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Validation of the French Version of the Experiences in Close Relationships– Revised
(ECR-R) Adult Romantic Attachment Questionnaire

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Abstract

This study aimed to validate the French translation of the Experiences in Close Relationships – Revised version (ECR-R) by investigating its internal structure and construct validity. The sample ($N = 600$) constituted participants between 25 and 45 years old (300 women, 300 men). Variables linked to adult romantic attachment were assessed through questionnaires: marital satisfaction, sexual satisfaction and fears associated with sexual activities, and self-esteem. Results showed that the reliability of the two dimensions of attachment—avoidance and anxiety—is satisfactory. Confirmatory factor analyses revealed that the original two-factor model is the most satisfactory solution to explain the data collected with the French ECR-R in this study. Assessment of measurement invariance showed that the structure is the same across the original U.S. sample and our sample, across men and women, and across single individuals and those in a couple relationship. Construct validity showed that the higher the avoidance and anxiety, the lower the self-esteem and sexual satisfaction and the higher the fears associated with sexuality. These results are theoretically coherent and consistent with previous results of studies using the English version of the scale. We conclude that the French version is valid.

Keywords: attachment, French version, ECR-R, validity, reliability

The Experiences in Close Relationships – Revised Questionnaire for Adult Romantic
Attachment: A Validation Study of the French Version

Adult romantic attachment is acknowledged as a main source of influence in different domains of psychological and interpersonal functioning of the individual (see Feeney & Noller, 1996, and Mikulincer & Shaver, 2007, for comprehensive reviews), and it has been shown to be related to psychopathology (Mikulincer & Shaver, 2012; Shaver, Schachner, & Mikulincer, 2005; Wearden, Lamberton, Crook, & Walsh, 2005; Wei, Vogel, Ku, & Zakalik, 2005).

Assessment of attachment is now an important part of several research protocols (see Mikulincer & Shaver, 2007, for a review) and clinical interventions, as attachment-focused therapies are developing quickly (see, for example, emotion-focused therapy for couples; Johnson, 2004).

Attachment refers to the ongoing need in life to be related to significant others in order to obtain reassurance and comfort in stressful situations. It was first described by Bowlby (1969) as an innate behavioral system that is activated when infants experience fear and distress; as a result, the child enacts behaviors to elicit protection from a nurturing adult. To feel secure, the child needs the environment to be responsive (i.e., to provide protection) and predictable (i.e., to be responsive repeatedly). The accumulation of attachment experiences will then be progressively internalized to form attachment representations—internal working models, according to the concept proposed by Bowlby—which are cognitive schemas that guide expectations and behaviors in the relational world. These models include evaluative information on the environment (protective or not) and the self (worthy of being protected or not). Two main dimensions have been identified as underlying attachment models: anxiety and avoidance (Ainsworth, Blehar, Waters, & Wall, 1978). Avoidance is the consequence of predictable unresponsive reactions from the environment; as a consequence, the self is viewed as being alone

to face stressful situations and others are viewed as untrustworthy. Anxiety is the consequence of unpredictable responses of the environment; as a consequence, the self is viewed as unworthy and others as more able and competent. People who are low on avoidance and anxiety dimensions—those for whom the environment was most often responsive and predictable—are on the secure end of the two dimensions so that they have developed a sense of self-worth and trust in others. Although these dimensions were first identified in the parent-child relationship, they have been shown from the seminal work of Hazan and Shaver (1987) and Bartholomew and Horowitz (1991) to underlie attachment models in adult-adult close relationships and to guide thoughts, feelings, and behaviors in romantic attachment (Mikulincer & Goodman, 2006; Mikulincer & Shaver, 2007).

Several questionnaires have been developed to assess romantic attachment: for example, the Adult Attachment Questionnaire (Simpson, Rholes, & Phillips, 1996), the Adult Attachment Scale (Collins, 1996), the Attachment Style Questionnaire (Feeney, Noller, & Hanrahan, 1994), and the Relationship Style Questionnaire (Griffin & Bartholomew, 1994). These questionnaires were built on dimensions related to anxiety and avoidance, and they included items that are very close to each other. In order to create an instrument with optimal reliability, Brennan, Clark, and Shaver (1998) designed the Experiences in Close Relationships (ECR) questionnaire by selecting the best items from the existing instruments. They factor analyzed the answers of 1,086 undergraduate students to a set of previously published questionnaires. The results yielded a two-factor solution consistent with the two theoretical dimensions avoidance and anxiety. From a total pool of 323 items, a set of 36 items (18 per dimension) was selected according to the highest absolute-value correlations with their respective factor. The ECR was translated and

validated in French by Lafontaine and Lussier (2003), who confirmed the two-dimensional structure via confirmatory factor analysis (CFA).

Fraley, Waller, and Brennan (2000) then revised the ECR by using an item response analysis that resulted in the replacement of 16 items by items found in the original pool of the study by Brennan et al. (1998). This revision increased the internal and discriminant validity of the anxiety and avoidance scales. As a result, Fraley et al. proposed the Experiences in Close Relationships – Revised (ECR-R) as a new version of the ECR, which also contained 36 items. Several studies have confirmed that a two-factor model is still the best representation of the structure of the data (Sibley, Fischer, & Liu, 2005; Sibley & Liu, 2004). To date, the ECR-R is the most robust measure to assess romantic attachment through a questionnaire; however, no validation study of a French version of the ECR-R has yet been published.

