Validation of a 16-Item Short Form of the Czech Version of the Experiences in Close Relationships Revised Questionnaire in a Representative Sample

Psychological Reports
2016, Vol. 119(3) 804–825
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DOI: 10.1177/0033294116667725
prx.sagepub.com

Natália Kaščáková
Olomouc University Social and Health Institute, Palacky University in Olomouc, Czech Republic; Psychiatric Clinic, Bratislava, Slovak Republic

Daniela Husárová
Department of Health Psychology, Faculty of Medicine, P.J. Safarik University in Kosice, Slovak Republic

Jozef Hašto
Olomouc University Social and Health Institute, Palacky University in Olomouc, Czech Republic; Psychiatric Clinic, Bratislava, Slovak Republic

Peter Kolarčik
Olomouc University Social and Health Institute, Palacky University in Olomouc, Czech Republic; Department of Health Psychology, Faculty of Medicine, P.J. Safarik University in Kosice, Slovak Republic

Iva Poláčková Šolcová
Institute of Psychology of the Academy of Sciences of the Czech Republic, Czech Republic

Andrea Madarasová Gecková
Olomouc University Social and Health Institute, Palacky University in Olomouc, Czech Republic; Department of Health Psychology, Faculty of Medicine, P.J. Safarik University in Kosice, Slovak Republic

Peter Tavel
Olomouc University Social and Health Institute, Palacky University in Olomouc, Czech Republic

Corresponding Author:
Natália Kaščáková, Psychiatric Clinic, Pro Mente Sana, Heydukova 27, 81108 Bratislava, Slovak Republic.
Email: natalia.kascakova@oushi.upol.cz

Abstract
The aim of this study was to create a shorter Czech version (ECR-R-16) of the Revised Experiences in Close Relationships (ECR-R) questionnaire and to assess its psychometric properties. Data from a representative sample of the Czech population from 15 to 90 years old ($N = 1000$, M age $= 46.0$ years, $SD = 17.3$) were collected using a face-to-face structured interview in 2014. The developed short form of the Czech version of the ECR-R showed good internal consistency (alphas varied from .84 to .90), and both exploratory and confirmatory factor analyses replicated the two-dimensional model. The results also demonstrated concurrent validity with measures of neuroticism, self-esteem, and positive and negative affect. People living with a partner and people with higher educational levels had significantly lower Avoidance scores than people living alone and people with lower educational levels. It was concluded that the ECR-R-16 questionnaire has good psychometric properties and is a valid assessment method in the Czech cultural context, suitable for research and clinical studies, when the shorter form of a measure is desirable.

Keywords
Short form of the ECR-R, Experiences in Close Relationships Revised Questionnaire, validation, attachment anxiety, attachment avoidance, attachment styles, representative sample

Introduction

Attachment and its effect on interpersonal functioning over a person's life span has become an extensively studied topic in the past decades. Exploring associations between attachment (in)security and a wide array of biopsychosocial phenomena, including social functioning, coping, stress response, mental states, emotion regulation or mental health and morbidity, is a common subject in many contemporary studies (Fonagy & Campbell, 2015; Mikulincer & Shaver, 2012; Pietromonaco, Uchino, & Schetter, 2013; Shaver & Mikulincer, 2010).

The Experiences in Close Relationships Revised (ECR-R) questionnaire (Fraley, Waller, & Brennan, 2000) is one of the most widely used self-report measures for studying the associations between attachment, personality traits and quality of interpersonal relationships (Noftle & Shaver, 2006), between adult attachment and stress (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006) but also for studying links between attachment, childhood trauma, and maladaptive beliefs in non-clinical populations (MacDonald et al., 2015). In addition, studies conducted with the ECR and ECR-R using patient samples have been published, mostly assessing the relationships between attachment and personality pathology (Ehrenthal, Dinger, Lamla, & Schauenburg, 2007; Eikenæs, Pedersen, & Wilberg, 2015; Hengartner et al., 2015; Kooiman, Klaassens, Lugt, & Kamperman, 2013; MacDonald, Berlow, & Thomas, 2013; Pedersen, Eikenæs, Urnes, Skulberg, & Wilberg, 2015), attachment and interpersonal problems

(Haggerty, Hilsenroth, & Vala-Stewart, 2009), or attachment and object relations in a clinical population (Stein, Siefert, Stewart, & Hilsenroth, 2011).

Historical background

Although attachment theory was originally designed to explain the relationship bond between infants and their caregivers, Bowlby (1979) suggested that attachment is an important component of human experience "from the cradle to the grave" (Bowlby, 1979, p. 129). Behavior in close relationships throughout life is probably continued and shaped by working models of attachment developed from early caregiving experiences. Working models are believed to be relatively stable, and several studies have revealed an association between security in the child–caregiver and the romantic domains (Hazan & Shaver, 1987; Zeifman & Hazan, 2008).

