development, behavioural problems and mental illnesses have been known for a long time (Baumrind, 1971, 1980; Sears, Maccoby, & Levin, 1957). There are scientists who consider genetics as the determining factor (Rowe, 1994), however some recent results outlined the central role of parental rearing in psychological and mental development (Hoeve et al., 2009; Lung, Huang, Shu, & Lee, 2004; Saritaş, Grusec, & Gençöz, 2013). Numerous studies proved the relation between inadequate parental care and alcohol addiction (Backer-Fulghum, Patock-Peckham, King, Roufa, & Hagen, 2012), eating disorder (Meesters, Muris, Hoefnagels, & van Gemert, 2007) and personality problems (Yu et al., 2007). Inappropriate family relationships were also linked with different aspects of nightmare experience, especially in nightmare disorder patients (Wang et al., 2019).

Several instruments have been developed to measure parental rearing, such as the Parent-Child Relations Questionnaire (Roe & Siegelman, 1963), Children's Report on Parental Behaviour Inventory (Schaefer, 1965), Family Environment scale (Moos & Moos, 1976), the Egna Minnen av Barndoms Uppförstan (EMBU scale, the New Inventory Assessing Memories of Parental Rearing Behaviour; Perris, Jacobsson, Lindstrom, von Knorring, & Perris, 1980) and the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979).

PBI is one of the most frequently used instrument worldwide and is also available in Hungarian (Tóth & Gervai, 1999). PBI was designed to measure the degree of the two main dimensions affection and constraint demonstrated by Schaefer (1959) by asking children how their mothers and fathers treated them until the age of 16. Items of the questionnaire asked concrete behavioural patterns of the parents. Twenty five questions out of 50 ask about the mother (or foster-mother) and 25 about the father (or foster-father). Although PBI originally has two factors, three separate PBI dimensions were identified by many scholars (Raskin, Boothe, Reatig, Schulterbrandt, & Odle, 1971; Roe & Siegelman, 1963; Schaefer, 1965). For example, a research with 2147 Australian teenagers resulted in a three-factor solution instead of the original two-factors (Cubis, Lewin, & Dawes, 1989). In the Australian sample the first factor covered the earlier Love-Care dimension. The original Overprotection factor seemed to have divided into constraint of freedom and denial of psychological autonomy. The same three factors were found in Spanish sample of 205 individuals (Gómez-Beneyto, Pedros, Tomas, Aguilar, & Leal, 1993), in English - American sample (Murphy, Brewin, & Silka, 1997) and in Hungarian sample (Tóth & Gervai, 1999).

Anyway, the questionnaire seems to provide a reliable measurement tool in the past 20 years according to Wilhelm et al. (2005). Examination of validity has been extended to compare parents' and children's ratings (Parker, 1983a): Although mothers reported more love and less overprotection than their teenage children, the difference was not significant. PBI was also validated in clinical samples. Lower Love and bigger Overprotection values were found among depressed people (Mackinnon, Henderson, & Andrews, 1993; Parker, 1983b, 1994; Pedersen, 1994; Sato, Sakado, Uehera, Nishioka, & Kasahara, 1997). Lower motherly and fatherly love and bigger fatherly Overprotection were found among schizophrenic patients (Parker, 1983a). Patients diagnosed with borderline personality disorder demonstrated lower Love factor and higher Overprotection factor (Paris, Zweig-Frank, & Guzder, 1994; Patrick, Hobson, Castle, Howard, & Maughan, 1994; Torgersen & Alnaes, 1992; Winther Helgeland & Torgersen, 1997).

Further researches have examined children's family attachment instead of parental treatment. Bowlby's (1982) attachment theory and later researches have examined children's attachment in healthy populations (Figueroa Leigh, Vergara, & Santelices, 2013; Richter, Gilbert, & McEwan, 2009). The nature of attachment was examined in several psychological disorders such as in anxiety (Muris, van Brakel, Arntz, & Schouten, 2011) or in borderline personality disorder (Hooley & Wilson-Murphy, 2012). Similarly, the nature of attachment seems to be in connection with depression (Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006), eating disorder (Tereno, Soares, Martins, Celani, & Sampaio, 2008), emotional disorder (Bost et al., 2014), internet addiction disorder (Kalaitzaki & Birtchnell, 2014), and panic attack (Wiborg & Dahl, 1997).

PBI and EMBU underline parental rearing style and do not focus on family attachment, whereas Family Environment Scale (Moos & Moos, 1976) concentrates more on family factors that influence the person's production, independence, moral and religious values. Chen et al. (2015) aimed to create a questionnaire that measures both family relations and to parental bonding. As a first step they elaborated a registry matrix on family relations that was tested then on young university students. The terrains of the eight matrices were parental abuse, parental neglect, parental rejection, parental freedom release, parental support, parental overprotection, parental dominance and parental attachment, respectively. Parental abuse was based on previous studies of physical abuse (Elliott et al., 2005), foster care (Schofield & Beek, 2005), parental neglect (Backer-Fulghum et al., 2012; Meesters et al., 2007) and parental rejection (Campos, Besser, & Blatt, 2013; Khasakhala, Ndeti, Mutiso, Mwayo, & Mathai, 2012). Parental freedom factor (opposite of parental constraints) was also suppor-

ted by several studies (Bogaerts, Buschman, Kunst, & Winkel, 2010; Brenning, Soenens, Braet, & Bal, 2012; Finzi-Dottan, Manor, & Tyano, 2006; Van Petegem, Vansteenkiste, & Beyers, 2013). Parental encouragement is based on researches by Bogaerts et. al (2010) and Ez-Elarab, Sabbour, Gadallah, and Asaad (2007), whereas parental domination was based on work of Galanti (2003). Questions concerning general attachment have become parts of the questionnaire to demonstrate that general bonding and not only parents' rearing style is important factor (Lee & Bell, 2003).

