Adult attachment style across individuals and role-relationships:

Avoidance is relationship-specific, but anxiety shows greater generalizability

João M. Moreira

Faculty of Psychology

University of Lisbon

Portugal

João M. Moreira

Faculdade de Psicologia

Universidade de Lisboa

Alameda da Universidade

1649-013 Lisboa

Portugal

joao.moreira@campus.ul.pt

Word count: 7072

Running head: RELATIONSHIP-SPECIFIC ATTACHMENT STYLE

Keywords: attachment style, generalizability, relationships

Acknowledgements

The help of my colleagues Paulo Ventura, Luísa Lima, Sílvia Silva and Susana Tavares with the data collection is gratefully acknowledged. Thanks are also due to Ana Luísa Duarte and Sónia Comenda for their assistance in the early stages of this project.

Adult attachment style across individuals and role-relationships: Avoidance is relationship-specific, but anxiety shows greater generalizability

Abstract

A generalizability study examined the hypotheses that avoidant attachment, reflecting the representation of others, should be more relationship-specific (vary across relationships more than across individuals), while attachment anxiety, reflecting self-representation, should be more generalizable across a person's relationships. College students responded to six-item questionnaire measures of these variables for 5 relationships (mother, father, best same-gender friend, romantic partner or best opposite-gender friend, other close person), on 3 (N = 120) or 2 (N = 77) occasions separated by a few weeks. Results supported the hypotheses, with the person variance component being larger than the relationship-specific component for anxiety, and the opposite happening for avoidance. Anxiety therefore seems not to be as relationship-specific as previous research suggested. Possible reasons for discrepancies between the current and previous studies are discussed.

Attachment theory (Bowlby, 1969, 1973, 1980) claims that the accessibility of well-known, reliable, caring figures is an essential basis for emotional security. Most research on attachment, however, has focused not on these universal processes but on an individual differences framework derived from Ainsworth's work (Ainsworth, Blehar, Waters, & Wall, 1978), which postulates an individually characteristic attachment style (Cassidy & Shaver, 2008; Mikulincer & Shaver, 2007).

Studies of individual differences in attachment style have converged onto the conclusion that they are subsumed by two major dimensions of avoidance (of intimacy) and anxiety (about abandonment; K. A. Brennan, Clark, & Shaver, 1998; Fraley and Spieker, 2003; Roisman, Fraley, & Belsky, 2007). Highly avoidant persons suppress the expected behavior of approaching their caregivers when emotionally challenged (Collins & Feeney, 2000; Simpson, Rholes, & Nelligan, 1992). Physiological data and signs of poor organization of behavior (e.g., decreased quality of play) that accompany episodes of avoidance, however, suggest that this is not due to genuine emotional security or indifference (Fox & Hane, 2008; Main & Weston, 1982). Additionally, these individuals suppress the processing of negative emotions and the appraisal of situations as threatening (Fraley & Shaver, 1997). On the other hand, anxiously attached persons overreact to stressful situations and keep distress-signaling and care-seeking attachment behaviors on a hair trigger (Mikulincer & Shaver, 2007).

Attachment style characteristics are thought to result from actual experiences with caregivers. While avoidance appears to be a consequence of negative, rejecting attitudes, anxiety is related to having a caregiver who is inconsistent, unpredictable or inept, but not openly critical or rejecting (Belsky & Fearon, 2008).

These findings suggest that attachment strategies might vary across relationships with different caregivers, and therefore not appear as consistent individual traits. For example,

little correspondence has been found between attachment styles with each parent in childhood (Fox, Kimmerly & Schafer, 1991). Internal representations theorized to underlie attachment styles have been shown to adapt to specific situations (Cobb & Davila, 2009), as illustrated by nearly everyone being able to recall reactions and experiences typical of diverse styles (Mikulincer & Arad, 1999) and by effects of priming (Rowe & Carnelley, 2003).

Studies employing techniques such as the Social Relations Model (Kenny & La Voie, 1984), Hierarchical Linear Models (Bryk & Raudenbush, 2002) or Generalizability (G) theory (see Shavelson & Webb, 1991, for an accessible introduction, and R. L. Brennan, 2001a, for a thorough, authoritative treatment), have confirmed the idea of variability across relationships. These methods provide us with estimates of the proportion of variance in scores due to different factors influencing them (variance components). Partitioning of variance by these methods is similar to that in the commonly used analysis of variance (ANOVA), and ANOVA algorithms are actually employed in G studies.