A significant milestone in research on the typology of attachment was and still is Ainsworth's Strange Situation Assessment Procedure in Infants (Ainsworth, 1979), which identified three distinct behavioral patterns of attachment: secure, insecure avoidant, and insecure ambivalent/resistant (Ainsworth, Blehar, Waters, & Wall, 1978). Disorganized attachment patterns were later identified (Main & Solomon, 1990). For the typology of attachment in adulthood, the Adult Attachment Interview (George, Kaplan, & Main, 1985) was of substantial importance. However, the methodological and time demands of the Adult Attachment Interview led to efforts being made to simplify and shorten this assessment. Hazan and Shaver (1987) developed the first self-report categorical measure of adult attachment in romantic relationships, dividing adults according to the descriptions of avoidantly, securely, and anxiously attached infants provided by Ainsworth et al. (1978).

Several self-report measures were later developed, including the widely used ECR questionnaire, which organizes attachment within a two-dimensional space: (1) Anxiety—corresponds to anxiety and vigilance concerning rejection and abandonment; (2) Avoidance—corresponds to feeling uncomfortable with closeness and dependency or a reluctance to be intimate with others (Brennan, Clark, & Shaver, 1998; Crowell, Fraley, & Shaver, 2008). In an attempt to yield better discrimination at the secure ends of the two scales of the ECR, Fraley et al. (2000) re-analyzed the original item pool by using an item-response theory and thus created the ECR-Revised (ECR-R). The positive of these scales is the opportunity to assess dimensional scores of anxiety and avoidance, which allows researchers to gather information about the respondents' anxiety and avoidance rather than simply categorizing them into one of four absolute attachment types (Fairchild & Finney, 2006).

According to the taxometric analyses of Fraley, Hudson, Heffernan, and Segal (2015), individual differences in adult attachment styles are dimensionally distributed. Although many studies now use a dimensional model, the

categorical model—even though it has been criticized both theoretically and analytically (Mikulincer & Shaver, 2010)—is still preferred for clinical use (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010).

Bartholomew and Horowitz's (1991) four-category model helped to reconcile categorical and dimensional models by defining categories that correspond to combinations of extreme positions on the dimensions of attachment anxiety and attachment avoidance. People with *Secure* attachment have relatively low scores in attachment anxiety and avoidance; they are characterized by a positive model of self (have a sense of self-worthiness) and by a positive model of others (they feel that others are trustworthy and responsive). *Preoccupied* attached people score high on the anxiety scale and low on the avoidance scale; they are preoccupied with the availability and responsiveness of others, and their attachment behavior is in a hyperactivated mode. *Dismissive* attached people score high on the avoidance scale and have low anxiety ratings; they devaluate the importance of close relationships, avoid intimacy and dependence, are self-reliant and their attachment behavior is deactivated. *Fearfully* attached people have a combination of both of high attachment anxiety and avoidance; they have sense of unworthiness with an expectation that others will be negatively disposed, untrustworthy, and rejecting (Bartholomew & Horowitz, 1991; Ravitz et al., 2010).

Psychometric studies of the ECR-R and short forms of ECR and ECR-R

Many studies have been conducted examining the psychometric properties of the ECR-R not only in English (Fairchild & Finney, 2006; Sibley, Fischer, & Liu, 2005) but also in Greek (Tsagarakis, Kafetsios, & Stalikas, 2007), German (Ehrenthal, Dinger, Lamla, Funken, & Schauenburg, 2009), Thai (Wongpakaran, Wongpakaran, & Wannarit, 2011), Serbian (Hanak & Dimitrijevic, 2013), Romanian (Rotaru & Rusu, 2013), Dutch (Kooiman et al., 2013), Italian (Busonera, Martini, Zavattini, & Santona, 2014) and Slovak versions (Rozvadsky Gugova, Heretik, & Hajduk, 2014). Few studies on the ECR short and modified forms have been published in the last decade. The ECR-S is a 12-item questionnaire created by Wei, Russell, Mallingrodt, and Vogel (2007); the Norwegian short ECR-12N was created by Olsson, Sorebo, and Dahl (2010), and the French short ECR-12 was created by Lafontaine et al. (2015). Wilkinson (2011) created and modified a general short form for adolescents and young people, and Fuertes, Orgaz, Fuertes, and Caecedo (2011) similarly made a short form of the ECR-R for Spanish adolescents. Authors from Thailand and Lebanon have also published on short forms of the ECR-R (Kazarian & Taher, 2012; Wongpakaran & Wongpakaran, 2012). A modified and shortened relationship-structures questionnaire (ECR-RS), which assesses two attachment dimensions in four main domains (with mother, father,

romantic partner, and best friend), was created by Fraley, Heffernan, Vicary, and Brumbaugh (2011) and contains nine questions in each domain; the Portuguese version of ECR-RS was validated by Moreira, Martins, Gonveia, and Canvarro (2015).