Finally, five factors have arisen (encouragement, abuse, freedom release, dominance and general attachment). In the original publication of the Family Relationship Questionnaire (FRQ; Chen et al., 2015), moderate to strong correlations were found in relations to PBI scales. Parental encouragement and parental abuse were mostly related to PBI care subscale, the former in a positive, the latter in a negative way. Limitations in Freedom strongly correlated with PBI controlling subscale. Factor of dominance, which measured parental power in family matters, was only weakly related to maternal control.

The general attachment factor was unique in the study and reflected children's loving dependence on family members and family environment according to the description by earlier scholars (Bowlby, 1977, 1988; Lee & Bell, 2003). Women scored higher on this scale and the scale showed medium correlation with PBI care scale and moderate negative correlation with abuse factor.

Chen et al. (2015) also examined how all FRQ and PBI scales differ between males and females and also between single children and one with siblings. They found that women scored significantly higher on FRQ General Attachment, FRQ Maternal Encouragement, PBI Paternal Autonomy denial and lower on FRQ Paternal Abuse than men did. Only children scored significantly higher on FRQ Paternal and Maternal Encouragements and PBI Paternal Autonomy Denial than children with siblings did.

## Aims

The aim of this paper was to test the reliability and convergent validity of the Hungarian FRQ. At first, we aimed to test reliability of scales and to investigate cross-cultural structural validity through testing if Hungarian factor analytic structure fits to original model. At second, we also aimed to test convergent validity with examining correlations of PBI subscales to FRQ factors and finally we have measured the differences between male and female respondents along with differences between single children and children with siblings.

We hypothesized that:

1. The structure of the Family FRQ shows cross-cultural stability, thus Hungarian factor structure fit to the original Chinese structure (Chen et al., 2015).
2. FRQ shows moderate to strong relations to PBI, similarly to the results of Chen et al. (2015).
3. Females will score higher on FRQ General Attachment and Maternal Encouragement (similarly to results of Chen et al., 2015).
4. Only children will score higher on FRQ Encouragement scales (similarly to results of Chen et al., 2015).

## Method

### Participants

One thousand seventeen healthy (mentally and physically healthy) adults (751 women and 266 men) participated in an online survey. Ages ranged between 18 and 78 with mean age of 36.7 ( $SD = 13.7$ ). In the survey 61.5% of respondents were below 40, 31.1% of sample belonged to age group of 40-60; 11.2% of sample (114 individuals) were university students; 60.2% of respondents were adults with BA or MA degree; further 25.5% had high school degree; 84.4% of respondents had siblings, and 53.2% of respondents was a first-born child.

### Questionnaires

Respondents filled out a questionnaire battery consisting of the FRQ and the PBI.

#### Family Relationship Questionnaire

FRQ (Chen et al., 2015) – Maternal abuse (5 items); Paternal abuse (5 items); Maternal freedom release (5 items); Paternal freedom release (5 items); General attachment (5 items); Maternal dominance (4 items); Paternal dominance (4 items).

The Questionnaire examines family relations on the basis of five factors: 1) Maternal and paternal encouragement (5-5 items), 2) Maternal and Paternal abuse (5-5 items), 3) Maternal and paternal constraint in freedom (5-5 items) 4) General attachment (5 items), 5) Maternal and Paternal dominance (4-4 items). The questionnaire uses a 5-point Likert scale (1 = *Very unlike me*, 2 = *Moderately unlike me*, 3 = *Somewhat like and unlike me*, 4 = *Moderately like me*, 5 = *Very like me*).

#### Parental Bonding Instrument

PBI (Parker, Tupling, & Brown, 1979) is the most frequently used instrument in measuring parental rearing style. Participants had to decide about 25 statements in terms to what extent they find it characteristic to their mothers or fathers during their first 16 years of their lives. There are three subscales of the questionnaire: love-care, constraint, overprotection (Tóth & Gervai, 1999) with applying a 4-point Likert scale (1 = *Very unlike*, 2 = *Moderately unlike*, 3 = *Moderately like*, 4 = *Very like*). The three scales have yielded Cronbach's alphas in our research of .93, .88, .85 for maternal and .94, .90, .85 for paternal attachment, for love-care, constraint and overprotection, respectively.

## Results

FRQ scale means and  $SD$  scores of our study and of the original study of Chen et al. (2015) can be found in Table 1 along with Cohen's  $d$  values to indicate the size of differences. There was difference between the two samples with large effect size only in parental freedom release, which was found to be higher in Hungary both in university and in total sample.