Our aim in the present study was to validate the French version of the ECR-R. We conducted a validation study to test the extent to which the French version is also underlain by the two dimensions, avoidance and anxiety. We hypothesized that the two-factor structure would also be the best model to represent the data. Construct validity of the dimensions was then tested against three variables theoretically and empirically related to attachment in a non-referred population. The first variable was marital satisfaction, as studies have repeatedly shown that attachment insecurity is predictive of relational dissatisfaction (Feeney, 1999; Shaver et al., 2005) and, by extension, a greater probability of couple dissolution (Davis, Shaver, & Vernon, 2003; Klohnen & Bera, 1998). The second variable was attachment insecurity, which is deeply interconnected with relational dissatisfaction. Studies have shown that attachment insecurity is linked with a lower satisfaction with sexual activities and a greater fear of sexual activities (Brassard, Shaver, & Lussier, 2007; Davis et al., 2006; Rogers, Bidwell, & Wilson, 2005). The

third variable was a sense of self-worth and competence, as this has been repeatedly shown to be associated with attachment: The more anxious the individuals, the lower their self-esteem, while the more avoidant the individuals, the higher their self-esteem, as part of the avoidant strategy is to enhance self-reliance (Mallinckrodt & Wei, 2005; Schmitt & Allik, 2005).

Method

Sample

This study was part of a larger study on sexual desire and the couple relationship. The sample comprised 600 xxxx participants: 300 women (mean age = 36.3 years, $SD = 5.7$) and 300 men (mean age = 36.0 years, $SD = 5.5$). Detailed descriptive statistics for the sample are provided in Table 1. Participants were married ($n = 311$, 51.8%), in a couple relationship but not married ($n = 179$, 29.7%), or single ($n = 110$, 18.3%). They were recruited through a polling institute by means of which 10,000 addresses were randomly selected from a list of households in xxxx, xxxx, where the study was conducted. A letter was first sent to establish contact and to introduce the objectives of the study. People were then contacted by phone so that we could assess whether they met the criteria for the larger study (being 25 to 45 years old and being a native or fluent French speaker) and whether they were eligible according to predefined quotas (so that the final sample was composed of 50% men and 50% women with comparable ages). Among those who met the defined criteria ($N = 3,821$), 867 agreed to participate in the study and 600 effectively participated. Participants received 20 xxx xxx as compensation for their participation. It is of note that participants were only individuals (one person per household) and not couples.

Procedure

After the participants were contacted by the polling institute and consented to participate, an appointment was made at their home with an interviewer, who collected the data. Some data pertaining to the larger study were collected through face-to-face interviews, after which self-report questionnaires were given to the participants to complete in the presence of the interviewer. Some of these questionnaires aimed to assess the variables relevant to this study: the ECR-R (Fraley et al., 2000), the Marital Adjustment Test (MAT) for marital satisfaction (Locke & Wallace, 1959), the Multidimensional Sexuality Questionnaire (MSQ) for representations of sexuality (Snell, Fisher & Walters, 1993), and the Single-Item Self-Esteem Scale (SISE) to assess self-esteem (Robins, Hendin, & Trzesniewski, 2001).

The ECR-R and Its French Translation

The ECR-R (Fraley et al., 2000) consists of 36 items assessing the two dimensions of anxiety and avoidance. Examples of items for anxiety are “I’m afraid that I will lose my partner's love,” “I worry a lot about my relationships,” and “I do not often worry about being abandoned.” Examples of avoidance items are “I find it difficult to allow myself to depend on romantic partners,” “I am nervous when partners get too close to me,” and “It’s easy for me to be affectionate with my partners.” Each item is rated on a 7-point scale from 1 (*disagree strongly*) to 7 (*agree strongly*). Total scores are obtained by computing the mean for each dimension. Two items of the anxiety dimension and 12 items of the avoidance dimension are worded in the positive direction; they are thus reverse-scored before computing the means.

The translation to French was developed in xxxx by two psychologists (first and last authors of this paper), who separately translated the questionnaire. Translation issues were discussed and resolved by consensus. The questionnaire was then back-translated into English by

a third psychologist who is fluent in French and English. Again, translation issues were resolved by consensus with the first author to achieve the final French version.

Other Questionnaires

The MAT (Locke & Wallace, 1959; French version, Wright & Sabourin, 1985) is composed of 15 items related to the couple relationship. Items are evaluated on scales with various metrics and different weights: Item 1, which relates to the degree of happiness, is evaluated on a 7-point scale with scores of 0 (*very unhappy*), 2, 7, 15, 20, 25, and 35 (*perfectly happy*). Items 2 to 9, which relate to the agreement between spouses on topics such as sexual relations and family finances, are evaluated on 6-point scales with scores of 0 (*always disagree*) through 5 (*always agree*); scores of two scales are weighted, the maxima being 8 and 15. Items 10 to 15, which relate to topics such as conflict resolution and common leisure activities, are forced-choice questions with three or four possible answers for scores ranging from 0 to 15. The total score ranges from 2 to 158 ($\alpha = .70$). The higher the score, the more satisfied the person.