Most data on the ECR-R appear to have been derived from student samples (Fairchild & Finney, 2006; Sibley et al., 2005; Tsagarakis et al., 2007) and from clinical samples (Kooiman et al., 2013; MacDonald et al., 2013; Stein et al., 2011). Moreira et al. (2015), Ehrenthal et al. (2006), and Busonera et al. (2014) provided studies with the ECR-R on large communities but not representative samples. Fraley et al. (2015, 2000), Fraley, Heffernan, et al. (2011) and Chopik, Edelstein, and Fraley (2013) provided large Internet studies using the ECR-R or ECR-RS. To the best of our knowledge, no study using the ECR-R derived from a representative sample has yet been published.

Although there is evidence of cross-cultural universality of attachment theory (van Ijzendoorn & Sagi-Schwartz, 2008) and several studies (Conradi, Gerlsma, van Duijn, & de Jonge, 2006; Mastrotheodoros, Chen, & Motti-Stefanidi, 2015) have confirmed the cross-cultural validity of the ECR and ECR-R, validation of the ECR-R in the Czech cultural context has thus far been lacking. Moreover, there is a need to have a short version of the ECR-R made available. A short version of the ECR-R would be more suitable for quick screening as well as for research protocols wrestling between the capacity of the respondents and the length of the questionnaire, which needs to cover a variety of variables. The aim of this study was to create a shorter Czech version (ECR-R-16) of the ECR-R questionnaire and to assess its psychometric properties.

To assess the concurrent validity, the Big Five Inventory (BFI) (John & Srivastava, 1999) was used to assess correlations between neuroticism and both anxiety and avoidance dimensions, with the expectation of finding positive correlations. Since attachment anxiety is presumed to involve a negative model of the self (Brennan et al., 1998), the Rosenberg Self-esteem scale (RSES) (Rosenberg, 1965) was applied to assess correlations between anxiety and self-esteem. Associations between adult attachment and positive and negative affect were studied, particularly in the context of romantic relationships (Simpson, 1990). The hypothesis was that high levels of anxiety and avoidance will associate positively with negative affect and negatively associate with positive affect. To make this determination, the Positive and Negative Affect Scale developed by Watson, Clark, and Tellegen (1988) was used.

Method

Participants

A pilot study on 109 respondents was performed prior the study with aim of checking the readability of the questionnaire. Then 1215 of randomly selected

respondents from a list of inhabitants of the Czech Republic, stratified by sex, age, and 14 regions, were asked to participate in a larger study on health. Of those asked to participate, 215 refused, more men and younger age groups, mostly due to a lack of time and reluctance. Finally, data from 1000 respondents were collected by trained administrators using face-to-face interviews during November and December 2014. The selected group of 1000 participants is a representative sample of the population of the Czech Republic over the age of 15 in relation to sex (486 men), age composition (age 15 to 90 years old, $M = 46.0$), and in relation to regional affiliation.

Measures

ECR-R is a 36-item, self-report measure of adult romantic attachment (Fraley et al., 2000). Participants were asked to indicate their agreement with statements representing two dimensions of attachment: avoidance (e.g., "I am very comfortable being close to romantic partners") and anxiety (e.g., "I often worry that my partner will not stay with me"). Responses ranged on a Likert scale from 1 (*Strongly agree*) to 7 (*Strongly disagree*).

The Czech version was obtained by a back-translation procedure: it was first translated into Czech by two independent Czech translators and the two versions were then compared. Most of items were identical, but for some items, a decision on the correct translation had to be made. The integrated version was then translated back into English by a native English-language speaker. The discrepancies between the back-translation and the Czech version were then discussed, and a final correction of the Czech version was made. The original version consists of 36 items. With the aim of shortening this measurement, we selected eight items for each dimension based on fitness to the clinical content, using the views of experts, and based on psychometric parameters using high factor loading while maintaining high internal consistency as a criterion for keeping an item in or leaving it out.

The BFI is a 44-item inventory that measures an individual on five dimensions of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Each factor is then further divided into personality facets (John & Srivastava, 1999). It is assessed on five-point Likert scale. The Cronbach's alpha for the Neuroticism Scale was .71.

The RSES (Rosenberg, 1965) is a widely used 10-item self-report questionnaire assessing general self-esteem on a four-point Likert scale, with answers ranging from 1 (*Strongly agree*) to 4 (*Strongly disagree*). Higher scores are associated with higher levels of self-esteem. The Cronbach's alpha in the present study was .79.

