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A bifactorial approach to the Experiences in Close Relationships-Revised scale

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ABSTRACT

The Experiences in Close Relationships-Revised (ECR-R) scale has been argued to be the most robust measure of adult attachment to date. However, while previous authors propose that the ECR-R contains a 2-factor model of attachment with the factors representing anxious and avoidant attachment, none have considered a bifactor model of attachment (i.e., an overarching factor of attachment security, together with additional latent variables representing anxious and avoidant attachment) and several have applied, arguably unnecessary, data parcelling. In the current study, 911 participants completed the ECR-R and measures of several associated variables to assess differential predictive validity. Confirmatory factor analysis suggested that the bifactor model was found to be the best fit to the data. These findings have important implications for evaluating previous research which has used the ECR-R. The practical implications of these are discussed.

1. Introduction

Bowlby (1969) described attachment as a monotropic pair-bond between a child and their primary caregiver developed through a series of interactions. In 1978 Ainsworth et al. (1978) deduced that the quality of these interactions dictates the development of one of three attachment styles: secure, anxious, or avoidant. Hazan and Shaver (1987) later proposed that the concept of attachment could be mapped onto adults in romantic relationships. Securely attached adults were described as finding it easy to get emotionally close to a partner, is comfortable depending on them, and does not worry about abandonment. Conversely, avoidant adults were described as having difficulty trusting a partner and discomfort with closeness, whereas anxious individuals worry that their partner does not really love them and feel that others are reluctant to get as emotionally close as they would like. In 1990 Kim Bartholomew proposed that a continuous, dimensional, model of attachment centered on anxious and avoidant attachment may be more appropriate, thus leading to the eventual development of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) scale. Although the ECR-R was intended to represent Bartholomew's 2-factor measure of attachment, several studies have investigated its psychometric properties using Confirmatory Factor Analysis (CFA) and have indicated multiple possible factor models (e.g., Dupont et al., 2022, Kim et al., 2011, Kumar, 2022, Rotaru & Rusu, 2013).

In 2003 Overall et al. compared three different models of attachment outside of the ECR-R to investigate which was most accurate. Their first model suggested that individuals have a single, global, attachment style. The second model proposed that three distinct relationship types exist, and the third model consisted of a hybrid of the previous two. This model was found to be the best fit to the data. In terms of factor analysis this suggests evidence for a general factor of attachment. In a bifactor model each item of the measure loads onto a general factor (e.g., attachment): i.e., an overarching factor that reflects what is common amongst the different items. Additional factors in the model are called orthogonal factors (Reise et al., 2010). Orthogonal factors represent common factors that are measured by the items (e.g., anxiety and avoidance) that acknowledge individual differences and can explain response variation that the general factor alone cannot account for (Reise et al., 2010).

Kim et al. (2011) have previously proposed a bifactor model of attachment. However, they divided the ECR-R into two separate subscales and carried out two separate CFAs. This does not adhere to the definition of a bifactor model described by Reise et al. (2010). Arguably, what Kim et al. (2011) performed was a *second-order factor analysis*

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whereby commonalities amongst subscales, rather than all the individual items, are examined (Reise et al., 2010). Second-order factor analysis is more commonly included in social science literature (Tavakol & Wetzel, 2020), but it has been argued that dividing a scale into its respective subscales is problematic (see Reise et al., 2010 pp. 554–555 for a discussion).

Moreover, CFA has rarely been carried out on the ECR-R with sample sizes over 500 with the exception of Kim et al. (2011) and Olssøn et al. (2010). Furthermore, the use of parcelling techniques appears to be commonplace as they have been found to be included in several studies that aim to investigate the factor structure of the ECR-R (e.g., Kooiman et al., 2013; Mastrotheodoros et al., 2015; Olssøn et al., 2010; Rotaru & Rusu, 2013). However, Rioux et al. (2020) propose that if parcelling is used where a construct is said to be multidimensional, such as attachment, the resulting models can be distorted as they will be based on biased factor loadings. Additionally, it has been suggested that if a construct is multidimensional, differential predictive validity should also be assessed to verify whether factors correlate differently with external constructs (Boduszek et al., 2016) but is rarely done so.