The MSQ (Snell et al., 1993) consists of 60 items assessing 12 dimensions (sexual esteem, sexual preoccupation, internal sexual control, sexual consciousness, sexual motivation, sexual anxiety, sexual assertiveness, sexual depression, external sexual control, sexual monitoring, fear of sex, sexual satisfaction) on a 5-point scale from 0 (*not at all characteristic of me*) to 4 (*very characteristic of me*). For our study, 10 items were selected for the two dimensions sexual satisfaction ($\alpha = .89$) and fear of sex ($\alpha = .71$).

The SISE (Robins et al., 2001) is a one-item measure of global self-esteem (“I have high self-esteem”). Participants answer the single item on a 5-point Likert scale from 1 (*not very true of me*) to 5 (*very true of me*).

Statistical Analyses

The first part of the analyses consisted of extensive testing of the original two-factor structure of the scale (Fraley et al., 2000). We tested the two-factor model with CFA, with 18 items loading on each dimension (anxiety and avoidance). A model with freely estimated covariance between the factors was compared with another model with a covariance set to 0 in order to investigate the hypothesis of factorial orthogonality (i.e., independence). The fit indices were compared to the values proposed by Hu and Bentler (1999). As the present study aimed to translate and validate an instrument whose psychometric properties were originally defined in a U.S. English-speaking sample, we controlled for measurement invariance to ensure that the French version of the ECR-R assessed in Xxxxx would measure the same construct(s) as in the original version. Here, the test of measurement invariance requires testing of the same model across the two samples in order to examine the meaning of the latent constructs measured by the scale. Three nested models with increased degrees of constraint were compared in multigroup analyses (U.S. versus XXX sample): We started with a first model of configural invariance, in which the parameters (factor loadings, item intercepts, residual variances, factor variances, and covariance) were freely estimated in each group, whereas the factor means were constrained to zero in both groups. We then tested metric invariance, in which we added equivalence constraints on the factor loadings across the two groups. In a third model, we tested scalar invariance, in which equivalence constraints were imposed on factor loadings and on the item intercepts, while the factor means were constrained to zero in one group and freely estimated in the other group. As these models are statistically nested, the different degrees of measurement invariance can be assessed by using likelihood ratio tests, which allowed us to establish which of these three models appeared to best fit the data (considering also parsimony). We also tested

measurement invariances of the two-factor model on the one hand between the male and female subgroups of our sample and on the other hand between relational statuses (being in a couple relationship vs. being single, independently of gender). Finally, we tested alternative factor models to the two-factor model, with number of factors ranging from one to seven, based on the results of exploratory factor analyses (EFA; maximum likelihood estimation and promax rotations), which we then tested in CFAs.

The second part of the analyses consisted of investigating the construct validity of the scale through correlational analyses, in which we searched for convergent validity with marital satisfaction, self-esteem, sexual satisfaction, and fear of sexuality.

All statistical analyses were performed with MPlus, IBM SPSS 22, and IBM AMOS 21 software.

Results

Reliability

Internal consistency was high for both avoidance (Cronbach's $\alpha = .89$ and McDonald's $\omega_H = .89$) and anxiety (Cronbach's $\alpha = .88$ and McDonald's $\omega_H = .88$). The alphas were slightly lower than those described in the literature on validation studies for the ECR-R (.93 for Avoidance and .94 for Anxiety in the study by Sibley & Liu, 2004, for example).

Structure of the Scale

Two-factor model. Using CFA, we first tested the two-factor model by following the structure of the original U.S. scale, taking into account the 18 items related to the anxiety dimension and the 18 items related to the avoidance dimension. The fit indices suggested a fair adjustment of the model, $\chi^2 = 2294.966$, $df = 593$, $p = .000$, comparative fit index (CFI) = .776,

Tucker-Lewis Index (TLI) = .762, SRMR = .079, root mean square error of approximation (RMSEA) = .069, 90% confidence interval (CI) [.066, .072]. The value of the SRMR indicated a good fit (below .08), whereas the RMSEA was just above the standard (.05), but still indicated a satisfactory fit (below .08). The chi-square was significant and the CFI and TLI were lower than the usual standard of .90, which could indicate a bad fit. However, chi-square significance may not be relevant with sample sizes larger than $N = 400$, as the chi-square will almost always be significant. Moreover, CFI could be biased towards smaller values when the independence model (worst possible model) is not substantially bad, which is the case here. Indeed, the quality of the independence model is crucial if one wants to evaluate how much better the model is compared to the independence model (Rigdon, 1996). Therefore, if for instance RMSEA is already relatively small in the null model, CFI is likely to fall below the range considered to represent good model fit even if substantial absolute improvement in the specified model has occurred. As a consequence, the significant chi-square and the low CFI and TLI were not considered to indicate poor fit, because the other fit indices were satisfactory.