The Positive and Negative Affect Schedule is a 20-item measure that comprises two mood scales, one measuring positive affect and the other measuring negative affect. Each item is rated on a five-point scale ranging from 1 (*Very slightly or*

not at all) to 5 (*Extremely*) in order to indicate the extent to which the respondent has felt this way in the indicated time frame (Watson et al., 1988). The Cronbach's alphas in the present study were .84 for the positive affect scale and .87 for the negative affect scale.

Statistical analyses

In the first step, the sample was described using descriptive statistics. To explore the statistical significance of differences between all the research groups in anxiety and avoidance, a one-way analysis of variance (ANOVA) and Scheffé post hoc tests were used. Next, the Cronbach's alphas (an internal consistency indicator) and the split-half correlation coefficient for the anxiety and avoidance subscales were calculated. Moreover, the dimensional structure of the questionnaire was tested using exploratory factor analyses with principal component analyses and Varimax rotation, and confirmatory factor analysis was performed using SPSS AMOS. For testing the relationship between the anxiety and avoidance subscales, as well for testing the correlations between other measures, Pearson's correlation coefficient was used. To display the four attachment styles according to positions (means) on the orthogonal dimensions of anxiety and avoidance, the Maple 14 computer algebra system was used; these data subsets were subsequently visualized by the list-plot procedure of Maple and combined into a single plot with line segments representing X- and Y-means. All analyses were performed using the statistical software package SPSS version 21.

Results

A short form of the ECR-R questionnaire with 16 selected items and named the ECR-R-16 was developed. A team of four experts created a consensus about item selection according to clinical and statistical properties. The focus was on the main themes from the ECR-R remaining in the shortened version to reach the dimensions of anxiety and avoidance. On the anxiety subscale, the main themes identified were fear of loss of love and lack of love, fear of abandonment, uncertainty of the relationship and instability, desire for closeness and fear of not repaying. The dominant themes on the avoidance subscale were the ability to bring and share, the enjoyment of sharing versus fear of sharing, the ability to trust and depend on and the ability to find support. Items representing these themes were then selected according to statistical properties, namely according to loading rates in factor analysis. All selected items loaded above .60 on the scale they represented. The corrected inter-item correlation by selected items was more than .3. The short Czech version of the ECR-R-16 consists of eight items on the anxiety subscale (9, 10, 11, 12, 13, 14, 15, 16) and eight items on the avoidance subscale, scored in reverse (1, 2, 3, 4, 5, 6, 7, 8).

The items selected for the ECR-R-16 in present study are also representative of the main components of attachment anxiety: fear of interpersonal rejection or abandonment (Items 9, 10, 16, 11, 12), excessive need for approval from others (Items 14, 15, 13), distress when a partner is unavailable (Items 11, 13), and representative of the main components of attachment avoidance: excessive need for self-reliance (item 1), reluctance to self-disclose (Items 5, 2, 3), and fear of interpersonal intimacy (Items 4, 8, 6, 7).

Descriptive characteristics

Table 1 presents descriptive statistics and social demographics of the sample as well as descriptive statistics for both subscales of the ECR-R-16 in mean scores. ANOVA in the anxiety and avoidance scores in selected groups and Scheffé post hoc tests revealed significant differences in avoidance scores in some groups. People living with a partner (in marriage or partnership) had significantly lower avoidance score than people living alone, divorced or widows/widowers. There was a significantly lower avoidance score in groups with a higher educational level (college or high school) than in groups with a lower educational level (primary, skilled operative). The differences between these groups in the anxiety scores were insignificant, as were the gender and age differences in both anxiety and avoidance.

Internal consistency

The internal consistencies of both scales of the ECR-R-16 were good, with Cronbach's $\alpha = .84$ for attachment-related anxiety, Cronbach's $\alpha = .90$ for attachment-related avoidance. The split-half correlation coefficient for the anxiety subscale was $r = .82$ and for avoidance subscale $r = .90$.

Factor structure

Table 2 shows the factor analysis results for the ECR-R-16. KMO and Bartlett's test of sphericity indicated the suitability of the data for factor analysis. The two factors extracted by the factor analysis together explained 54.41% of the data variance, 34.76% and 19.64% for the first and second factors, respectively, with eigenvalues of 5.56 and 3.14. The rotated component matrix showed distinct two factors, with item factor loadings ranging from .69 to .82 for the first factor and .60 to .77 for the second factor without any cross-loadings greater than .30. The skewness and kurtosis of the variables are in an acceptable range. No variable has an excessive value for either skewness or kurtosis. Items no. 6, 7, 8, 10, 11, 12, 13, 14, and 16 loaded on both factors, but all with greater loadings (above .60) on their original subscale and with low loadings (below .19) on the other subscale. The two factors of anxiety and avoidance were found to be weakly correlated at $r = .24$ ($p < .001$).