A bifactor model offers several benefits over alternative models of measures that investigate psychological constructs such as attachment. Firstly, it allows for individuals to be placed on a scale for a single common trait while also controlling for multidimensionality caused by clustering items together. Second, it provides a framework for calculating statistics that allow scores on a scale to be interpreted as isolated constructs. Third, it addresses the effects of forcing multidimensional data into a unidimensional model, and finally, it allows for the contribution of general and group factors when predicting external variables to be studied (Reise et al., 2010). This combined with the previously discussed literature regarding attachment theory and its construction has led to the proposal that attachment may be best represented as a bifactor model. An example of how this model is constructed is represented in Fig. 1.

We aimed to build upon previous research by investigating a bifactor model of attachment using the ECR-R. This was carried out without parcelling and employed a large sample of UK participants. We predicted that a 2-factor model of attachment would demonstrate a good fit to the observed data but that a bifactor model would demonstrate a better model fit. In the bifactor model it was proposed that attachment is a general factor, *G*, and anxious and avoidant attachment are two separate grouping factors. Although the assumptions of a CFA suggest that the grouping factors should not be correlated (Thompson, 2004) and the residuals of correlations should not correlate (Reise et al., 2010), it is proposed that a bifactor model including correlated grouping factors (anxious and avoidant attachment) will provide a better model fit than a model that excludes correlated grouping factors. This is because previous research suggests that there should be a correlation, albeit weak, between anxious and avoidant attachment (e.g., Dupont et al., 2022). In addition, we aim to show the differential predictive properties of anxious and avoidant attachment using measures of self-esteem, relationship satisfaction, and perceived romantic partner attributes.

Relationship satisfaction is defined as the "the extent that people are happy in their relationship and feel that the relationship is rewarding" (Righetti et al., 2022, pp. 161). Negative relationships have regularly been observed between both anxious and avoidant attachment and relationship satisfaction (e.g., Waring et al., 2023) and avoidant attachment has always been found to be the stronger predictor of it (e.g., Hingorani & Pinkus, 2019).

With regards to partner attributes, empirical research has suggested that individuals who identify as having an anxious attachment are more likely to perceive similarities between themselves and their partner (Strauss et al., 2012). In addition, theoretically, an individual who identifies as being high in avoidant attachment would perceive a partner to have a limited number of similarities to themselves (Hudson & Fraley, 2014), as any similarity would be seen as threatening.

Finally, self-esteem, i.e., the attitude an individual has towards themself (Rosenberg, 1965), is thought to be guided by social experiences and relationships (James, 1890). Moreover, sociometer theory proposes that self-esteem is subject to the extent that one feels accepted, and included or excluded, within their social relationships (Leary et al., 1995). When applying sociometer theory to self-esteem it is suggested that self-esteem is intrinsically linked with attachment via the model of self and others (Bartholomew, 1990). Based on these ideas, a negative relationship between anxious attachment and self-esteem is theoretically sound and has empirical support (e.g., Chandler & Lawrence, 2021). However, the relationship between avoidant attachment and self-esteem is arguably more complex. Although a positive self-image is a characteristic of avoidant attachment, so is the denial of comfort. If it is perceived that comfort was undeserved, this could lead to a negative view of the self and, consequently, low self-esteem. Although this does not advocate differences in the direction of a prediction, opposing theoretical relationships between avoidant attachment and self-esteem may suggest a more tenuous predictive relationship.