Generalizability theory

Exemplifying with generalizability theory, one may question a sample of persons on, say, avoidance in a number of different role-relationships (e.g., with mother, father, and romantic partner) This very simple design allows for estimations of variance due to Persons (P), Role-relationships (R), and the interaction between the two (PR). Variance for Persons is calculated by averaging each person's scores (across relationships) and then calculating their variance across all persons. Calculations for the Role-relationships facet (independent variables commonly designated as "factors" in ANOVAs are called "facets" in G theory) are analogous (i.e., calculating average anxiety with mothers, fathers, and romantic partners, and then the variance among the three resulting scores). The interaction facet reflects the degree to which the pattern of relationships' scores varies from one individual to another. Therefore,

if attachment style were an individual attribute equally manifest across relationships, each individual would show the same pattern of deviations around his or her mean when rating different relationships, and the PR component would account for no variance at all. If attachment style were totally a relationship phenomenon, with no contribution of individual characteristics, every individual would produce the same mean across relationships, even if the pattern of relationship scores varied widely, and the P variance component would be zero. Finally, if types of relationships (e.g., with mother, father, partner) had no effect on attachment style, they would all show the same mean when averaged across individuals.

By estimating observed mean squares attributable to each facet, with the help of an ANOVA algorithm, and applying a set of equations whose technical details are outside the score of this paper (see R. L. Brennan, 2001a; Shavelson & Webb, 1991), one can estimate the magnitude of variance components influencing scores in the population. Raw values of these magnitudes, which depend on the (usually arbitrary) unit of measurement, are easier to interpret when converted to relative values, expressed as percentages of the total variance. More complex designs can obviously be employed, allowing for the estimation of further variance components.

It is also important to consider, however, that these estimations only make sense when levels within facets in the design are conceptualized as random, that is, as a representative sample within a population of possible values (e.g., participants respond on three occasions; these three occasions are seen as a sample of a large population of occasions in which data might have been collected, just as respondents are seen as a random sample of potential participants). When these conditions do not apply, the facet is said to be fixed. Such is the case for Role-relationships, as attachment relationships constitute a small population for a given individual, and not a representative sample of a potentially large population. In such cases, one must consider whether scores obtained from averaging across the levels of a

fixed facet can be considered meaningful. For example, in the case of specific attachment relationships, averaging an individual's level of anxiety or avoidance across relationships would be meaningful, as it would correspond to that person's purported trait level on that variable. In such cases, it is recommended that the facet be treated as if it were random and that the variance components associated with it be accordingly estimated (Shavelson & Webb, 1991, Chap. 5). This is intended to find out whether the facet significantly affects results (in which case relationships need to be taken into account) or not (in which case it would be legitimate to average across relationships to assess attachment styles as generalizable traits).

In cases in which scores across levels of the facet cannot be meaningfully aggregated, it is recommended that each such level be targeted by a separate analysis. Such is the case for the attachment style dimension facet: It would make no sense to average the two dimensions of avoidance and anxiety.

Previous studies in the literature

Previous studies employing this type of approach have found the PR variance component to be larger than the P component when examining attachment style measures (Barry et al., 2007; Cook, 2000; La Guardia, Ryan, Couchman, & Deci, 2000; Merlo and Lakey, 2007; Pierce & Lydon, 2001). These studies, however, suffer from design limitations that the present study intends to address.

One major difference between ANOVA designs employed in hypotheses testing regarding means and those employed in G analyses is that no variance component is singled out for representing error. All variance components are theorized to represent factors influencing scores. Residual error variance, however, still lingers, but is irrevocably confounded with the component corresponding to the interaction among all facets of the design. Therefore, the PR component in the example above might best be designated as PRe,

with e standing for error variance. This would imply that random error variance would inflate the PR component, leading to its overestimation. If one were trying to establish whether people are consistent or vary in their attachment style across relationships (i.e., comparing the P with the PR component), this would be an inappropriate design, as the PR component would be confounded with random error variance and would be overestimated, leading to the conclusion that people are less consistent across relationships than they really are. The only way to prevent such a problem would be by adding one further factor to the analysis, for example by using more than one item to measure the variable of interest. In this case, random variance would be confounded with the Person × Role-relationship × Item interaction (as there is a single observation for each combination of these factors), and therefore the Person × Role-relationship interaction could be freed from such confounding. Some previous studies have failed to do this, as they did not include items as a facet in the analysis, and instead directly analyzed scale scores for attachment anxiety and avoidance, obtained by averaging or summing items (La Guardia et al., 2000; Pierce & Lydon, 2001).