Table 1. Description of the sample and differences between research groups in anxiety and avoidance.

	N (%)	Anxiety M (SD)	Scheffé test	Avoidance M (*SD*)	Scheffé test
Gender			NS		NS
1. Men	486 (48.6)	22.00 (8.60)		23.74 (10.84)	
2. Women	514 (51.4)	21.65 (8.97)		24.20 (11.39)	
Age			NS		NS
1. 15–29 y.	227 (22.7)	22.09 (8.96)		22.15 (10.44)	
2. 30–39 y.	158 (15.8)	22.45 (8.92)		24.68 (11.08)	
3. 40–49 y.	180 (18.0)	23.38 (8.94)		23.55 (10.34)	
4. 50–59 y.	161 (16.1)	20.75 (7.88)		24.91 (12.23)	
5. 60 and more y.	274 (27.4)	20.84 (8.83)		24.81 (11.40)	
Living arrangements			NS		
1. With partner in marriage	500 (50.0)	21.19 (8.26)		22.78 (10.06)	1–3***
2. With partner	201 (20.1)	22.24 (9.06)		21.36 (9.83)	2–3***
3. Alone	185 (18.5)	23.07 (9.69)		29.98 (12.99)	3–4***
4. With parents, siblings	114 (11.4)	21.79 (8.84)		24.12 (11.13)	
Marital status			NS		
1. Single	281 (28.1)	22.70 (9.21)		22.76 (10.58)	1–3*, 1–4***
2. Married	499 (49.9)	21.11 (8.25)		22.74 (10.05)	2–3*, 2–4***
3. Divorced	104 (10.4)	23.09 (9.43)		26.93 (12.53)	3–4*
4. Widow/widower	82 (8.2)	20.84 (8.72)		31.97 (13.04)	4–5**
5. Unmarried mate	34 (3.4)	23.47 (10.03)		23.97 (11.95)	
Education level			NS		
1. Primary	84 (8.4)	23.19 (9.70)		28.16 (11.31)	1–3**, 1–4***
2. Skilled operative	326 (32.6)	21.75 (8.88)		25.13 (12.04)	2–4*
3. High school, graduated	435 (43.5)	21.63 (8.73)		23.02 (10.42)	
4. College	155 (15.5)	21.76 (8.25)		21.98 (10.15)	

Note: NS: non-significant; *$p < .05$; **$p < .01$; ***$p < .001$; numbers in Scheffé test indicate compared groups.

Confirmatory factor analysis confirmed the factor structure with acceptable model fit indices: $\chi^2 = 690.93$ ($df = 103$), $p < .001$, relative $\chi^2 = 6.71$, root mean square error of approximation (RMSEA) = .076 (90% confidence interval (CI) = .070–.081), goodness of fit index (GFI) = .916; comparative fit index (CFI) = .915; relative fit index (RFI) = .886; normed fit index (NFI) = .902.

Table 2. Factor structure of the short version of the ECR-R questionnaire.

	Subscales	
Items	Avoidance	Anxiety
1. It helps to turn to my romantic partner in times of need.	**.82**	
2. I usually discuss my problems and concerns with my partner.	**.80**	
3. I talk things over with my partner.	**.80**	
4. I am very comfortable being close to romantic partners.	**.78**	
5. I feel comfortable sharing my private thoughts and feelings.	**.77**	
6. It's easy for me to be affectionate with my partner.	**.73**	.13
7. My partner really understands me and my needs.	**.72**	.17
8. I find it relatively easy to get close to my partner.	**.69**	.17
9. I often worry that my partner will not want to stay with me.		**.77**
10. I often worry that my partner doesn't really love me.	.13	**.75**
11. I worry a lot about my relationships.	.12	**.74**
12. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.	.18	**.69**
13. It makes me mad that I don't get the affection and support I need from my partner.	.18	**.66**
14. I find that my partner(s) don't want to get as close as I would like.	.19	**.63**
15. My desire to be very close sometimes scares people away		**.62**
16. I often wish that my partner's feelings for me were as strong as my feelings for him or her.	−.21	**.60**

Note: Bold numerals indicate item factor loadings greater than 0.60.

Attachment styles

According to the sum score of anxiety and avoidance, four groups of attachment styles were obtained ($N = 1000$): *secure* = anxiety mean < 21.60 and avoidance mean < 23.98, (381 respondents), *preoccupied* = anxiety mean > 21.60, avoidance mean < 23.98 (174 respondents), *dismissive* = anxiety mean < 21.60, avoidance mean > 23.98 (145 respondents), *fearful* = anxiety mean > 21.60, avoidance mean > 23.98 (300 respondents) (Figure 1).