Concerning the parameter estimation, as displayed in Table 2, the standardized estimates of the factor loadings ranged from .399 to .719 for the anxiety factor, and from .387 to .678 for the avoidance factor, all estimates being significant at the $\alpha < .001$ level. The estimated correlation between the factors was of moderate size but still significant ($r = .38, p < .05$). Moreover, the adjustment of a model with uncorrelated factors was poorer, $\chi^2 = 2370.146, df = 594, p < .001, CFI = .767, TLI = .752, SRMR = .120, RMSEA = .071, 90\% CI [.068, .074]$, and the difference in fit between the two models was highly significant ($\chi^2 = 75.18, df = 1, p < .001$), indicating that the factors are not uncorrelated.

Measurement invariance. We first compared the original data of the U.S. sample with the data of our sample. As the U.S. sample was of larger size ($N = 1,085$) and included a nonequivalent stratification of men ($n = 403$, 37%) and women ($n = 482$, 63%), we randomly selected $n = 300$ men and $n = 300$ women in order to compare samples of similar size and with a similar gender distribution. The results indicated that the configural model had a satisfactory fit, $\chi^2 = 4397.272$, $df = 1186$, $p < .001$, CFI = .834, TLI = .824, SRMR = .072, RMSEA = .067, 90% CI [.065, .069], suggesting that the configural invariance had been achieved. In turn, the metric and scalar models adjusted poorly to the data, $\chi^2 = 7514.245$, $df = 1220$, $p < .001$, CFI = .660, TLI = .649, SRMR = .163, RMSEA = .093, 90% CI [.091, .095] and $\chi^2 = 8863.724$, $df = 1254$, $p < .001$, CFI = .589, TLI = .587, SRMR = .189, RMSEA = .101, 90% CI [.099, .103], respectively. Likelihood ratio tests confirmed that the configural model should be preferred: This model had a better fit than the metric model ($\chi^2 = 3338.275$, $df = 34$, $p < .001$) and the scalar model ($\chi^2 = 4466.452$, $df = 68$, $p < .001$). These results indicated that neither metric nor scalar invariances had been achieved.

Regarding measurement invariance across men ($n = 300$) and women ($n = 300$), the fit of the configural model was satisfactory, $\chi^2 = 3077.889$, $df = 1186$, $p < .001$, CFI = .758, TLI = .743, SRMR = .086, RMSEA = .073, 90% CI [.070, .076]. The adjustment of the metric model was similar, $\chi^2 = 3113.029$, $df = 1220$, $p < .001$, CFI = .758, TLI = .750, SRMR = .088, RMSEA = .072, 90% CI [.069, .075], but the difference between the two models suggested that the metric model should be preferred, as the gain of parsimony (i.e., in degrees of freedom) did not significantly impair the fit of the model ($\chi^2 = 35.140$, $df = 34$, $p = 0.414$). The fit of the scalar invariance model was also satisfactory, $\chi^2 = 3269.717$, $df = 1254$, $p < .001$, CFI = .742, TLI = .741, SRMR = .088, RMSEA = .073, 90% CI [.070, .076], but the results of the likelihood ratio

test suggested that the metric model should be preferred ($\chi^2 = 156.688$, $df = 34$, $p < .001$). The results of the scalar invariance model revealed a significant difference in the means of the anxiety dimension across gender, with men showing lower scores than women (Cohen's $d = 0.209$, $z = -2.402$, $p = 0.016$), a modest size effect (Cohen, 1988). In turn, the difference in the means of the avoidance dimension between men and women was not significant (Cohen's $d = 0.009$, $z = -0.107$, $p = 0.914$). Since the hypothesis of scalar invariance postulates that men and women would have equal factor means, the differences between men and women on the anxiety dimension probably accounts for the lack of scalar invariance.

Regarding measurement invariance across individuals who are in a committed relationship ($n = 490$) versus single people ($n = 110$), the results showed that the fit of the configural model was satisfactory, $\chi^2 = 3100.385$, $df = 1186$, $p < .001$, CFI = .743, TLI = .727, SRMR = .086, RMSEA = .073, 90% CI [.070, .077]. The metric model showed a similar adjustment to the data, $\chi^2 = 3123.729$, $df = 1220$, $p < .001$, CFI = .745, TLI = .736, SRMR = .088, RMSEA = .072, 90% CI [.069, .075]. However, since the difference between both models was not significant ($\chi^2 = 23.344$, $df = 34$, $p = 0.916$), the metric model should be preferred because of increased parsimony. Although the fit of the scalar model was also satisfactory, $\chi^2 = 3225.167$, $df = 1254$, $p < .001$, CFI = .736, TLI = .734, SRMR = .088, RMSEA = .072, 90% CI [.069, .075], the results of the likelihood ratio test suggested that the fit of the metric model was better ($\chi^2 = 101.438$, $df = 34$, $p < .001$). The results of the parameter estimates for the scalar model suggested that scalar invariance was not obtained, because individuals engaged in a couple relationship obtained lower means on the anxiety (Cohen's $d = 0.796$, $z = -6.659$, $p < .001$) and avoidance dimensions than did the single participants (Cohen's $d = 0.610$, $z = -5.179$, $p < .001$), with both effect sizes being large (Cohen, 1988).

Alternative models. Finally, we tested alternative factor models to the two-factor solution (see Table 3 for a presentation of the fit indices of all models tested in this study). We first computed EFAs, where we specified a single factor, and from three to seven correlated factors. We then tested these models by using CFAs.