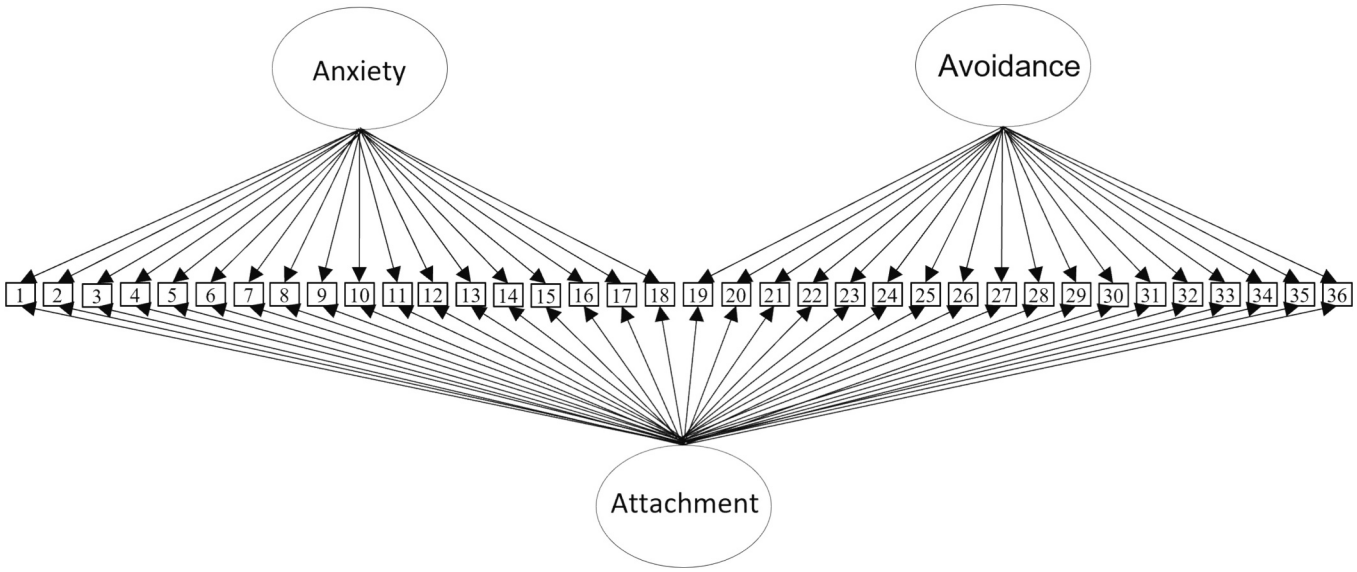

Fig. 1. CFA bifactor model of the ECR-R.

2. Method

2.1. Participants and procedure

A sample of UK citizens (N = 911), consisting of both university students and the general population, were invited to complete a battery of measures. Participant's ages ranged from 18 to 62 years (M = 21.36, SD = 6.05). Of these, 529 participants (57.8 %) stated that they were in a romantic relationship. The data were filtered to exclude likely instances of multiple responding and cases of acquiescence bias. Page one of the survey included participant information and required all participants to provide online consent before accessing the survey and a full debrief was provided on completion.

2.2. Attachment measure

Attachment was measured using the ECR-R. The ECR-R asks participants to indicate their feelings towards 36 statements across two subscales: attachment anxiety (items 1–18 e.g., *I'm afraid that I will lose my partner's love*) and attachment avoidance (items 19–36 e.g., *I prefer not to show a partner how I feel deep down*) on a 7-point scale (1 = strongly disagree to 7 = strongly agree) and shows a high level of internal consistency with Cronbach's alpha scores often exceeding 0.90 (e.g., Fraley, 2012).

2.3. Differential predictive validity measures

Self-esteem was measured using Rosenberg's (1965) 10-item scale. The measure asks participants to indicate the strength to which they identify with 10 statements on a 4-point scale (1 = strongly agree to 4 = strongly disagree). Five of the statements indicate positive feelings (e.g., *on the whole I am satisfied with myself*) and five indicate negative feelings (e.g., *at times I think I am no good at all*). The Rosenberg Self-Esteem Scale has a high level of internal consistency which ranges between α = 0.72 and 0.90 (Robins et al., 2001) and is prevalent in literature that investigates both attachment and self-esteem (e.g., Chandler & Lawrence, 2021).

Relationship satisfaction was investigated using a 4-item measure by Murray et al. (1996) (Cronbach's alpha = 0.92: Murray et al., 2015). Participants were asked to respond using a 7-point Likert scale in line with other measures utilised in the study. Participants were advised to not complete this measure if they had identified as not being in a romantic relationship as they had no current relationship to reflect on.

Perceived partner compatibility was measured using the Romantic Partner Attribute Index (RPAI: Simpson & Gangestad, 1992). The RPAI comprises of 15 desirable attributes, values, and attitudes. Although Simpson and Gangestad (1992) propose that the RPAI should be presented alongside a 9-point Likert scale, multiple scale lengths have been included in the literature (e.g., Chick et al., 2012); therefore, as with the relationship satisfaction measure, a 7-point scale was utilised in this instance.

2.4. Analytical procedure

The ECR-R's construct validity was assessed via CFA in accordance with guidelines by Boduszek et al. (2016). Five models of the ECR-R's latent structure were tested using Mplus version 7.4 (Muthén & Muthén, 1998–2011) (other than the correlated 2-factor model which was conducted in jamovi (The jamovi Project, 2021)). Table 1 outlines the details of each of the five models tested.