Concurrent validity

Correlations between the anxiety and avoidance subscales with neuroticism, self-esteem and positive vs. negative affects are shown in Table 3.

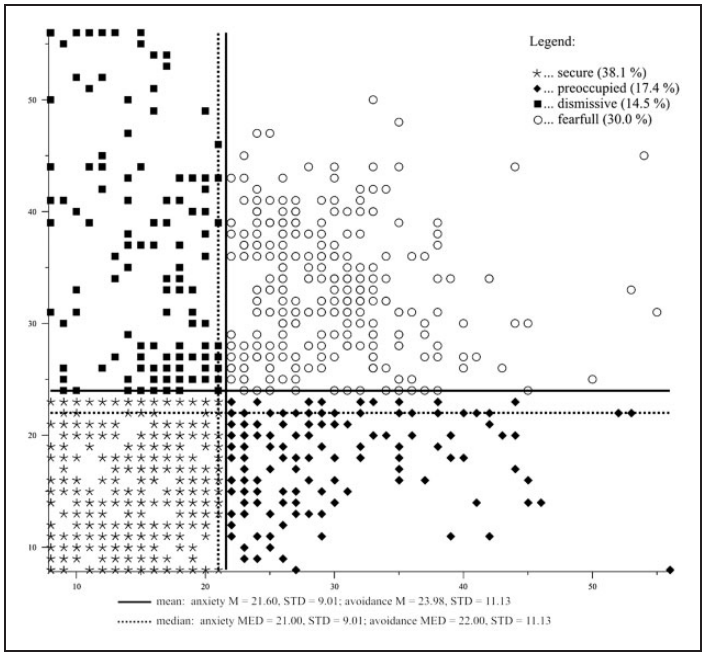


Figure 1. Prevalence of attachment styles ($N = 1000$) based on sum score of anxiety and avoidance.

Table 3. Correlations between ECR-R, neuroticism, self-esteem and positive vs. negative affects.

	Neuroticism (BFI-44)	Self-esteem (RSES)	Positive affects (PANAS)	Negative affects (PANAS)
Anxiety (ECR-R-16)	.27**	−.43**	−.03	.34**
Avoidance (ECR-R-16)	.16**	−.33**	−.20**	.19**

Note. ECR-R-16: Experiences in Close Relationships-Revised-short Czech version; BFI-44: Big Five Inventory; RSES: Rosenberg Self-esteem Scale; PANAS: Positive and Negative Affect Scale.
**Correlation is significant at $p < .01$ (two-tailed).

Discussion

The aim of our study was to develop a shorter Czech version of the ECR-R questionnaire for research purposes and to analyze its psychometric properties, including reliability and factor structure. The content and meaning of the main

themes identified in each dimension of the shortened Czech version of ECR-R overlap with the main domains that are essential components of attachment anxiety and attachment avoidance (Brennan et al., 1998; Shaver & Mikulincer, 2005). Wei et al. (2007), Olsson et al. (2011) and Lafontaine et al. (2015) came to similar findings, putting emphasis on retaining the main attachment themes in their creation of short versions of the ECR.

The analysis of the content of the items left out revealed that the three avoidance items—21, 26 and 33 in original questionnaire (Fraley et al., 2000)—which loaded on the anxiety subscale instead of the original avoidance subscale, were items with the expression "to depend on," which had been translated using the Czech expression "záviset na." This Czech expression could have a negative connotation, because it is also used for people who have an addiction. The Czech expression "závislost" is used for both the terms "addiction" and "dependency," though it does not describe the real meaning of the expression "to depend on" as used in context of attachment. The Italian authors Busonera et al. (2014) and the Romanian authors Rotaru and Rusu (2013) also had similar translation problems with the expression "to depend on." The other three items from the Fraley et al.'s original (2000) avoidance subscale 19, 23, and 24—with greater loading on the anxiety subscale—were negatively formulated items, which could cause confusion among respondents (Colosi, 2005).

With regard to the psychometric properties of the Czech ECR-R-16, in line with other studies of short forms of the ECR or ECR-R provided by Lafontaine et al. (2015), Wei et al. (2007), Olsson et al. (2010) or Wilkinson (2011), good internal consistency was confirmed. In general, the ECR-R in a meta-analysis of self-report measures of adult attachment showed the highest average reliability for a wide variety of samples (Graham & Unterschute, 2015).