Table 1

## Descriptive Statistics of Family Relationship Questionnaire

FRQ factor	Hungarian university sample <sup>a</sup>		Hungarian sample below 40 <sup>b</sup>		Hungarian sample - age bwn 40-60 <sup>c</sup>		Hungarian sample - age above 60 <sup>d</sup>		Original Chinese sample <sup>e</sup>		$d^f$	$d^g$	$t$ test <sup>h</sup>	Skewness	Kurtosis	Reliability
Maternal encouragement	18.22	3.13	16.83	3.38	15.46	3.56	14.64	3.15	17.48	4.11	0.19	-0.29	-5.89***	-0.47	0.31	.58
Paternal encouragement	14.82	4.13	14.58	4.21	13.26	3.98	13.40	3.61	15.03	4.21	-0.05	-0.22	4.16***	-0.21	-0.53	.66
Maternal abuse	7.85	3.83	8.56	4.55	8.73	4.71	8.52	5.13	8.13	3.65	-0.08	0.10	1.95	1.53	1.75	.88
Paternal abuse	7.81	3.73	8.11	4.42	8.41	4.54	7.49	4.08	7.40	3.25	0.12	0.18	3.81***	1.69	2.32	.85
Maternal freedom release	19.53	4.27	18.79	4.46	17.82	4.51	17.63	5.54	10.62	4.55	1.97	1.72	35.51***	-0.76	0.09	.86
Paternal freedom release	19.38	4.15	18.82	4.51	18.02	4.68	17.21	5.24	10.29	4.49	2.04	1.81	37.33***	-0.88	0.34	.85
General attachment	18.35	3.72	17.87	4.06	18.59	3.74	19.84	3.13	18.03	3.53	0.09	0.07	1.37	-0.39	-0.31	.68
Maternal dominance	11.81	3.35	11.85	3.63	11.67	3.63	11.81	3.21	11.77	3.60	0.01	0.00	0.06	0.07	-0.56	.62
Paternal dominance	10.51	3.79	10.48	3.88	10.47	3.82	10.08	3.39	12.17	3.50	-0.47	-0.46	-9.55***	0.44	-0.48	.72

Note. FRQ = Family Relationship Questionnaire.

<sup>a</sup> $N = 114$ . <sup>b</sup> $N = 511$ . <sup>c</sup> $N = 316$ . <sup>d</sup> $N = 75$ . <sup>e</sup> $N = 718$  (Chen et al., 2015). <sup>f</sup>Value of comparing the two university samples. <sup>g</sup>Value of comparing the two total samples. <sup>h</sup>Value of comparing the two total samples.

\*\*\* $p < .005$  (two-tailed).

Most of the kurtosis and skewness values were in the range of -1 and 1, only the Abuse scale had higher values. However, Kim (2013) suggests that even these values can be accepted as normal distributions as in sample sizes above 300, an absolute skew value larger than 2 or an absolute kurtosis larger than 7 can be regarded as signs of non-normality.

The majority of the FRQ scales showed high enough reliabilities with values around or above .7. Only scales of maternal encouragement and dominance had somewhat lower reliabilities but all item-total correlations were positive and significant with values above .22.

In order to more deeply examine the structure of the questionnaire, we have conducted a confirmative factor analysis with applying the original factor model (Chen et al., 2015) to our sample. The fit indices showed unsatisfactory fit (CMIN/ $df$ : 9.93; Goodness of Fit Index: .83; Adjusted Goodness of Fit index: .79; TLI: .76; CFI: .79; RMSEA: .066 [.065-.068]). However, with applying modification based on modification indices, we could reach satisfactory fit (CMIN/ $df$ : 4.75; Goodness of Fit Index: .91; Adjusted Goodness of Fit index: .89; TLI: .90; CFI: .91; RMSEA: .043 [.041-.045]). The modified models (for maternal and paternal scales) can be seen in Figure 1 and Figure 2. The applied main modification was caused by the secondary loadings of one item ("When I made mistakes, I was afraid of being punished by my father/ mother"). This means that this item loaded on more factors, namely on dominance, freedom release, abuse and general attachment as well. Besides this modification, some correlated errors were allowed in the modified model. In all cases, the subscales with the correlated errors belonged to the same main scale.