Other studies are problematic because they aggregated items in just two blocks (Barry et al., 2007; Cook, 2000). Although the latter procedure avoids the problem of confounding the PR component with random error, it provides a less than entirely adequate basis for an estimation of error variance due to items. Attachment style items can focus on several content facets (e.g., anxiety items can focus on intense desire for closeness, concern about possible abandonment, partners being felt as unreliable or not available enough, etc; e.g., Fossati et al., 2003). Two blocks should therefore not be enough to provide a representative sample of all possible varieties of items. By aggregating the variety of items into two rather similar sets, previous authors may have underestimated variance due to the items facet and its interactions, and some of this variance might have seeped into other components.

Contributions of the current study

The current study improves on previous ones by separately considering every single item in the attachment measure as a level of the items facet, thereby improving on error estimation. Additionally, no previous study employed repeated measures, although it is known that attachment style may vary across time (Baldwin & Fehr, 1995). No specific hypotheses are put forward regarding effects involving occasions, but the inclusion of the items and occasions facets is expected to further push residual variance away from theoretically relevant components, giving greater internal validity to the results.

These improvements may also throw light on another relevant theoretical issue. It is believed that the anxiety and avoidance dimensions of attachment style reflect internal working models of self and others (Griffin & Bartholomew, 1994), with the best accepted view being that the model of self is most related to the anxiety dimension and the model of other to avoidance (Mikulincer and Shaver, 2007, pp. 97-98). In fact, higher anxiety is related to lower (Bylsma, Cozzarelli, & Sumer, 1997; Mikulincer, 1995) and more variable (Foster, Kernis, & Goldman, 2007) self-esteem, while avoidance is related to more unfavorable perceptions of others (Zhang & Hazan, 2002). It therefore seems plausible that avoidance, being more closely related to the representation of others' behavior, might vary more strongly across relationships, while anxiety, being related to self-representations, should vary to a more limited degree. Previous results in the literature point in this direction, showing that person effects are usually larger for anxiety than for avoidance, while relationship-specific effects are larger for avoidance than for anxiety (Barry et al., 2007; Cook, 2000; La Guardia et al., 2000, Study 2; Merlo & Lakey, 2007; Pierce & Lydon, 2001)

With the improved control for error variance in the current study, it is expected that the PR component will be smaller, in comparison with the P component, than in previous studies. The P component might, therefore, explain more variance in the anxiety/model of

self dimension than the PR component (Hypothesis 1). In contrast, avoidance/model of other is expected to be explained by this interaction component more than by the one representing persons (Hypothesis 2).

Method

Participants and procedure

A total of 239 college students of psychology, education, sociology and business administration of two Lisbon institutions participated in this study. There were three moments of data collection, separated by three-week intervals. To ensure anonymity, participants tore and kept a slip containing their participant number from the questionnaire at their first participation, and wrote that number on the questionnaires at subsequent occasions.

Participation was voluntary and no compensation was given. The exact number of those declining participation was not recorded, but can be estimated at about 10% of the participants' pool. Participants' age ranged between 17 and 46 years, with a mean of 20.06 years and a standard deviation of 4.12 years, and 74% were female.

Measures

Attachment style data were collected using a matrix-form questionnaire, with lines corresponding to items and columns to relationships. Agreement with the items for each relationship was rated from (1) "I disagree completely" to (5) "I agree completely".

Items were selected on the basis of a factor analysis, in a similar population, of a non-relationship-specific attachment style questionnaire obtained by combining two English language instruments: Bartholomew and Horowitz's (1991) Relationship Style Questionnaire and Collins and Read's (1990) Attachment Questionnaire. Both of the original questionnaires were translated into Portuguese, and a back translation was approved by the original authors. The factor analysis yielded the two expected factors of avoidance and anxiety, and the questionnaire has demonstrated good psychometric properties for non-

relationship-specific use (Moreira et al., 2003). The six items with the highest loadings on each factor were selected and reformulated so as to refer to a specific relationship. Table 1 presents the set of items used (back-translated), before and after transformation. One of the anxiety items, which was not amenable to reformulation, had to be replaced by the seventh in the rank of loadings. The item in question was "I often worry that romantic partners won't want to stay with me". After adaptation to a relationship-specific format, it read "I often worry that this person won't want to maintain our relationship". This would cause problems in the case of family relationships, which are, by definition, not susceptible to voluntary dissolution.

Insert Table 1 about here

Relationships included in the measure had to remain comparable across participants to insure that facets were crossed in the ANOVA design employed to estimate variance components. Additional requirements were that these relationships should be likely to constitute true attachments for most of the participants, and their number should be as large as possible, to ensure the best representation of variance across relationships. Therefore, it was decided to include five role-relationships likely to constitute attachments to most individuals (Doherty & Feeney, 2004): (a) mother or mother-figure, (b) father of father-figure, (c) best friend of the same gender, (d) romantic partner or best friend of the opposite gender, and (e) another significant person of the participant's choice, the one he or she felt closest to, excluding those indicated in the previous columns. Of the latter, it was found that 46.0% nominated a brother or sister, 15.5% a friend, 10.9% a grandparent, 5.9% a cousin, 4.6% an uncle or aunt, 1.3% a child, 0.4% a godparent, and 0.4% a nephew or niece, while

6.7% had missing or unclassifiable information (e.g., a first name). Participants were instructed to respond regarding the same persons on all occasions.