Results from both exploratory and confirmatory analyses supported the two-dimensional model of the ECR-R-16, consistent with existing study in the original or translated 36-item versions (Fraley et al., 2000; Sibley & Liu, 2004; Tsagarakis et al., 2007) but also in the short versions of the ECR-R (Kazarian & Taher, 2012; Wilkinson, 2011; Wongpakaran & Wongpakaran, 2012). More items loaded on both factors, with higher loadings on their original subscales. Loading on both factors and a weak correlation of the anxiety and avoidance subscales are consistent with findings from other studies (Kooiman et al., 2013; Sibley et al., 2005), and this supports the theory of stronger association between attachment anxiety and avoidance in the ECR-R than in the ECR. According to Cameron, Finnegan, and Morry (2012) and Sibley et al. (2005), the ECR-R items are better at assessing the full continuum of anxiety and avoidance than the ECR items are.

The results also indicated that the ECR-R-16 displayed satisfactory concurrent validity. As hypothesized, both the anxiety and the avoidance subscales were positively correlated with neuroticism, in line with previous studies (Noftle & Shaver, 2006) and negatively correlated with self-esteem. The finding

of a positive correlation between anxiety and avoidance and negative affect supports previous studies finding of an association between attachment insecurity and negative affect (Feeney & Kirkpatrick, 1996). The negative association of positive affect was significant only in relation to the avoidance dimension, not to the anxiety dimension, which is in line with the findings of Barry, Lakey, and Orehek (2007); Shiota, Keltner, and John (2006).

Data from a representative sample allowed us to compare research groups differentiated according to sex, age, marital status, living arrangement, and educational level. As regard to mean scores, we did not find any significant gender or age differences in the anxiety and avoidance scores, similar to Fraley (2012) in a large online sample. However, we did find some significant differences in avoidance scores according to marital status and living arrangements. Divorced people, widows/widowers, and people living alone scored significantly higher on the avoidance axis than those married or living with a partner. We can assume this finding of higher avoidance by divorced people to be the primary avoiding attachment style of divorced people; avoidant people can experience marriage as too much closeness, which can lead to a tendency toward dissatisfaction, moving away and breaking up. This interpretation is in line with the finding of an association between attachment avoidance and expectations of relationship failure and commitment aversion (Birnie, McClure, Lydon, & Holmberg, 2009) and with findings of a statistically significant influence of partner avoidance on one's own relationship satisfaction (Sierau & Herzberg, 2012). Chopik et al. (2013) found in their large Internet study that individuals who reported being in a close relationships are more secure at each stage of the adult life span; Noftle and Shaver (2006) reported the same in his study on the prediction of relationship quality. These conclusions are consistent with our findings of lower means in anxiety and avoidance rates among people living in marriage or a partnership than among those living alone. Avoidance by widows/widowers can be caused by unfinished mourning, as a defense against another loss. Grossmann and Grossmann (2012) state that traumatic life events can lead to a deviation from the original attachment style. In our study, we found lower anxiety scores and significantly lower avoidance with higher educational levels, which can be explained by the fact that attachment influences a student's school success. Secure attachment, which means a lower rate of anxiety and avoidance, is associated with higher grades and test score standards at school in comparison with insecure attachment (Bergin & Bergin, 2009).

In the present study, a relatively high rate of fearful attached people (30.0%) was found; the rate of insecure attachment styles in general was 61.9%. Any comparisons of the present findings of four attachment style categories with findings from other studies appear to be imprecise and disputed for various reasons. Although the concept of attachment has a cross-cultural universality, we know about cross-cultural differences in representation of attachment styles in different cultures (Schmitt et al., 2004; van Ijzendoorn & Kroonenberg, 1988;

van Ijzendoorn & Sagi-Schwartz, 2008). Schmitt et al. (2004), using the Relationship Questionnaire (Bartholomew & Horowitz, 1991), measured adult romantic attachment across 62 cultural regions and found that the secure form is normative across 72% of the assessed cultures; in East Asia, the preoccupied style was at odds; in several African cultures, all insecure types of attachment were more common than the secure style. Another problem of making comparisons is that assigning people to categories based on dimensional scores can have negative implications for statistical power (Fraley et al., 2015; Fraley & Waller, 1998) and can lead to false positives—statistically significant, but spurious findings (Maxwell & Delaney, 1993). Gleeson and Fitzgerald (2014), using the ECR-R in their Irish study, explored the association between adult attachment styles, perception of parents in childhood, and relationship satisfaction in a sample of 227 participants made up of students and the general population. When we compare these results to the present findings from a representative sample, more secure and fewer fearful attached individuals appear in the present study. On the other hand, in one large study on a representative sample of American adults using the three-categorical Hazan and Shaver's (1987) model, secure attached individuals (59%) showed great superiority (Mickelson, Kessler, & Shaver, 1997). The representation of adult attachment styles seems to have changed over recent decades. In a recent cross-temporal meta-analysis conducted on 94-student samples of American college students between years 1988 and 2011 and using the four-category measure of attachment (Relationships questionnaire from Bartholomew & Horowitz, 1991), an increase in the percentage of students with insecure attachment (from 51.02% to 58.38%), but mainly an increase in dismissive attachment (from 11.93% to 18.62%) was found, whereas the percentage of students with secure attachment over the last two decades has decreased (from 48.98% to 41.62%) (Konrath, Chopik, Hsing, & O'Brien, 2014).