Figure 1

Confirmatory Factor Model of Paternal Scales

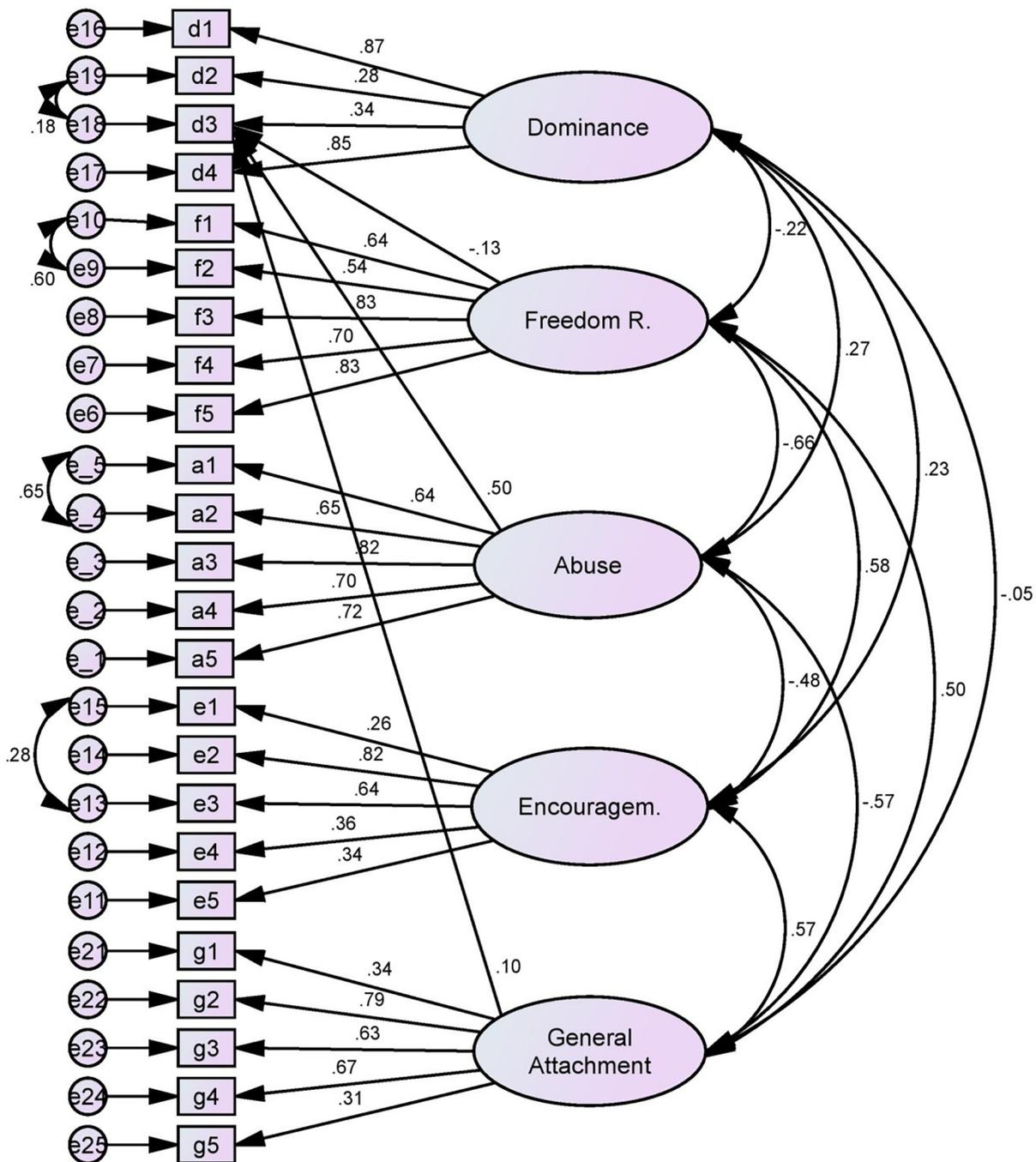
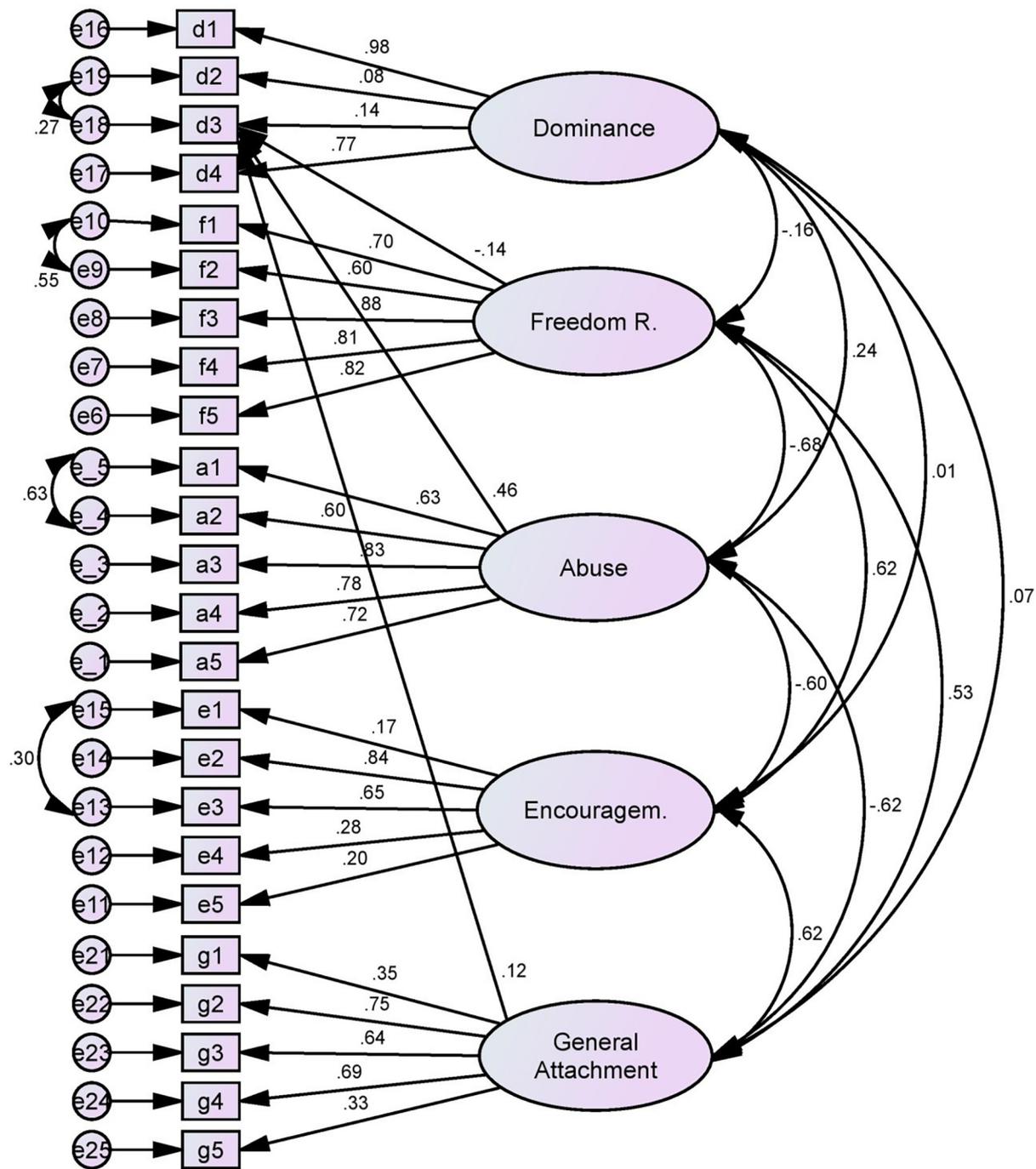


Figure 2

Confirmatory Factor Model of Maternal Scales



Additionally, we have conducted measurement invariance analyses in order to test if there are differences in factor structure between age groups. We have found that configural, metric and also factor covariance invariance have reached satisfactory fit indices both for maternal and paternal model (see Table 2).