Although typically factors within a CFA should not correlate (Thompson, 2004), allowing factors to correlate is acceptable if relevant theory suggests this should be the case (Johnson & Morgan, 2016). Attachment theory suggests that there should be a weak/moderate positive relationship between avoidant and anxious attachment (e.g., Bartholomew, 1990) therefore allowing these factors to correlate is theoretically sound.

Table 1
Descriptions of the models and factor structures included in the CFA.

Model	Factor solution	Description
Model One (G)	1-Factor	All 36 items load onto a single latent factor
Model Two (UC)	2-Factor (uncorrelated)	Items 1–18 load onto the latent factor anxious attachment and items 19–36 load onto the latent factor avoidant attachment. Mplus was programmed to *not acknowledge* any correlation between the grouping factors
Model Two (C)	2-Factor (correlated)	Items 1–18 load onto the latent factor anxious attachment and items 19–36 load onto the latent factor avoidant attachment. Mplus was programmed to *acknowledge* any correlation between the grouping factors
Model Three (UC)	Bifactor (uncorrelated)	All 36 items load onto a general factor (G: attachment) and two grouping factors (1–18: anxious attachment and 19–36: avoidant attachment). Mplus was programmed to *not acknowledge* any correlation between the grouping factors
Model Three (C)	Bifactor (correlated)	All 36 items load onto a general factor (G: attachment) and two grouping factors (1–18: anxious attachment and 19–36: avoidant attachment). Mplus was programmed to *acknowledge* any correlation between the grouping factors

Model fit was assessed using a range of goodness-of-fit statistics; specifically, the χ^2 statistic, comparative fit index (CFI), and Tucker-Lewis index (TLI). CFI and TLI values above 0.90 suggest acceptable model fit (Bentler, 1990). The root mean square error of approximation (RMSEA: Steiger, 1990), standardised root mean squared residual (SRMR), and 95 % confidence intervals are also presented. RMSEA and SRMR should be less than 0.05 (Hu & Bentler, 1999) to suggest a good model fit although Browne and Cudeck (1993) suggest that values between 0.05 and 0.08 indicate fair model fit. These recommendations are based on the employment of a maximum likelihood robust (MLR) estimator.

Finally, previous research on validating the ECR-R has reported internal consistency via Cronbach's alpha (e.g., Moreira et al., 2015), however, the current study analysed composite reliability (Boduszek et al., 2016; Raykov, 1997, 1998), whereby values greater than 0.60 are deemed acceptable (Diamantopoulos & Siguaw, 2000) in addition to Cronbach's alpha.

3. Results

Descriptive statistics for the two ECR-R subscales (anxious and avoidant attachment) are presented in Tables 2 and 3 presents the fit indices of three models (models two and three each have two conditions) of the ECR-R including a bifactor model. Each model is then discussed in turn.

Model One, (attachment as a single latent factor) was a poor fit to the data. The CFI and TLI values are drastically below Hu and Bentler's (1999) recommendation of 0.95 and the RMSEA and SRMR values are

Table 2
Descriptive statistics, average standardised factor loadings for the best factor model, and internal reliability for the two ECR-R subscales (standardised and to 2dp).

	G	Anxious	Avoidant
Mean	3.20	3.53	2.88
Standard deviation	0.92	1.17	1.06
Average λ	0.437	0.315	0.581
Composite reliability	0.91	0.60	0.91
Cronbach's alpha	0.94	0.91	0.92

Note. λ = factor loading.

Table 3
Fit indices for three models of the ECR-R.

Factor	X^2	*df*	CFI	TLI	RMSEA	90 % CI	SRMR
G-Factor	10,690.38	594	0.48	0.45	0.14	0.14/ 0.14	0.15
Two-Factor (UC)	5534.75	593	0.74	0.74	0.10	0.09/ 0.10	0.08
Two-Factor (C)	3752.11	593	0.79	0.79	0.08	0.07/ 0.08	0.07
Bifactor (UC)	4013.00	558	0.81	0.81	0.08	0.08/ 0.09	0.06
Bifactor (C)	4301.18	557	0.81	0.81	0.09	0.08/ 0.09	0.06