CFA allowed us to reject a single-factor model, as the fit indices globally indicated a very poor adjustment to the data, $\chi^2 = 3983.724$, $df = 594$, $p = .000$, CFI = .555, TLI = .528, SRMR = .109, RMSEA = .098, 90% CI [.095, .100]. The three- and four-factor models had decent fits, $\chi^2 = 2150.248$, $df = 591$, $p = .000$, CFI = .795, TLI = .782, SRMR = .080, RMSEA = .066, 90% CI [.063, .069] for the three-factor model and $\chi^2 = 1932.723$, $df = 587$, $p = .000$, CFI = .823, TLI = .810, SRMR = .074, RMSEA = .062, 90% CI [.059, .065] for the four-factor model, respectively. However, although these models were statistically comparable to the two-factor model in terms of RMSEA and SRMR, they did not emerge as substantively better solutions than the two-factor model, as they included a few cross-loadings and factors with only low factor loadings, and globally, they were less theoretically interpretable (i.e., some factors consisted of items that derived from both the avoidance and anxiety dimensions). Models with five and more factors had to be rejected, as they each contained at least one under-identified factor with only two or fewer salient loadings (Carroll, 1995). Moreover, some of these factors had no items with high loadings. The results concerning these alternate models did not allow us to call the two-factor structure into question, as none of these models were clearly better adjusted to the data or more clearly in line with the theoretical background of the scale.

Construct Validity

Construct validity was assessed through convergent validity by correlating each attachment dimension with marital satisfaction, self-esteem, sexual satisfaction, and fear of sexuality. All

correlations were significant and in a direction that was consistent with the expected results (see Table 4). First, avoidance was negatively related to self-esteem, although the effect size was small. Anxiety was also negatively related to self-esteem, with an effect size close to medium. The effect was stronger regarding the variables related to sexuality: Avoidance was negatively correlated to sexual satisfaction and positively correlated to the fears associated with sexuality (medium effect size; Cohen, 1988). The same effects were observed for anxiety, with small effect sizes. The results for SISE and MSQ remained significant once the relational status was controlled for (partial correlations). Finally, the strongest effect was observed for the links to marital adjustment: There were negative links with large effect sizes for avoidance and small to medium effect sizes for anxiety.

Discussion

The aim of this paper was to present a validation study of the ECR-R scales in a French-speaking sample. First, we tested the extent to which the original two-dimensional structure—which derives from a substantial theoretical background and was empirically validated only in English in previous studies—could be confirmed as the best solution to represent the structure of the translated instrument. Consistent with the results concerning the original scale, a structure with two correlated dimensions of anxiety and avoidance was the best solution to explain the data in our sample, showing that the factor structure of the French version was similar to the structure of the English version. This two-factor structure also provided the best fit for the English and the French versions of the ECR, the first version of the instrument, showing the robustness of this questionnaire for assessing both constructs of anxiety and avoidance. Other models were tested but were not relevant. Internal consistency of the two dimensions was lower in the French than in the English version, but the indices were judged as satisfactory, as they

were both in the high end of the range of alpha values usually estimated as “acceptable” (between 0.7 and 0.9; DeVellis, 2003). Moreover, for each of the two dimensions, omega was equal to alpha, which indicates that the assumptions of alphas are not violated by the items of each dimension, thereby indicating true unidimensionality. Thus, the condition of tau equivalence holds (Zinbarg, Revelle, Yovel, & Li, 2005). The relatively high internal consistency both in the original version (both alphas above 0.9) and in this French version (0.89 and 0.88) suggests that for practical purposes, the scale might be shortened, as high values may indicate that some items are redundant. A next step would thus be to perform an item analysis to design an abbreviated version of the scale; this would be a relevant undertaking, as the ECR-R was shown, because of its length, to be relatively inconvenient to use in research protocols that included several questionnaires.

Measurement invariance was assessed across the original U.S. sample versus our sample, across men versus women, and across single individuals versus individuals in a committed relationship. The results of the comparison between the data of the original U.S. sample and the Xxxx sample showed the equivalence of the factorial structure (configural invariance), but also the possible difference in the respective weights of the items on each dimension, as metric invariance was not achieved. This is of primary importance, especially when considering a shorter version, meaning that such a scale should not comprise the same items in the two populations. More in-depth analysis of possible cultural differences should be conducted in order to understand this difference between the two samples. The other two measurement invariance tests had similar results: The factorial structure holds across men and women and across individuals in a committed relationship and single people. In these cases, metric invariance shows that the items have similar weight and thus the same importance across the comparison

groups. Scalar invariance was, however, not achieved, which can be explained on the one hand by higher anxiety in women than in men, and on the other hand by higher anxiety and avoidance in single people than in individuals in a couple relationship. These results do not invalidate the validity of the scale; on the contrary, they are consistent with the results of studies that have shown that attachment anxiety tends to be higher in women (Del Giudice, 2011), while attachment insecurity is linked with a higher probability of couple dissolution and being single (Davis et al., 2003; Klohnen & Bera, 1998).