**Table 2***Age Categories Measurement Invariance Analyses of Confirmatory Factor Analytic Models*

Measurement invariance analysis of CFA models	CMIN/df	GFI	AGFI	TLI	CFI	RMSEA	LO 90	HI 90	PCLOSE
<b>Age categories measurement invariances - Maternal Attachment</b>									
Configural invariance	2.41	.88	.84	.89	.91	.04	.04	.04	1.00
Metric invariance	2.39	.87	.85	.89	.90	.04	.04	.04	1.00
Factor covariance invariance	2.42	.87	.85	.89	.90	.04	.04	.04	1.00
Residual invariance	2.49	.86	.85	.88	.88	.04	.04	.04	1.00
<b>Age categories measurement invariances - Paternal Attachment</b>									
Configural invariance	2.27	.88	.85	.90	.91	.04	.03	.04	1.00
Metric invariance	2.26	.88	.85	.90	.91	.04	.03	.04	1.00
Factor covariance invariance	2.23	.88	.86	.90	.90	.04	.03	.04	1.00
Residual invariance	2.27	.86	.85	.90	.89	.04	.03	.04	1.00

Note. CMIN = Chi Square Test; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; LO 90 = lower limit of 90% confidence interval of RMSEA; HI 90 = upper limit of 90% confidence interval of RMSEA; PCLOSE =  $p$  value of close fit.

Table 3 demonstrate the correlations among the factors of FRQ. Highest correlations were found in case of parental abuse scales, which correlated negatively with freedom release ( $r < -.53$ ) and general attachment ( $r > .39$ ), and positively with parental dominance ( $r > .41$ ). General attachment correlated negatively with Abuse scale and positively with Freedom release scales with a correlational coefficient of around .40.

**Table 3***Correlations Among Subscales of Family Relation Questionnaire*

FRQ scale	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Paternal encouragement	1.00	-.22**	.31**	.23**	.29**	-.04	.03	-.10**	.24**
2. Paternal abuse	-.22**	1.00	-.53**	.44**	-.09**	.34**	-.16**	.01	-.39**
3. Paternal freedom release	.31**	-.53**	1.00	-.37**	.16**	-.16**	.40**	.00	.36**
4. Paternal dominance	.23**	.44**	-.37**	1.00	-.03	.03	-.06	-.26**	-.16**
5. Maternal encouragement	.29**	-.09**	.16**	-.03	1.00	-.29**	.34**	.11**	.30**
6. Maternal abuse	-.04	.34**	-.16**	.03	-.29**	1.00	-.55**	.42**	-.44**
7. Maternal freedom release	.03	-.16**	.40**	-.06	.34**	-.55**	1.00	-.33**	.41**
8. Maternal dominance	-.10**	.01	.00	-.26**	.11**	.42**	-.33**	1.00	-.14**
9. General attachment	.24**	-.39**	.36**	-.16**	.30**	-.44**	.41**	-.14**	1.00

Note. FRQ = Family Relation Questionnaire.

\* $p < .05$  (two-tailed). \*\* $p < .01$  (two-tailed).

Table 4 shows correlations between FRQ and PBI scales.

**Table 4**

*Correlations Between FRQ Factors and PBI Subscales*

FRQ scale	Maternal care	Maternal overprotection	Maternal constraint	Paternal care	Paternal overprotection	Paternal constraint
Paternal encouragement	.16**	-.02	-.02	.54**	-.01	-.14**
Paternal abuse	-.26**	.19**	.18**	-.59**	.42**	.45**
Paternal freedom release	.20**	-.20**	-.35**	.52**	-.47**	-.75**
Paternal dominance	-.06	.05	.07*	-.22**	.40**	.38**
Maternal encouragement	.51**	-.04	-.25**	.14**	-.05	-.11**
Maternal abuse	-.67**	.41**	.51**	-.26**	.14**	.15**
Maternal freedom release	.54**	-.52**	-.82**	.17**	-.21**	-.36**
Maternal dominance	-.28**	.39**	.32**	-.13**	-.02	-.02
General attachment	.55**	-.28**	-.32**	.52**	-.23**	-.23**

Note. FRQ = Family Relationship Questionnaire; PBI = Parental Bonding Instrument.

\* $p < .05$  (two-tailed). \*\* $p < .01$  level (two-tailed).