Data analysis

A considerable proportion of missing data was caused by students that skipped classes in which data were collected. Of the 239 initial participants, complete data for the three occasions were available for only 120. Complete data for two occasions were available for a further 77. It was therefore decided to use these two groups as two non-overlapping sub-samples and to employ them in cross-validation. Of the participants in the two-occasion sub-sample, 48 had a three-week interval between assessments, and the remaining 29 had a six-week interval, having skipped the middle session. Data from the remaining 42 participants, who had responded on a single occasion, were discarded.

Results were analyzed applying univariate generalizability theory, by means of the GENOVA software (R. L. Brennan, 2001a; Crick & Brennan, 1983). In addition to carrying out the ANOVA and automatically providing the correct equations for the estimation of population variance components, this software provides estimates of standard errors for the magnitude of these components (R. L. Brennan, 2001a, Chap. 6), allowing for the calculation of confidence intervals.

Separate analyses were carried out for the anxiety and avoidance dimensions, as explained in the introduction, given that they constitute a fixed facet (are not a representative sample of a population of attachment dimensions, but are thought to constitute the population itself), and a new variable created by averaging them would be meaningless. The designs therefore included three fully crossed facets (Role-Relationships, Occasions, and Items; units of measurement, usually Persons, are not counted as facets in G theory).

In addition to variance components, G theory also provides generalizability coefficients, assessing the reliability of measures aggregating across given numbers of levels

of the factors included in the design (e.g., when persons and items are the only facets in the design, and one aggregates across a number of items equal to that employed in the design, the generalizability coefficient is mathematically equivalent to Cronbach's alpha coefficient. For the current study and the three-occasion subsample, these coefficients are presented in the two rightmost columns of Table 3, and have acceptable values for such short scales, especially when individual scores are averaged across the three Occasions. As explained above, one-occasion coefficients are equivalent to Cronbach alphas, averaged across Occasions.

Results

Table 2 presents results, in terms of the proportion (percentage) of variance accounted for by each component, for each attachment dimension. Total variance values are indicated at the bottom of the table for readers wishing to know the raw values. It can be seen that they are compatible with the hypotheses, for both 3- and 2-occasion samples. For the anxiety dimension, the P component was much larger than the PR one. In contrast, for avoidance, the opposite was true, with PR almost twice as large as P. Importantly, the 95% confidence intervals did not overlap for either dimension in the 3-occasion sample, indicating that the components were significantly different in magnitude. Confidence intervals overlapped in the 2-occasion sample (just barely so for avoidance), probably due to the smaller number of individuals and occasions.

Insert Table 2 about here

Another relevant point is that many other components are estimated to be either nonexistent or very small and not significant. This includes the components corresponding to Occasions, Relationships, and Items, indicating that there are no general differences in the

level of anxiety or avoidance across different occasions or relationships, and that differences in the mean level of endorsement of items are of small magnitude. One further implication of the small magnitude of the Role-relationships component is to render the question of whether this component should be nested within participants relatively unimportant (although it would make the difference between the Persons and the Persons × Role-relationships components nonsignificant for anxiety). The Persons × Occasions and the Persons × Role-relationships × Occasions components are also of small magnitude, showing that both generic and relationship-specific attachment styles are relatively stable across time.

Of the remaining variance components, if we exclude the four-way interaction between Persons, Occasions, Role-relationships, and Items (a residual component, accumulating all the unexplained variance, as explained above), the only components reaching a magnitude worthy of consideration are those for the interaction between Persons and Items, and between Persons, Occasions, and Items (POI). The first corresponds to differences in patterns item endorsement across individuals. It is important to keep in mind that these effects generalize across facets not included in the components. This means that, for example and in the case of the Persons × Items component, any differential endorsement of items by individuals is generalized across different relationships and occasions, and is independent of the participants' general level on the dimension being measured. This may correspond to the presence of minor factors below the general dimensions of anxiety and avoidance, again as suggested above (e.g., confidence, discomfort with closeness, relationships as secondary; Fossati et al., 2003). As to the POI component, its interpretation is not obvious, given that it corresponds to a differential endorsement of items by individuals, which also differs across occasions, but generalizes across relationships and is

independent of the general level in the dimension. This issue will be given attention in the discussion section.