Note. UC = subscales are not permitted to correlate; C = subscales are permitted to correlate; χ^2 = chi square goodness of fit statistic; *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation. CI = Confidence Interval; SRMR = Standardised Root Mean Square Residual. All χ^2 statistics are statistically significant to the $p <$ .001 level.

also significantly above the recommended boundary of 0.05 (Browne & Cudeck, 1993; Hu & Bentler, 1999). In the 2-factor model, where avoidant and anxious attachment are separate latent factors, allowing the factors to correlate improved the model fit statistics. However, they were not superior to either bifactor model, although both conditions showed a better fit to the data compared to the 1-factor model. Notably, the SRMR and RMSEA values did meet Browne and Cudeck's (1993) minimum recommended boundary (0.08) for the correlated model and the SRMR value met it for the uncorrelated model.

The final model, Model Three, a bifactor model of attachment, was the best fit to the data. Moreover, the version where anxious and avoidant attachment subscales were not allowed to correlate is a slightly better fit to the data compared to when they were permitted to correlate. This is based on slightly lower chi-squared (Reise et al., 2010) and RMSEA values. Nevertheless, in neither case did the CFI and TLI values reach the minimum recommended boundary (0.90; Bentler, 1990). However, the RMSEA value is approaching Browne and Cudeck's (1993) minimum boundary (0.08) and the SRMR value exceeds this and is approaching the preferred boundary (0.05; Hu & Bentler, 1999). This suggests that although it still did not provide an excellent model fit, the bifactor model was the best fit to the data, is a good fitting model overall, and that attachment measured by the ECR-R consists of two latent factors and a general factor of attachment. A complete set of standardised factor loadings for this model can be found in Table 4.

It has been suggested that when a best model fit is multidimensional, such as the proposed bifactor model, and some factors are highly correlated further analysis should be conducted (Boduszek & Debowska, 2016). Boduszek and Debowska (2016) suggest that differential predictive validity tests should be conducted to verify whether the factors correlate differently with external criteria (Table 5) and show differing predictive relationships (Table 6). The results demonstrate that anxious attachment is a statistically significant predictor of self-esteem, relationship satisfaction, and perceived partner compatibility. Avoidant attachment is also a significant predictor of these variables with the exception of self-esteem. Moreover, all of the relationships are negative in direction, and, except for perceived partner compatibility, they all differ greatly with regards to which variables are the best predictors.

Although anxious and avoidant attachment did not differ in the direction in which they predicted the external variables, they did differ in strength. Avoidant attachment was the strongest predictor of relationship satisfaction by a large margin. Although both anxious and avoidant attachment were both significant predictors of perceived partner compatibility, with avoidant attachment being the strongest predictor, their ability to predict perceived partner compatibility did not differ to a large degree. Furthermore, there was no overlap in the confidence intervals of any of the regressions suggesting that the beta values, with respect to the different covariates, are independent of each other

Table 4
Standardised Factor Loadings for the three attachment factors (Factor 1 = G, Factor 2 = anxious attachment, Factor 3 = avoidant attachment) within the ECR-R.

Original item numbers	Factor 1	Factor 2	Factor 3
1. I'm afraid that I will lose my partner's love	0.396***	**0.756***	
2. I often worry that my partner will not want to stay with me.	**0.468***	**0.770***	
3. I often worry that my partner doesn't really love me.	**0.645***	**0.519***	
4. I worry that romantic partners won't care about me as much as I care about them.	**0.583***	**0.523***[a]	
5. I often wish that my partner's feelings for me were as strong as my feelings for him or her	**0.664***	0.335***	
6. I worry a lot about my relationships.	**0.607***	0.**442***	
7. When my partner is out of sight, I worry that he or she might become interested in someone else	**0.490***	0.390***	
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.	**0.635***	0.383***	
9. I rarely worry about my partner leaving me.	0.263***	0.390***	
10. My romantic partner makes me doubt myself.	**0.678***	−0.029	
11. I do not often worry about being abandoned	0.253***	0.337***	
12. I find that my partner(s) don't want to get as close as I would like.	**0.721***	−0.032	
13. Sometimes romantic partners change their feelings about me for no apparent reason.	**0.663***	0.100*	
14. My desire to be very close sometimes scares people away	**0.592***	0.117**	
15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.	**0.521***	0.292***	
16. It makes me mad that I don't get the affection and support I need from my partner.	**0.664***	0.062	
17. I worry that I won't measure up to other people.	**0.418***	**0.425***	
18. My partner only seems to notice me when I'm angry.	**0.658***	−0.111*	
19. I prefer not to show a partner how I feel deep down.	**0.420***		**0.419***
20. I feel comfortable sharing my private thoughts and feelings with my partner.	0.243***		**0.564***
21. I find it difficult to allow myself to depend on romantic partners	0.331***		**0.408***
22. I am very comfortable being close to romantic partners.	0.260***		**0.645***
23. I don't feel comfortable opening up to romantic partners.	0.375***		**0.558***
24. I prefer not to be too close to romantic partners.	0.318***		**0.582***
25. I get uncomfortable when a romantic partner wants to be very close.	0.301***		**0.546***
26. I find it relatively easy to get close to my partner	0.366***		**0.617***
27. It's not difficult for me to get close to my partner.	0.396***		**0.590***
28. I usually discuss my problems and concerns with my partner	0.310***		**0.707***
29. It helps to turn to my romantic partner in times of need.	0.300***		**0.716***
30. I tell my partner just about everything.	0.284***		**0.755***
31. I talk things over with my partner.	0.367***		**0.672***
32. I am nervous when partners get too close to me	0.356***		**0.477***
33. I feel comfortable depending on romantic partners.	0.201***		**0.554***
34. I find it easy to depend on romantic partners.	0.205***		**0.617***