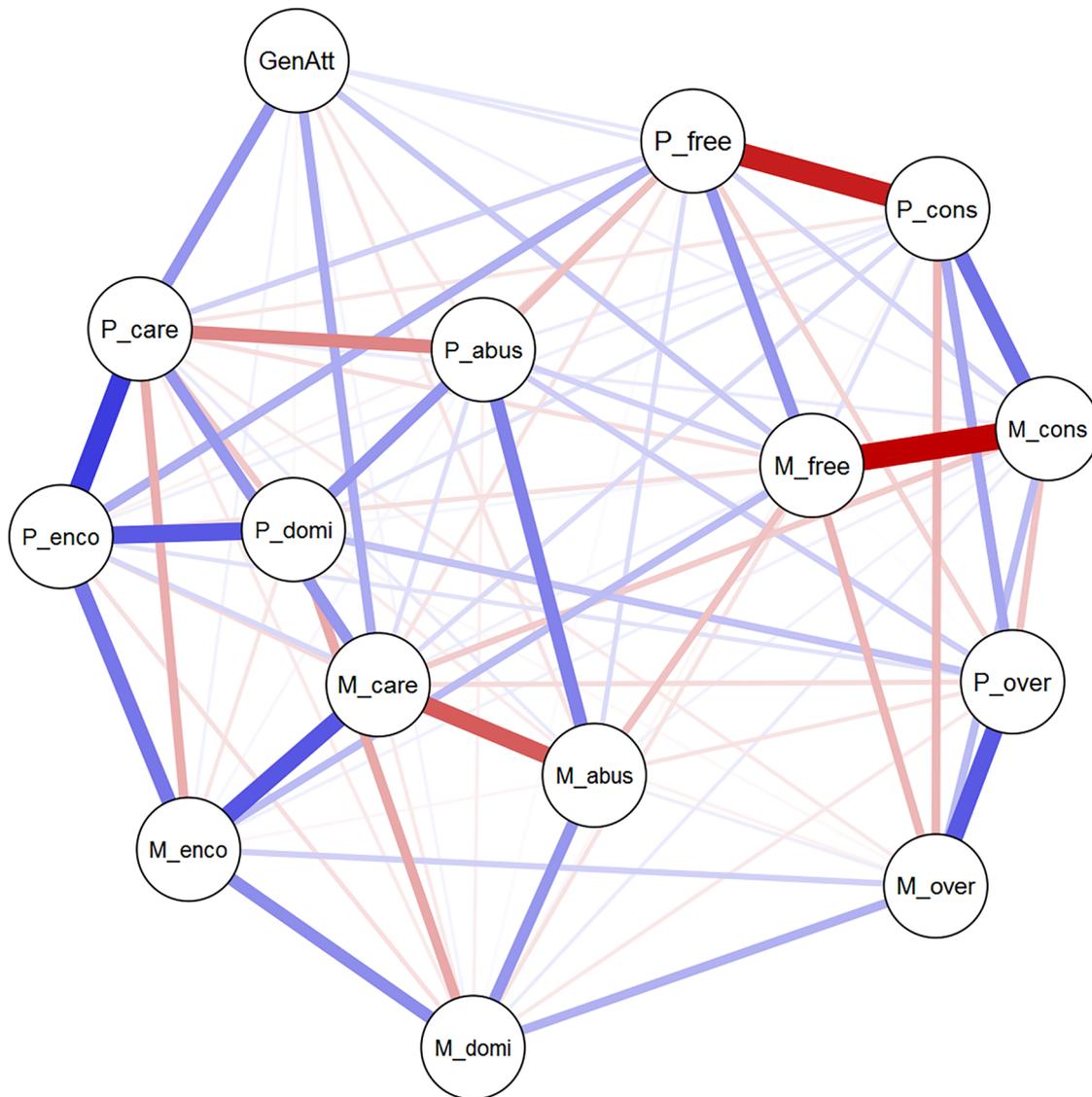
Strong negative correlations were found between FRQ freedom release and PBI constraint scales (-.75 for paternal, -.82 for maternal scales). Freedom release scales also exhibited a medium negative relation to overprotection and medium positive relation to love-care.

We can see that general attachment and PBI love-care subscales correlated at medium strength. Parental encouragement correlated to PBI love-care subscales similarly to the original publication (Chen et al., 2015). Parental abuse scales were most strongly related to lack of parental care (thus exhibited a negative relation with care factors). These abuse scales were also related to overprotection and constraint, but at a weaker level. Dominance scales, in general, exhibited a weakest relation to PBI scales. However, parental dominance scales were related to parental constraints at a medium level.

In order to visualize the relations between the scales used in our study, we have run a neural network modelling (see Figure 3). It can be seen that the main groups of variables emerge, one for love-care variables and lack of abuse, and other for freedom release and lack of constraints. General attachment was placed between and above the other two groups. Strength (sum of the absolute weights of the edge connecting the node to all the other nodes; Valente, 2012), measures of the scales can be seen in Table 5.

**Figure 3**

*Neural Network Modelling of Family Relationship Questionnaire and Parental Bonding Instrument Scales*



*Note.* P = paternal; M = maternal; over = overprotection; care = love-care; cons = constraint; abus = abuse; domi = dominance; enco = encouragement; free = freedom release; genatt = general attachment.

**Table 5**

*Strength of the Scales in Neural Network Modelling*

Variable	Strength
FRQ General attachment	-2.36
PBI Maternal care	0.99
PBI Maternal overprotection	-0.90
PBI Maternal constraint	0.27
PBI Paternal care	1.48
PBI Paternal overprotection	-0.76

Variable	Strength
PBI Paternal constraint	0.36
FRQ Maternal encouragement	0.86
FRQ Paternal encouragement	0.11
FRQ Paternal abuse	-0.40
FRQ Maternal abuse	-0.09
FRQ Paternal freedom release	0.62
FRQ Maternal freedom release	1.18
FRQ Paternal dominance	-0.47
FRQ Maternal dominance	-0.90

Note. FRQ = Family Relationship Questionnaire; PBI = Parental Bonding Instrument.

At last, we have compared groups (male vs. females and single child vs. children with siblings and first vs. consecutive children) on the FRQ scales. Results can be seen in Table 6. There have been some significant differences but all Cohen's *d* values indicated only small effect sizes. Females scored lower on FRQ Paternal Abuse and Paternal Dominance but scored higher on General Attachment than males. Children without siblings did not differ from one with siblings in FRQ scales, but scored higher on PBI Maternal Overprotection. First children scored lower on PBI Care scale and higher on FRQ Paternal Abuse than those having elder siblings.