The construct validity of the scale was then tested by checking the two dimensions against conceptually and empirically related variables. The results confirmed the validity of the scales: Avoidance and anxiety are indeed both related positively to sexual fears and negatively to sexual satisfaction and to self-esteem, as has been shown repeatedly in studies that used the English version of the ECR and the ECR-R (Brassard et al., 2007; Davis et al., 2006; Mallinckrodt & Wei, 2005). The strongest effect was observed for marital satisfaction in the subgroups of participants involved in a relationship: Avoidance is particularly negatively related to satisfaction and anxiety is negatively related to satisfaction to a slightly lesser extent. The negative link between attachment dimensions and marital satisfaction and adjustment is one of the most consistent findings in the field (see Mikulincer & Shaver, 2007; Treboux, Crowell, & Waters, 2004; Williams & Riskind, 2004).

Limitations of this study have nevertheless to be mentioned. First, our construct validity data rely mainly on self-reported dimensional questionnaires, so that results may have been biased by common-method variance. Other methods would be warranted such as observational data of attachment behaviors or reports by other informants to be compared with the respondents' ECR-R data. Second, our sample had a limited age range (from 25 to 45), so that

generalizability to other age groups should be verified. Despite these limitations, our results show that the French version of the Experiences in Close Relationships – Revised (ECR-R) scale has good preliminary reliability and validity and is consistent with its theoretical model of attachment dimensions. It thus seems that it can be used in empirical research on romantic attachment with French-speaking samples.

References

- Ainsworth, M., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226–244.
doi:10.1037/0022-3514.61.2.226
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York, NY: Basic Books.
- Brassard, A., Shaver, P. R., & Lussier, Y. (2007). Attachment, sexual experience, and sexual pressure in romantic relationships: A dyadic approach. *Personal Relationships*, *14*, 475–493. doi:10.1111/j.1475-6811.2007.00166.x
- Brennan, K. A., Clark, C., & Shaver, P. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. Simpson & W. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York, NY: Guilford.
- Carroll, J. B. (1995). On methodology in the study of cognitive abilities. *Multivariate Behavioral Research*, *30*, 429–452. doi:10.1207/s15327906mbr3003_6
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). New York, NY: Academic Press.
- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, *71*, 810–832. doi:10.1037/0022-3514.71.4.810
- Davis, D., Shaver, P. R., & Vernon, M. L. (2003). Physical, emotional, and behavioral reactions to breaking up: The roles of gender, age, emotional involvement, and attachment style.

Personality and Social Psychology Bulletin, 29, 871-884.

doi:10.1177/0146167203029007006

Davis, D., Shaver, P. R., Widaman, K. F., Vernon, M. L., Follette, W. C., & Beitz, K. (2006). "I can't get no satisfaction": Insecure attachment, inhibited sexual communication, and sexual dissatisfaction. *Personal Relationships*, 13, 465–483. doi:10.1111/j.1475-

6811.2006.00130.x

Del Giudice, M. (2011). Sex differences in romantic attachment: A meta-analysis. *Personality and Social Psychology Bulletin*, 37, 193–214. doi:10.1177/0146167210392789

DeVellis, R. (2003). *Scale development: Theory and applications*. Thousand Oaks, CA: Sage.

Feeney, J. (1999). Adult attachment, emotional control, and marital satisfaction. *Personal Relationships*, 6, 169–185. doi:10.1111/j.1475-6811.1999.tb00185.x

Feeney, J., & Noller, P. (1996). *Adult attachment*. Thousand Oaks, CA: Sage.

Feeney, J., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. Sperling & W. Berman (Eds.), *Attachment in adults: Clinical and developmental perspectives* (pp. 128–152). New York, NY: Guilford.

Fraley, R., Waller, N., & Brennan, K. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350–365. doi:10.1037/0022-3514.78.2.350

Griffin, D., & Bartholomew, K. (1994). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships: Attachment processes in adulthood* (Vol. 5, pp. 17–52). London, United Kingdom: Kingsley.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511–524. doi:10.1037/0022-3514.52.3.511

- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. doi:10.1080/10705519909540118
- Johnson, S. (2004). *The practice of emotionally focused couple therapy: Creating connection*. New York, NY: Brunner-Routledge.
- Kenny, D. A. (2014). *Measuring model fit*. Retrieved from <http://davidakenny.net/cm/fit.htm>
- Klohnen, E. C., & Bera, S. (1998). Behavioral and experiential patterns of avoidantly and securely attached women across adulthood: A 31-year longitudinal perspective. *Journal of Personality and Social Psychology, 74*, 211–223. doi:10.1037/0022-3514.74.1.211
- Lafontaine, M.-F., & Lussier, Y. (2003). Structure bidimensionnelle de l'attachement amoureux: anxiété face à l'abandon et évitement de l'intimité [Bidimensional structure of attachment in love: Anxiety over abandonment and avoidance of intimacy]. *Canadian Journal of Behavioural Science, 35*, 56–60. doi:10.1037/h0087187
- Locke, H., & Wallace, K. (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251–255. doi:10.2307/348022
- Mallinckrodt, B., & Wei, M. (2005). Attachment, social competencies, social support, and psychological distress. *Journal of Counseling Psychology, 52*, 358–367. doi:10.1037/0022-0167.52.3.358
- Mikulincer, M., & Goodman, G. (2006). *Dynamics of romantic love: Attachment, caregiving and sex*. New York, NY: Guilford.
- Mikulincer, M., & Shaver, P. (2007). *Attachment in adulthood: Structure, dynamics and change*. New York, NY: Guilford.