In revealing possible factors accompanying the high rate of fearfully attached people, we can consider the known association between drug abuse or addiction and insecure attachment (Schindler et al., 2005). The consumption of alcohol in the Czech Republic in adults from 2008 to 2010 was 13.0 liters of pure alcohol, more than the average of 10.9 liters for the WHO European Region (WHO Health Statistics, 2015). The prevalence of cannabis use by young adults in 2014 was 21.6% (nearly twice as high as the WHO European average of 12%), and the prevalence of Ecstasy (MDMA) use by young adults was three times higher than the WHO European average.

According to Mikulincer and Shaver (2012), attachment insecurity can be viewed as a general vulnerability to mental disorders, with the particular symptomatology depending on genetic, developmental, and environmental factors. According to the CIDI/ICD-10 National Probability Survey of Mental Health and Co-morbidity, in the general Czech population, the lifetime prevalence of psychiatric disorders reached 27%, the most frequent conditions being anxiety

and behavioral syndromes associated with physiological disturbances and physical factors (18%), mental and behavioral disorders due to psychoactive substance use (13%), and mood disorders (13%, mainly depression) (Hoschl, Winkler, & Pec, 2012).

Limitations

The main strength of present study is that it investigated the psychometric qualities of the Czech translation of the ECR-R in a representative sample of 1000 respondents.

A limitation related to the measure used is that although the ECR-R is typically used as a global measure of attachment, it mostly captures variance that is relevant for the romantic domain and not to domains for more specific attachment to mother, father or friend. On the other hand, this less specific attachment measure is more likely to correlate with broader, trait-like measures of personality (Fraley, Vicary, Brumbaugh, & Roisman, 2011).

Another limitation is the method of data collection. A face-to-face interview was conducted, which could influence answers in a socially desirable fashion. On the other hand, respondents were informed about maintaining anonymity and the trained administrators were neutral, unknown persons, who helped respondents in case of a lack of clarity; therefore, no data were missing in this study.

A final limitation is that no test-retest study and no comparisons with clinical populations were made. However, measurement of the construct validity of the ECR-R should be one of the next goals in the research of attachment in the Czech cultural context, with a focus on different population groups, including those that have health risks.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This work was supported by the GACR research project no. 15-19968S, by the TACR research project no. TD020339 and by the IGA CMTF research project no. 2016 016.

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Author Biographies

Natália Kaščáková is a psychiatrist, psychotherapist at the Psychiatric Clinic, Bratislava, Slovakia. Since 2015 she has been in doctoral study at the Olomouc University Social Health Institute, Olomouc, Czech Republic. Her research focuses on the impact of attachment, trauma in childhood and stressful events during a life on mental and somatic health.

Daniela Husárová is PhD student at the Institute of Public Health, Medical Faculty of PJ Safarik University in Kosice. Her research focuses on psychosocial development and determinants of health in the social context of school-aged children with health disadvantage.

Jozef Hašto is a psychiatrist, psychotherapist at the Psychiatric Clinic, Bratislava, Slovakia, and an assistant professor at the St. Elisabeth University of Health and Social Sciences, Bratislava, Slovakia, at the Slovak Medical University in Bratislava and at the Olomouc University Social Health Institute in Olomouc, Czech Republic. His research centres on attachment and psychic trauma.

Peter Kolarčik is a senior researcher at the Department of Health Psychology, Safarik University in Kosice, Slovakia. His research activities are focused on research of health and health-risk behaviours among socioeconomically disadvantaged individuals, particularly children from Roma settlements, and most recently have focused on health literacy in vulnerable populations.

Iva Poláčková Šolcová is an assistant professor at the Faculty of Humanities, Charles University in Prague, where she teaches psychology. In 2011 she joined the Institute of Psychology in the Czech Academy of Science, where she focuses on affective processes and qualitative research.

Andrea Madarasová Gecková is a professor of social psychology and serves as a senior researcher and expert in research on the social determinants of health and the building of research capacity at Safarik University in Kosice, Slovakia.

Peter Tavel is a professor of clinical psychology, dean of the St. Cyril and Methodius Faculty at Palacky University in Olomouc, Czech Republic, a director of Olomouc University Social Health Institute in Olomouc, Czech Republic. His research focuses on personal experiences of health and illness, on spirituality as a determinant of health and on the health and life style of seniors.