Relations among relationship characteristics

Scores for the ten relationship-level characteristics were obtained by averaging across items and occasions. This approach had the advantage of allowing the inclusion of the two- and three-occasion subsamples in the same analysis. Identical analyses were carried out with correlation estimates obtained from a multivariate generalizability analysis undertaken with the mGENOVA software (R. L. Brennan, 2001b), and they yielded the same substantive conclusions. The obtained correlation matrix was submitted to a principal components analysis, followed by a Promax rotation, with the *K* parameter set to four. Both the eigenvalue-greater-than-one and the scree plot suggested that three was the adequate number of factors to extract. Table 3 presents the obtained pattern matrix.

Insert Table 3 about here

It can be seen that the first factor gathered all of the anxiety ratings, in agreement with the generalizability analysis conclusion that anxiety is a personal, more than a relationship-specific, characteristic. The other two factors divided the avoidance ratings. The second factor included ratings of avoidance toward peers (romantic partners and friends), while the third included avoidance toward mother and father. Avoidance toward the fifth, unspecified person was divided between the second and third factors, quite plausibly because the figures participants most often nominated for this role (siblings) were simultaneously peers and family members. When participants nominating friends were excluded from the analysis, the loading of this role-relationship increased somewhat on Factor 3, as would be expected based on the speculation above.

Discussion

According to the data collected for this study, the answer to the fundamental question of whether attachment is an individual or a relationship characteristic is "both". The major conclusions to extract from the analysis are that anxious/ambivalent attachment is predominantly a personal characteristic that is manifest across different relationships, while avoidant attachment is predominantly a relationship-specific phenomenon. These results contradict the previous literature, which indicated that both attachment dimensions were characteristic of relationships, more than of individuals. The current study shows that this may not be true for the anxiety dimension, something that would be compatible with the view that the anxiety dimension is related to the representation of self, while the avoidance dimension is related to the representation of others (Griffin & Bartholomew, 1994). They also suggest that such representations of others reflect specific partner and relationship characteristics to a greater degree, while self-representations are less influenced by such characteristics.

It is intriguing, however, why such results have not previously been found in the literature, given the theoretical sense they make. Although the more adequate control for residual variance in the current study might initially be thought to be the major cause, more detailed analyses (available from the author on request) have shown that they do not account for all the differences. Namely, analyses have been carried out simulating previous studies in the literature (i.e., employing data from only one occasion, aggregating items so as to create only one or two blocks, considering only three relationships, and nesting relationships within individuals). Although results from these analyses show P and PR components more similar in magnitude (and not significantly different) for anxiety, they never produced the clear magnitude difference favoring PR components found in the previous literature. At this point, the reasons for this discrepancy are not clear, but several possibilities may be considered.

The items employed, for example, came from a different measure than those in previous studies, and several of the Anxiety items included the word “worry”, possibly leading to more consistent responding. In addition, while previous studies apparently used a separate page for each relationship, items in the current study were presented in a matrix form, with all relationship × item combinations being rated on the same page, something which may have led to more consistent responding and to an enhancement of person-level variance. Finally, one may not exclude cultural differences as explanations for the discrepancy.

One further aspect of the design that may be controversial is the treatment of the Role-relationships facet as crossed with individuals. Barry, Lakey, and Orehek (2007) treated relationships as nested within individuals, on the argument that respondents “did not all have the same mothers, fathers, and romantic partners”. This procedure, however, leads to an incorrect assignment of variance. When participants are all rating relationships that correspond to the same roles (i.e., mother, father, etc), the variance explained by the Role-relationships component does not correspond to the individual characteristics of each partner. The latter cannot be estimated separately from each specific (dyadic) relationship, given that each of these relationships links a specific participant with a unique partner. Therefore, target-related variance is included in the Persons × Role-relationships interaction facet. The Role-relationships facet variance will represent variability in the average level of the attachment dimension across relationship roles (e.g., do participants feel, on average, more avoidant with their fathers than with their mothers?) To set this facet as nested within Persons would preclude its separate estimation and incorrectly assign its variance to the PR interaction, yielding to overestimation of the PR component. Robert L. Brennan’s (personal communication, July 25, 2009) confirmation of the adequacy of this view is gratefully acknowledged. In any case, as can be seen in Table 2, this issue is of little consequence for the final conclusions, given the very small magnitude of the R variance component.