**Table 6**

*Gender, Child Number and Child Order Group Differences in FRQ and PBI Scales*

PBI and FRQ subscales	Gender				<i>d</i>	Single child				<i>d</i>	You are the ___ child (order)				
	Male		Female			No		Yes			First child		Not first child		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>d</i>
PBI Maternal care	3.13 <sub>a</sub>	0.70	3.12 <sub>a</sub>	0.74	.01	3.12 <sub>a</sub>	0.72	3.11 <sub>a</sub>	0.79	.02	3.10 <sub>a</sub>	0.75	3.15 <sub>a</sub>	0.70	-.07
PBI Maternal overprotection	2.16 <sub>a</sub>	0.68	2.06 <sub>a</sub>	0.73	.14	2.07 <sub>a</sub>	0.72	2.20 <sub>b</sub>	0.72	-.18	2.12 <sub>a</sub>	0.74	2.06 <sub>a</sub>	0.70	.09
PBI Maternal constraint	1.99 <sub>a</sub>	0.64	2.05 <sub>a</sub>	0.71	-.09	2.03 <sub>a</sub>	0.69	2.08 <sub>a</sub>	0.71	-.08	2.05 <sub>a</sub>	0.70	2.02 <sub>a</sub>	0.68	.04
PBI Paternal care	2.75 <sub>a</sub>	0.79	2.83 <sub>a</sub>	0.82	-.10	2.81 <sub>a</sub>	0.82	2.79 <sub>a</sub>	0.81	.02	2.75 <sub>a</sub>	0.82	2.87 <sub>b</sub>	0.80	-.15
PBI Paternal overprotection	1.77 <sub>a</sub>	0.64	1.76 <sub>a</sub>	0.69	.01	1.76 <sub>a</sub>	0.68	1.76 <sub>a</sub>	0.65	.01	1.78 <sub>a</sub>	0.69	1.73 <sub>a</sub>	0.66	.08
PBI Paternal constraint	1.95 <sub>a</sub>	0.72	1.94 <sub>a</sub>	0.76	.01	1.94 <sub>a</sub>	0.74	1.94 <sub>a</sub>	0.77	.00	1.97 <sub>a</sub>	0.77	1.92 <sub>a</sub>	0.71	.06
FRQ Paternal encouragement	14.06 <sub>a</sub>	4.06	14.13 <sub>a</sub>	4.17	-.01	14.05 <sub>a</sub>	4.13	14.42 <sub>a</sub>	4.18	-.09	14.09 <sub>a</sub>	4.13	14.14 <sub>a</sub>	4.15	-.01
FRQ Maternal encouragement	16.34 <sub>a</sub>	3.39	16.42 <sub>a</sub>	3.58	-.02	16.41 <sub>a</sub>	3.48	16.34 <sub>a</sub>	3.77	.02	16.47 <sub>a</sub>	3.55	16.32 <sub>a</sub>	3.51	.04
FRQ Paternal abuse	8.83 <sub>a</sub>	4.61	7.86 <sub>b</sub>	4.24	.22	8.19 <sub>a</sub>	4.43	7.77 <sub>a</sub>	4.00	.10	8.41 <sub>a</sub>	4.55	7.81 <sub>b</sub>	4.13	.14
FRQ Maternal abuse	8.53 <sub>a</sub>	4.12	8.53 <sub>a</sub>	4.73	.00	8.51 <sub>a</sub>	4.57	8.65 <sub>a</sub>	4.59	-.03	8.75 <sub>a</sub>	4.73	8.27 <sub>a</sub>	4.37	.11
FRQ Paternal freedom release	18.48 <sub>a</sub>	4.39	18.53 <sub>a</sub>	4.69	-.01	18.50 <sub>a</sub>	4.61	18.62 <sub>a</sub>	4.65	-.03	18.39 <sub>a</sub>	4.69	18.67 <sub>a</sub>	4.52	-.06
FRQ Maternal freedom release	18.94 <sub>a</sub>	4.23	18.31 <sub>a</sub>	4.69	.14	18.55 <sub>a</sub>	4.51	18.11 <sub>a</sub>	4.92	.10	18.37 <sub>a</sub>	4.69	18.62 <sub>a</sub>	4.44	-.06
FRQ General attachment	17.71 <sub>a</sub>	3.64	18.51 <sub>b</sub>	3.96	-.21	18.35 <sub>a</sub>	3.93	18.01 <sub>a</sub>	3.70	.09	18.22 <sub>a</sub>	3.80	18.38 <sub>a</sub>	4.01	-.04
FRQ Paternal dominance	10.91 <sub>a</sub>	3.89	10.28 <sub>b</sub>	3.77	.17	10.49 <sub>a</sub>	3.86	10.24 <sub>a</sub>	3.59	.07	10.55 <sub>a</sub>	3.86	10.35 <sub>a</sub>	3.76	.05
FRQ Maternal dominance	11.81 <sub>a</sub>	3.30	11.77 <sub>a</sub>	3.66	.01	11.74 <sub>a</sub>	3.58	12.01 <sub>a</sub>	3.48	-.07	11.84 <sub>a</sub>	3.62	11.71 <sub>a</sub>	3.50	.04

Note. Values in the same row and subtable not sharing the same subscript are significantly different at  $p < .05$  in the two-sided test of equality for column Means. Cells with no subscript are not included in the test. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction. FRQ = Family Relationship Questionnaire; PBI = Parental Bonding Instrument.

## Discussion

The aim of our study was to validate the Hungarian version of the FRQ (Chen et al., 2015). The reliability of the scales were around .7 in most cases, however, Cronbach's alphas did not reach satisfactory level in case of maternal encouragement and dominance scales. However, some researchers (e.g. Yaffe, 2018; Spiliotopoulou, 2009) are more permissive regarding Cronbach's alphas, especially in cases of low item number, accepting alphas at around .6 as well. In fact, Cronbach (1951) and more researchers later on (Voss, Stem, & Fotopoulos, 2000; Swailes & McIntyre-Bhatty, 2002) have noted that Cronbach's alpha estimation of reliability increases with scale length. Cronbach (1951) also provided formula to estimate the mean inter-item correlation independently of scale length. The formula for this calculation is as follows

$$\rho = \frac{\alpha}{n - (n - 1) \times \alpha} \quad (1)$$

where:  $\rho$  = an estimator of reliability independent of scale length,  $\alpha$  = coefficient alpha, and  $n$  = the number of items in the scale. Thus, five items with a Cronbach's alpha of .58 (as was the case for Maternal Encouragement) have a mean inter-item correlation of .21, and four items with a Cronbach's alpha of .62 (as was the case with Maternal Dominance) have a mean inter-item correlation of .29, both of which can be regarded as acceptable (Clark & Watson, 1995).