(*continued on next page*)

Table 4 (*continued*)

Original item numbers	Factor 1	Factor 2	Factor 3
35. It's easy for me to be affectionate with my partner.	0.301***		**0.579***
36. My partner really understands me and my needs.	**0.491***		**0.448***

[a] Bold text indicates factor loadings above 0.40. * $p < .05$, *** $p < .001$.

Table 5
Associations between ECR-R factors.

Factor	G	Anxiety	Avoidance
G	–		
Anxiety	0.82	–	
Avoidance	0.80	0.36	–

Note. All correlation coefficients are significant at the $p = .001$ level.

(Julious, 2004). Moreover, differences in anxious and avoidant attachment as significant predictors of self-esteem occurred. Overall, this suggests that the anxious and avoidant attachment have an acceptable level of differential predictive validity when considering how they relate to these external variables.

Finally, to assess the internal reliability of the bifactor model, composite reliability was performed using a composite reliability calculator provided by Colwell (2016) and following guidance from Raykov (1997). Results suggest that all three factors demonstrate good internal reliability (Diamantopoulos & Siguaw, 2000) which is reiterated by Cronbach's alpha.

4. Discussion

Although the ECR-R was intended to be a 2-factor measure of anxious and avoidant attachment (Fraley et al., 2000), several studies have prompted a debate as to whether the ECR-R comprises of one, two, three, four, or five factors (e.g., Kumar, 2022; Olssøn et al., 2010; Sibley & Liu, 2004). Although many of the previously proposed models use parcelling, which is common in CFA, often this has been applied unnecessarily. This, in addition to the misapplication of the term *bifactor* brings interpretations of the ECR-R and suggestions for its factor structure into dispute. Consequently, there are persuasive arguments against those examples, and in favour of the bifactor model presented here.

The current study aimed to further investigate the factor structure of the ECR-R informed by current recommendations regarding best practice (Boduszek et al., 2016).

The possibility of 1-factor and 2-factor models was investigated, but neither provided a good fit to the data. However, the 2-factor model did prove to be a better fit for the data than the 1-factor model, as demonstrated by an increase in the CFI and TLI statistics between these models and reduced RMSEA and SRMR values. Despite this, as the overall model fit was improving, it was deemed appropriate to investigate the potential of a bifactor model incorporating both the 1 (G) and 2-factor models.

Fit indices for the new bifactor model continued to improve, however, only the SRMR statistic exceeded the boundary suggested by Browne and Cudeck (1993). The CFI, TLI, and RMSEA statistics indicated better model fit to the data than the previously tested factor models regardless of whether the bifactor model allowed the two insecure attachment patterns (anxious and avoidant) to correlate. Although typically variables included in a CFA should not correlate (Thompson, 2004) attachment theory and previous test construction research suggests that these two constructs are, in part, correlated (Bartholomew, 1990; Dupont et al., 2022) therefore providing arguments as to why the bifactor models that included correlated and uncorrelated subconstructs were an almost equally good fit to the data. However, although none of the model fit statistics met the suggested values that indicate a good model fit; the difference between what is presented here and the suggested values is marginal for several of the fit statistics. Based on chi-square and RMSEA values, the uncorrelated version of the bifactor model was a slightly better fit to the data than the correlated equivalent. The difference between the 90 % CI value boundaries were close throughout, and the CI range between all three models were equal. Furthermore, composite reliability tests suggested that all three factors demonstrate good internal reliability within the model. Overall, this supports Bartolomew's theory of attachment as well as Overall et al.'s (2003) wider model.