In any case, what this study apparently indicates is that it might be premature to conclude that nearly all attachment variance occurs at the relationship-specific level, with individual variance, generalizable across relationships, being negligible. In fact, the results show that both sources of variance are relevant: Anxiety varies to a significant extent across relationships, even if it varies more across individuals. The reverse is true of avoidance, which shows some degree of consistency across relationships, even though this is less than what is specific to each relationship. One implication of these findings is that, for the anxiety dimension, ignoring the person level may be seen as problematic. On the contrary, for avoidance, relationship-specific measures should be preferred, especially when outcomes are also defined at a relationship level (e.g., commitment, satisfaction, conflict resolution strategies; Cozzarelli, Hoekstra, & Bylsma, 2000). Lack of attention to this generic vs. relationship-specific issue may cause an underestimation of the effects of avoidance on relationship functioning. Whenever feasible, however, it is suggested that future investigations explore the implications of attachment styles manifest at both levels, as both seem to incorporate a significant amount of variance. This is probably the most valuable conclusion to extract from this and related studies, as there are no guarantees that attachment style measured at the relationship and at the individual levels will show the same effects.

Other results of the current study show that relationship-specific self-ratings on adult attachment style are temporally stable and internally consistent, with some caveats discussed below. Factor analysis of the relationship-specific attachment scores agrees with the person-level character of anxiety, while avoidance seems to be hierarchically organized, with an intermediate level of family vs. peers (Sibley & Overall, 2010).

Open issues and limitations

Before closing, reference must be made to some further aspects of the results which could not be completely illuminated in the present study. One of these is substantiated in the

considerable magnitude of the Person × Item interaction. As mentioned in the results section, this may be due to the presence of small factors beyond the two main dimensions of adult attachment that have been considered in the literature (Fossati et al., 2003). A more complex case is that of the Person × Occasion × Item interaction component. As previously mentioned, the presence of this component means that respondents tend to endorse attachment style items to a different extent on different occasions, independently of their general level of endorsement. Had the relationship facet not been included in the design, this would pass as simple random responding. What the results show, however, is that this tendency to endorse items differently, when present on a given occasion, is manifested in a consistent fashion across relationships, which rules out a random process. The most plausible interpretation for this result might involve the action of a cognitive priming or sensitization phenomenon (see Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996). Supposing, for instance, that one of our respondents had been harshly criticized by a significant other a short time before filling the questionnaire, it is plausible that this person would endorse more strongly the item referring to anxiety about not being accepted by intimate others. This increased concern might be evident for all significant relationships, but would have dissipated on the next occasion and would not affect to the same degree items dealing with other issues (importance in the eyes of the partner, likelihood of abandonment) within the same dimension.

Several limitations of this study also need to be considered. The sample of individuals was small and did not allow for the examination of the hypotheses in different groups (e.g., gender). The number of occasions was also small, and might be considered inadequate to provide a proper sampling of occasions (as mentioned above regarding studies that employed only two item composites). The small magnitude of interaction components involving occasions, however, suggests that this is not a major problem. Previous evidence

for the psychometric qualities of the item sets existed for use in generic, but not relationship-specific format. The order in which relationships were presented was not randomized (it was the same for every participant), and the number of missing data was also considerable. No information was collected on the current status or nature of relationships, other than those with the fifth, "other" person (e.g., we do not know whether a romantic partner or a cross-sex friend was considered), and no explicit provision was made for people who might have a same-gender romantic partner. All of these aspects may have affected results to an unknown extent, and should de addressed in future studies. Finally, one may question whether the relationships included were actually attachments. However, and although future research should measure this aspect directly, studies that have done so have found that parental, romantic, close friendship and sibling relationships, addressed in this study, most often qualify as attachments (Doherty & Feeney, 2004). It therefore seems plausible to think that, in spite of the limitations of this initial, exploratory study, its conclusions will be replicated in future, more complex ones.

References

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Lawrence Erlbaum.

Baldwin, M. W., & Fehr, B. (1995). On the instability of attachment style ratings. *Personal Relationships, 2*, 247-261.

Baldwin, M. W., Keelan, J. P. R., Fehr, B., Enns, V., & Koh-Rangarajoo, E. (1996). Social cognitive conceptualization of attachment working models: Availability and accessibility effects. *Journal of Personality and Social Psychology, 71*, 94-109.

Barry, R. A., Lakey, B., & Orehek, E. (2007). Links among attachment dimensions, affect, the self, and perceived support for broadly generalized attachment styles and specific bonds. *Personality and Social Psychology Bulletin, 33*, 340-353.

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.

Belsky, J., & Fearon, R.M. P. (2008). Precursors of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 295-316). New York: Guilford.

Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment.* London: Hogarth Press.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation, anxiety and anger.* London: Hogarth Press.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss, sadness and depression.* London: Hogarth Press.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford.

Brennan, R. L. (2001a). *Generalizability theory*. New York: Springer.