However, also confirmatory factor analysis showed that some items did not load well on these scales (Maternal encouragement and Dominance). In case of encouragement, one item ("My mother tried to influence me to become something 'posh'.) did not load well. The Hungarian society tends to have a larger lower class and a much smaller upper class or elite with relatively small social mobility (Albert et al., 2018). For parents of lower or middle class, it can be assumed that rearing the child to become 'posh' is not a relevant parenting goal. Further research should be needed if another version of this item (e.g., My mother tried to influence me to become well-educated) would fit better in Hungarian version and in other cultures. Another cause of unsatisfactory fit was that in case of dominance factor, there was an item (When I made mistakes, I was afraid of being punished by my mother) that did not specifically loaded on dominance. This item loaded on more factors, including general attachment, freedom release and abuse. In this way, it seems that this item does not specifically measure dominance. As dominance scale originally had only four items, leaving out this item would result in too few (only three) items. Rather, further research should be done on what items could measure more specifically dominance.

Dominance scale was the one that showed the weakest relations to PBI scales, however it should be noted that this scale did not include items derived from original PBI scales, but on the other hand, all items of freedom release scale have been derived from PBI. In this way, it is understandable that this scale shows lower relation to PBI scale. However, there may be some cultural differences, as dominance may be a less relevant dimension in Hungary, as Hungary is a culture with low power distance (Hofstede & Hofstede, 2005). According to Hofstede and Hofstede (2005), power distance is a cultural index, which shows how people (e.g., members of a family) accept that power is distributed unequally.

Altogether we also have to note that with a few modifications of the original model, satisfactory fit indices were found. Also metric and configural invariance were confirmed across different age groups

Examining the correlations between FRQ and PBI scales was meant to be used as a tool for convergent validation, as done by [Chen et al. \(2015\)](#). In case of „Freedom release”, which only contained items derived from PBI, it shows how much the selected items represent well the original PBI total scale or not (in this case we can call it concurrent validity). In sum, the convergent validity can be regarded satisfactory, as scales correlated with PBI scales, which has turned to be reliable and valid scales in the past 20 years ([Wilhelm et al., 2005](#)), at moderate or even large level. Strong correlations were found between FRQ Freedom release and PBI Constraints scale along with FRQ Abuse scale and PBI Care scale. We have to note that all items of Freedom Release have been derived from original PBI Constraint scale, but with reversing them. The strong negative correlations (Cohen's  $d \leq -.75$ ) show that the smaller number of these reversed items measure freedom release in a valid way (i.e., concurrent validity). It also has to be noted that Abuse and Freedom release scales had the highest reliabilities as well.

Encouragement also correlated to PBI love-care subscales similarly to the original publication ([Chen et al., 2015](#)), and also neural network modelling showed that FRQ encouragement – PBI love/care scale – FRQ abuse scales emerged in close relations to each other, with a negative relation between love/care and abuse. Another group was formed by FRQ freedom release and PBI constraint scales.

The lowest strength was observed in case of dominance and general attachment scales. Strength refers to the sum of the absolute weights of the edge connecting the node to all the other nodes ([Valente, 2012](#)). Low strength mean that the node (in our case the dominance and general attachment scale) provide unique information, not highly linked to other FRQ or PBI scales. Further research should examine further validity of the scales and examine if these ‘unique’ information is useful and valid. Although both factorial fit and scale reliabilities were weak in case of Dominance, further cross-cultural research should confirm if this scale is less relevant in cultures with more equality of the parents. Regarding group comparisons, only small effect sized gender differences were found and no significant differences were present between single children and ones with siblings. Similarly, to results of [Chen et al. \(2015\)](#), females scored higher on General Attachment, in accordance with previous researches, which showed that women place more emphasize and express and share more love, affection and warm feelings in relationships, with more intimacy ([Hook, Gerstein, Detterich, & Gridley, 2003](#); [Ridley, 1993](#)). Furthermore, women scored lower on Paternal Abuse and Dominance. This is in line with results of [Someya et al. \(2000\)](#) who found that elder male children experienced more rejecting, whereas female children experienced more caring parenting style.

Our research can be regarded as first step towards the cross-cultural validity measure of FRQ. Although some limitation of questionnaire have been found (a few items do not show cross-cultural stability, there are some marginal reliabilities due to low item number), the overall structure of the questionnaire and scales have been confirmed to be a valid and reliable measure in a European context as well.

We also have to note that our sample did differ from sample of original publication ([Chen et al., 2015](#)) in many ways, not only in culture: in age and gender distribution, number of siblings. However, number of siblings can also be due to cultural factors, as in China there had been restrictions of having more children. An interesting research question is whether factorial invariance holds on such different samples. In sum, our research may not be able to unfold the cultural differences in mean levels of attachment, but can be regarded as an important step in testing the factorial invariance and validity of the scales in different samples.

Finally, we have to note that our research has some limitations. First, it relies on only cross-sectional, self-report measures, recollecting the childhood experiences. Longitudinal research should evaluate if these recollections can be valid measures of the experiences. Second, we had only non-clinical sample. Further research is needed to examine how the questionnaire functions on clinical sample and how it can have a predictive power of certain affective or personality disorders.

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## Competing Interests

The authors have declared that no competing interests exist.

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