- Mikulincer, M., & Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry, 11*, 11–15. doi:10.1016/j.wpsyc.2012.01.003
- Rigdon, E. E. (1996). CFI versus RMSEA: A comparison of two fit indexes for structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal, 3*, 369-79. doi: 10.1080/10705519609540052
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27*, 151–161. doi:10.1177/0146167201272002
- Rogers, W., Bidwell, J., & Wilson, L. (2005). Perception of and satisfaction with relationship power, sex, and attachment styles: A couples level analysis. *Journal of Family Violence, 20*, 241–251. doi:10.1007/s10896-005-5988-8
- Schmitt, D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology, 89*, 623–642. doi:10.1037/0022-3514.89.4.623
- Shaver, P. R., Schachner, D. A., & Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin, 31*, 343-359. doi:10.1177/0146167204271709
- Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the Revised Experiences in Close Relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin, 31*, 1524-1536. doi:10.1177/0146167205276865

- Sibley, C. G., & Liu, J. H. (2004). Short-term temporal stability and factor structure of the Revised Experiences in Close Relationships (ECR-R) measure of adult attachment. *Personality and Individual Differences, 36*, 969-975. doi:10.1016/S0191-8869(03)00165-X
- Simpson, J., Rholes, S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71*, 899-914. doi:10.1037/0022-3514.71.5.899
- Snell, W. E. J., Fisher, T. D., & Walters, A. S. (1993). The Multidimensional Sexuality Questionnaire: An objective self-report measure of psychological tendencies associated with human sexuality. *Annals of Sex Research, 6*, 27-55. doi:10.1007/BF00849744
- Treboux, D., Crowell, J. A., & Waters, E. (2004). When 'new' meets 'old': Configurations of adult attachment representations and their implications for marital functioning. *Developmental Psychology, 40*, 295-314. doi:10.1037/0012-1649.40.2.295
- Wearden, A. J., Lambertson, N., Crook, N., & Walsh, V. (2005). Adult attachment, alexithymia, and symptom reporting: An extension to the four category model of attachment. *Journal of Psychosomatic Research, 58*, 279-288. doi:10.1016/j.jpsychores.2004.09.010
- Wei, M., Vogel, D. L., Ku, T.-Y., & Zakalik, R. A. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating roles of emotional reactivity and emotional cutoff. *Journal of Counseling Psychology, 52*, 14-24. doi:10.1037/0022-0167.52.1.14
- Williams, N. L., & Riskind, J. H. (2004). Adult romantic attachment and cognitive vulnerabilities to anxiety and depression: Examining the interpersonal basis of vulnerability models. *Journal of Cognitive Psychotherapy, 18*, 7-24. doi:10.1891/jcop.18.1.7.28047
- Wright, J., & Sabourin, S. (1985). *L'intervention auprès du couple* [Couple intervention]. Québec, CA: Consultation.

Zinbarg, R., Revelle, W., Yovel, I., & Li, W. (2005). Cronbach's α , Revelle's β , and McDonald's

ω_H : Their relations with each other and two alternative conceptualizations of reliability.

Psychometrika, 70, 123–133. doi:10.1007/s11336-003-0974-7

Table 1.

Sample Characteristics (N = 600)

| Variable | Women (N = 300) | | Men (N = 300) | |
|----------------------------------|-----------------|------------|---------------|------------|
| | M (SD) | N (%) | M (SD) | N (%) |
| Demographic variable | | | | |
| Age in years | 36.3 (5.7) | | 36.0 (5.5) | |
| In a couple relationship | | 246 (82) | | 244 (81.3) |
| Married | | 150 (50) | | 161 (53.7) |
| Duration of current relationship | 10.5 (7.2) | | 10.2 (6.1) | |
| Educational attainment | | | | |
| Less than 7 years of school | | 0 (0) | | 0 (0) |
| 7 to 9 years of school | | 12 (4.0) | | 3 (1) |
| Part high school (9 to 11 years) | | 9 (3.0) | | 14 (4.7) |
| High school graduate | | 67 (22.3) | | 68 (22.7) |
| 1 to 3 years college | | 33 (11.0) | | 17 (5.7) |
| 4-year college graduate | | 55 (18.3) | | 58 (19.3) |
| Professional (MA, MD, PhD, etc.) | | 124 (41.3) | | 140 (46.7) |
| Monthly income (in XXXX) | | | | |
| < 1000 | | 27 (9) | | 8 (2.7) |
| > 1000 and < 5000 | | 119 (39.7) | | 77 (25.6) |
| < 5000 and < 10000 | | 108 (36.0) | | 152 (50.7) |
| > 10000 | | 11 (3.7) | | 32 (10.7) |
| Not specified | | 35 (11.7) | | 31 (10.3) |
| Number of children | | | | |
| 0 | | 102 (34.0) | | 139 (46.3) |
| 1 | | 59 (19.7) | | 79 (19.7) |
| 2 | | 92 (30.7) | | 58 (26.0) |
| 3 | | 35 (11.7) | | 19 (6.3) |
| >3 | | 12 (4.0) | | 5 (1.6) |