Brennan, R. L. (2001b). *Manual for mGENOVA, Version 2.1*. Iowa City, IA: Iowa Testing Programs, College of Education, University of Iowa.

Bryk, A. S., & Raudenbush, S. W. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA, USA: Sage.

Bylsma, W. H., Cozzarelli, C., & Sumer, N. (1997). Relation between adult attachment styles and global self-esteem. *Basic and Applied Social Psychology, 19*, 1-16.

Cassidy, J., & Shaver, P. R. (Eds.). (2008). *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.). New York: Guilford.

Cobb, R. J., & Davila, J. (2009). Internal working models and change. In J. H. Obegi, & E. Berant (Eds.), Attachment theory and research in clinical work with adults (pp. 209-233). New York: Guilford.

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology, 78*, 1053-1073.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663.

Cook, W. L. (2000). Understanding attachment security in family context. *Journal of Personality and Social Psychology, 78*, 285-294.

Cozzarelli, C., Hoekstra, S. J., & Bylsma, W. H. (2000). General versus specific models of attachment: Are they associated with different outcomes? *Personality and Social Psychology Bulletin, 26*, 605-618.

Crick, J. E., & Brennan, R. L. (1983). *Manual for GENOVA: A generalized analysis of variance system*. Iowa City: American College Testing Program, Research and Development Division. Retrieved from http://www.education.uiowa.edu/casma/GenovaPrograms.htm

Doherty, N. A., & Feeney, J. A. (2004). The composition of attachment networks through the adult years. *Personal Relationships, 11*, 469-488.

Fossati, A., Feeney, J. A., Donati, D., Donini, M., Novella, L., Bagnato, M., Acquarini, E., & Maffei, C. (2003). On the dimensionality of the Attachment Style Questionnaire in Italian clinical and nonclinical participants. *Journal of Social and Personal Relationships, 20*, 55-79.

Foster, J. D., Kernis, M. H., & Goldman, B. M. (2007). Linking adult attachment to self-esteem stability. *Self and Identity, 6*, 64-73.

Fox, N. A., & Hane, A. A. (2008). Studying the biology of human attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 217-240). New York: Guilford.

Fox, N. A., Kimmerly, N. L., & Schafer, W. D. (1991). Attachment to mother/attachment to father: A meta-analysis. *Child Development, 62*, 210-225.

Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology, 73*, 1080-1091.

Fraley, R. C., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of strange situation behavior. *Developmental Psychology, 39*, 387-404.

Griffin, D., & Bartholomew, K. (1994). Models of self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*, 430-445.

Kenny, D. A., & La Voie, L. (1984). The social relations model. *Advances in Experimental Social Psychology, 19*, 141-182.

La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on

attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology, 79*, 367-384.

Main, M., & Weston, D. R. (1982). Avoidance of the attachment figure in infancy: Descriptions and interpretations. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behavior* (pp. 31-59). New York: Basic Books.

Merlo, L. J., & Lakey, B. (2007). Trait and social influences in the links among adolescent attachment, depressive symptoms, and coping. *Journal of Clinical Child and Adolescent Psychology, 36*, 195-206.

Mikulincer, M. (1995). Attachment style and the mental representation of the self. *Journal of Personality and Social Psychology, 69*, 1203-1215.

Mikulincer, M., & Arad, D. (1999). Attachment working models and cognitive openness in close relationships: A test of chronic and temporary accessibility effects. *Journal of Personality and Social Psychology, 77*, 710-725.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford.

Moreira, J. M., Silva, M. F., Moleiro, C., Aguiar, P., Andrez, M., Bernardes, S., & Afonso, H. (2003). Social support as an offshoot of attachment style. *Personality and Individual Differences, 34*, 485-501.

Pierce, T., & Lydon, J. E. (2001). Global and specific relational models in the experience of social interactions. *Journal of Personality and Social Psychology, 80*, 613-631.

Roisman, G. I., Fraley, R. C., & Belsky, J. (2007). A taxometric study of the Adult Attachment Interview. *Developmental Psychology, 43*, 675-686.

Rowe, A., & Carnelley, K. B. (2003). Attachment-style differences in the processing of attachment-relevant information: Primed-style effects on recall, interpersonal expectations, and affect. *Personal Relationships, 10*, 59-75.

Shavelson, R. J., & Webb, N. M. (1991). *Generalizability theory: A primer.* Newbury Park, CA: Sage.

Sibley, C. G., & Overall, N. C. (2010). Modeling the hierarchical structure of personality-attachment associations: Domain diffusion versus domain differentiation. *Journal of Social and Personal Relationships, 27*, 47-70.

Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology, 62*, 434-446.