Finally, although the differential predictive validity assessments did not reveal differential relationships for direction, they did reveal differences in strength. Avoidant attachment was found to show a stronger relationship with relationship satisfaction and perceived partner compatibility than anxious attachment. This accords with the model of self and others (Bartholomew, 1990) and several examples of empirical research. Furthermore, none of the confidence intervals for the standardised betas overlapped in each of the respective regressions, suggesting that the beta values are significantly different to each other (Julious, 2004); therefore, the difference in the strength of the relationships is not due to chance.

It should be noted that the ECR-R was developed as a measure of attachment within romantic couples (Mohd Hasim et al., 2023). Although almost two-thirds of participants in the current study described themselves as being involved with a romantic partner to some degree. Where participants described themselves as being single (i.e.,

Table 6
Associations between the two ECR-R factors and external variables (standardised) – differential predictive validity.

Variable	Self-esteem (n = 911 29.0 %) (M = 27.04, SD = 5.92) β (95 % CI)	Satisfaction (n = 540, 34.0 %) (M = 6.00, SD = 1.24) β (95 % CI)	RPAI (n = 910, 28.0 %) (M = 5.38, SD = 0.95) β (95 % CI)
Anxiety	−0.52*** (−0.57/−0.46)	−0.17*** (−0.24/−0.10)	−0.25*** (−0.31/−0.19)
Avoidance	−0.07*,** (−0.11/−0.00)	−0.52*** (−0.59/−0.45)	−0.39*** (−0.45/−0.33)

Note. Columns present results from multiple regression analyses. Beta values and CI are standardised. n = sample size; % = Percentage variance explained; RPAI = Romantic Partner Attribute Index (Perceived Partner Compatibility); Satisfaction = Relationship Satisfaction.
Where self-esteem is the outcome variable: $F(2, 911) = 186.32$, $p < .001$, $R^2 = 0.29$.
Where satisfaction is the outcome variable: $F(2, 538) = 140.08$, $p < .001$, $R^2 = 0.34$.
Where RPAI is the outcome variable: $F(2, 910) = 176.35$, $p < .001$, $R^2 = 0.28$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

not involved with a romantic partner) they were asked to base their responses on their romantic relationships in general. However, these participants were not asked to report the time scale between the breakdown of their relationship and the time they completed the questionnaire. As a result, it is possible that their interpretation of their attachment behaviour could have been skewed due to inaccurate memories and the effect of hindsight. Therefore, their attachment behaviour could have been recalled as more or less anxious or avoidant than it was; thus, impacting on their responses. Generally, people's perceptions of their current relationships are also subjective, and so subject to biases. However, it is not obvious that this is problematic since attachment theory is primarily concerned with perceptions of relationships feeding into its use in psychotherapy.

Alternatively, these participants may have been more self-aware of their attachment behaviour as they were no longer in the relationship and found it easier to reflect. This, when combined with results provided by participants who were in a relationship, could have affected the data collected and therefore, the CFA results. Future research should account for this by controlling for the time lapse between a relationship ending and completing the measure for participants who identify themselves as single or, alternatively, not include these participants at all.

Despite the limitations listed above, and some previous proposals of a better fitting 2-factor models of the ECR-R, the proposal of a true bifactor model which is, at worst, an adequate fit to the data is a vital extension of this work and provides a significant contribution to attachment measurement literature. The bifactor models were tested rigorously and achieved a result which was, in part, a good fit to the data. Equally important is that each factor involved evidenced adequate differential predictive validity. Furthermore, when considering attachment theories such as that by Bartholomew (1990) as well as Overall et al.'s (2003) proposed models of attachment across relationships, the proposal of a bifactor model appears plausible and emphasises the use of scales in attachment research.

CRediT authorship contribution statement

Laura Machan: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis. **Christopher Bale:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Daniel Boduszek:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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