Table 2

Standardized Factor Loadings in the Two-Factor Model Estimated With Confirmatory Factor Analyses

| Item | Anxiety | Avoidance |
|---------|---------|-----------|
| ANX_1 | 0.602 | 0 |
| ANX_2 | 0.711 | 0 |
| ANX_3 | 0.719 | 0 |
| ANX_4 | 0.663 | 0 |
| ANX_5 | 0.545 | 0 |
| ANX_6 | 0.605 | 0 |
| ANX_7 | 0.614 | 0 |
| ANX_8 | 0.677 | 0 |
| ANX_9 | 0.471 | 0 |
| ANX_10 | 0.534 | 0 |
| ANX_11 | 0.388 | 0 |
| ANX_12 | 0.575 | 0 |
| ANX_13 | 0.439 | 0 |
| ANX_14 | 0.452 | 0 |
| ANX_15 | 0.502 | 0 |
| ANX_16 | 0.421 | 0 |
| ANX_17 | 0.399 | 0 |
| ANX_18 | 0.420 | 0 |
| AVOID_1 | 0 | 0.554 |

| | | |
|----------|---|-------|
| AVOID_2 | 0 | 0.615 |
| AVOID_3 | 0 | 0.520 |
| AVOID_4 | 0 | 0.387 |
| AVOID_5 | 0 | 0.654 |
| AVOID_6 | 0 | 0.678 |
| AVOID_7 | 0 | 0.598 |
| AVOID_8 | 0 | 0.700 |
| AVOID_9 | 0 | 0.431 |
| AVOID_10 | 0 | 0.704 |
| AVOID_11 | 0 | 0.510 |
| AVOID_12 | 0 | 0.449 |
| AVOID_13 | 0 | 0.582 |
| AVOID_14 | 0 | 0.682 |
| AVOID_15 | 0 | 0.639 |
| AVOID_16 | 0 | 0.561 |
| AVOID_17 | 0 | 0.597 |
| AVOID_18 | 0 | 0.446 |

Note. ANX = items theoretically linked to the anxiety dimensions; AVOID = items theoretically linked to the avoidance dimension.

All loadings significant at $p < .001$.

Table 3

Fit Indices for the Two-factor Model, Measurement Invariance, and Alternative Models

| | <i>df</i> | χ^2 | CFI | TLI | RMSEA [90% CI] | SRMR |
|---|-----------|-----------|------|------|-------------------|------|
| Original model (Xxxx sample) | | | | | | |
| Two-factor | 593 | 2294.966 | .776 | .762 | .069 [.066, .072] | .079 |
| Two-factor orthogonal | 594 | 2370.146 | .767 | .752 | .071 [.068, .074] | .120 |
| U.S. and Xxxx invariance (two-factor) | | | | | | |
| Configural | 1186 | 5709.468 | .834 | .824 | .067 [.066, .069] | .069 |
| Metric | 1220 | 9047.743 | .713 | .703 | .087 [.086, .089] | .142 |
| Scalar | 1254 | 12168.017 | .600 | .598 | .102 [.100, .103] | .186 |
| Gender invariance (two-factor) | | | | | | |
| Configural | 1186 | 3077.889 | .758 | .743 | .073 [.070, .076] | .086 |
| Metric | 1220 | 3113.029 | .758 | .750 | .072 [.069, .075] | .088 |
| Scalar | 1254 | 3269.717 | .742 | .741 | .073 [.070, .076] | .089 |
| Relational status invariance (two-factor) | | | | | | |
| Configural | 1186 | 3100.385 | .743 | .727 | .073 [.070, .077] | .086 |
| Metric | 1220 | 3123.729 | .745 | .736 | .072 [.069, .075] | .088 |
| Scalar | 1254 | 3225.167 | .736 | .734 | .072 [.069, .075] | .088 |
| Alternative models | | | | | | |
| One-factor | 594 | 3983.724 | .555 | .528 | .098 [.095, .100] | .109 |
| Three-factor | 591 | 2150.248 | .795 | .782 | .066 [.063, .069] | .080 |

| | | | | | | |
|-------------|-----|----------|------|------|-------------------|------|
| Four-factor | 587 | 1932.723 | .823 | .810 | .062 [.059, .065] | .074 |
|-------------|-----|----------|------|------|-------------------|------|

Note. CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Table 4

Correlations Between Attachment Dimensions and Study Variables (N=600)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------|------|------|------|------|------|---|
| 1. ECR-R avoidance | - | | | | | |
| 2. ECR-R anxiety | .41 | - | | | | |
| 3. SISE self-esteem | -.19 | -.29 | - | | | |
| 4. MSQ satisfaction | -.39 | -.22 | .19 | - | | |
| 5. MSQ fear | .36 | .25 | -.20 | -.47 | - | |
| 6. MAT marital adjustment | -.59 | -.29 | .14 | .45 | -.24 | - |

Note. All correlations are significant at $p < .001$. ECR-R = Experiences in Close Relationships – Revised; SISE = Single-Item Self-Esteem Scale; MSQ = Multidimensional Sexuality Questionnaire; MAT = Marital Adjustment Test.