Zhang, F., & Hazan, C. (2002). Working models of attachment and person perception processes. *Personal Relationships, 9*, 225-235.

Table 1

Back Translation of the Item Set Employed, Before and After Transformation

Original	Relationship-specific form	Scale
I often worry whether people really care about me	I often worry whether this person really cares about me	Anxiety
I worry about having others not accept me	I worry about having this person not accept me	Anxiety
When I show my feelings for someone, I fear he/she may not feel the same for me	When I show my feelings for this person, I fear he/she may not feel the same for me	Anxiety
I worry about being abandoned	I worry about being abandoned by this person	Anxiety
I often worry that my partner does not really love me	I often worry that this person does not really love me	Anxiety
I worry that others don't value me as much as I value them	I worry that this person doesn't value me as much as I value him/her	Anxiety
I feel comfortable developing close relationships with other people	I feel comfortable developing a close relationship with this person	Avoidance
I am somewhat uncomfortable being close to others	I am somewhat uncomfortable being close to this person	Avoidance
I am nervous when anyone gets too close to me	I am nervous when this person gets too close to me	Avoidance

(table continues)

Table 1 (continued)

Original	Relationship-specific form	Scale
I worry about others getting too close to me	I worry about this person getting too close to me	Avoidance
I find it difficult to trust others completely	I find it difficult to trust this person completely	Avoidance
I feel comfortable leaning on other people	I feel comfortable leaning on this person	Avoidance

Table 2

Variance Component Estimates and Confidence Intervals

	3-occasion sample				2-occasion sample			
	Anxiety		Avoidance		Anxiety		Avoidance	
	Estim.	Conf. Int.	Estim.	Conf. Int.	Estim.	Conf. Int.	Estim.	Conf. Int.
P	26%	18 / 34%	12%	7 / 17%	17%	9 / 25%	15%	7 / 22%
O	1%	-1 / 4%	0%	0 / 0%	1%	0 / 3%	0%	0 / 0%
R	4%	-1 / 10%	1%	0 / 2%	3%	0 / 6%	0%	0 / 2%
I	3%	0 / 5%	3%	0 / 6%	5%	0 / 10%	2%	0 / 4%
PO	3%	2 / 5%	3%	1 / 4%	4%	1 / 6%	1%	0 / 3%
PR	15%	12 / 17%	23%	20 / 26%	12%	10 / 15%	27%	22 / 32%
PI	8%	6 / 10%	11%	9 / 13%	11%	8 / 14%	6%	3 / 8%
OR	0%	0 / 0%	0%	0 / 0%	0%	0 / 0%	0%	0 / 0%
OI	0%	0 / 1%	0%	0 / 0%	0%	0 / 0%	0%	0 / 1%
RI	1%	0 / 1%	1%	0 / 1%	1%	0 / 1%	1%	0 / 1%
POR	4%	4 / 5%	5%	4 / 6%	4%	3 / 5%	3%	2 / 5%
POI	11%	10 / 12%	13%	11 / 14%	14%	11 / 17%	11%	9 / 13%
PRI	6%	5 / 7%	8%	7 / 9%	8%	7 / 10%	8%	6 / 10%
ORI	0%	0 / 0%	0%	0 / 0%	0%	0 / 0%	0%	0 / 0%
PORI	17%	17 / 18%	22%	21 / 23%	21%	20 / 23%	26%	24 / 28%
Tot. var.	1.66		1.08		1.90		1.05	

Note. Estim. – Estimate. Conf. Int. – Confidence interval for 95%. P – Persons. O – Occasions. R – Role-relationships. I – Items. Tot. var. – Total variance.

Table 3

Role-relationship Anxiety and Avoidance: Rotated Pattern Matrix and Generalizability Coefficients

	Factor 1	Factor 2	Factor 3	ρ^2_{1o}	ρ^2_{3o}
Ax-M	.96	-.20	.10	.75	.86
Ax-F	.90	-.20	.21	.78	.87
Ax-SG	.78	.17	-.12	.74	.87
Ax-OG	.74	.20	-.20	.76	.88
Ax-O	.60	.32	-.01	.72	.80
Av-M	.02	.05	.86	.74	.86
Av-F	.02	.08	.85	.78	.89
Av-SG	.01	.83	.01	.56	.74
Av-OG	.06	.78	-.03	.61	.76
Av-O	-.12	.65	.30	.62	.78

Note. Ax - Anxiety. Av - Avoidance. M - Mother. F - Father. SG - Best friend of the same gender. OG - Romantic partner or best friend of the opposite gender. O - Other. ρ^2_{1o} – Generalizability coefficient for six items on one occasion. ρ^2_{3o} – Generalizability coefficient for six items on three occasions.