Development of a Scale for Assessing Interpersonal Ambivalence: Psychometric Adequacy, Validity, and Incremental Validity

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Abstract

Self-report measures of adult attachment are widely used in research and increasingly considered in clinical settings. Many adult attachment scales tap two attachment dimensions, anxiety and avoidance. This paper introduces the Inventory of Interpersonal Ambivalence-18 (IIA-18), a measure developed to assess ambivalence about close relationships (which is a key component of fearful attachment). A total of 326 college students and an online sample of 713 adults participated in this IRB approved study. Each group completed the IIA-18, well-validated measures of adult attachment dimensions, and scales tapping life satisfaction, self-esteem, stress-related physical symptoms, and interpersonal functioning. Estimates regarding the internal consistency and test-retest reliability (over a two-week period) of the IIA-18 were within acceptable ranges and similar to estimates produced for the well-validated attachment scales. An exploratory factor analysis that included all items from the IIA-18 and the Experience in Close Relationships scales produced a three-factor solution. All IIA-18 items loaded onto one factor that was moderately correlated to an equal degree with both the anxiety factor and the avoidance factor. A series of hierarchical regressions revealed that the inclusion of the IIA-18 in models containing attachment anxiety, avoidance, and their interactive product, resulted in significant incremental increases in the variance explained for variables associated with adult attachment (e.g. self-esteem; interpersonal problems). In some cases, inclusion of the IIA-18 clarified associations between these variables bringing them more into line with theoretical expectations. Overall, the IIA-18 appears to have promise as a research tool, though further research on the measure is needed to verify this claim.

Keywords: Adult Attachment; Fearful Attachment; Attachment Anxiety; Attachment Avoidance; Attachment Insecurity

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Close relationships involve both rewarding experiences and difficult moments. Those closest to us can cause hurt, disappointment, and frustration, to degrees distant acquaintances cannot achieve. At the same time, those we are closest with are best positioned to provide support, share in our experiences of achievement, and assist us in our development. The capacity to develop and sustain close relationships is considered a sign of psychological maturity in many systems of personality (See Bender, Morey & Skodal, 2011) and tolerating the ups and downs of close relationships is not without rewards. The literature on close relationships is replete with studies demonstrating the benefits of sustained relationships for health, well-being, and coping (Dyrenforth, Kashy, Donnellan, & Lucas, 2010; Proulx, Helms, & Buehler, 2007). This body of research also highlights the many challenges associated with a lack of close relationships (Cacioppo & Cacioppo, 2014).

There are differences in adults' ability to form and sustain close relationships. Some struggle to cultivate adaptive relationships, especially those with insecure models of attachment (Mikulincer & Shaver, 2007). Fearful attachment, which involves conflicting beliefs, feelings, and motives regarding closeness with others, can be particularly problematic rendering several aspects of relationships challenging (Bartholomew, 1990). Individuals with fearful models of attachment often avoid close relationships even though they long for them. Their views of others are less stable than other forms of attachment, resulting in them sometimes viewing others in positive ways and sometimes viewing them in negative ways. This leads these individuals to experience high levels of *interpersonal ambivalence* (IA). IA involves strong desires for closeness with others paired with deep fears that closeness will prove harmful. Though they often feel lonely and long for connection, concerns over security lead fearful

individuals to keep others at an arm's length or withdraw from relationships just as they begin to deepen. While fearful attachment figures prominently in the adult attachment literature, current multi-item self-report measures contain few items tapping the IA core to this form of insecurity. We are also unaware of scales outside of attachment theory assessing this construct. The present paper addresses this gap by introducing a multi-item self-report measure for assessing IA, the Inventory of Interpersonal Ambivalence-18 (IIA-18, [First Author], 2015), and reviewing data supporting its psychometric adequacy, validity, and utility.

Adult Attachment Theory & Fearful-Avoidance

In the 1990s, a notable increase in the study of adult attachment occurred as two somewhat separate research lines emerged (Mikulincer & Shaver, 2007). While conceptually related, these lines differed in how they measured attachment status in adults. Developmental and clinical psychologists made use of interviews and picture-story tasks, while social psychologists tended to utilize self-report inventories (Crowell, Fraley, & Shaver, 2008; Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). Though relevant to both lines, IA has figured more prominently in the self-report literature focusing on adult romantic relationships.

IA was not assessed in the Hazan and Shaver's (1987) landmark study applying adult attachment to adult romantic relationships. In this study, respondents selected one of three relationship styles that best described them. These styles were based on the three childhood attachment styles described by Ainsworth and colleagues (Ainsworth, Blehar, Waters, & Wall, 1978). Hazan and Shaver found Self-selected attachment styles were linked to relational outcomes (e.g., divorce history; relationships satisfaction) in a manner consistent with attachment theory. The study showed that adult attachment could be assessed based on adult romantic relationships.

Others were quick to follow up on Hazan and Shaver's work. Bartholomew (1990) developed a four-category model of adult attachment based on Bowlby and Ainsworth's notions regarding internal working models (IWMs). In this model, secure individuals possess positive IWMs for the self and for others; while preoccupied individuals have positive IWMs for others and negative IWMs for the self and

dismissive individuals had positive IWMs for the self and negative IWMs for others. Bartholomew suggested a fourth style, fearful attachment, which involves negative IWMs for both self and others.

Negative IWMs for self and others contribute to the IA characteristic of fearful attachment. These individuals find themselves between a rock and a hard place when it comes to relationships. Negative IWMs for the self generate more critical self-appraisals, limited self-efficacy, and a more negative self-image (Karreman & Vingerhoets, 2012). Together these increase the individual's vulnerability to distress, which, when activated, triggers longing for support and acceptance from others (Bartholomew, 1990). Support-seeking impulses, however, are often suppressed due to negative models for others. Others are viewed as untrustworthy, hostile, or simply unhelpful, leading fearful individual to anticipate that closeness will prove harmful (Brennan & Shaver, 1998; Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998; Pietromonaco & Feldman-Barrett, 2006). This leaves fearful individuals with limited access to social support, further increasing vulnerability to distress (Ciechanowski, Walker, Katon, & Russo, 2002; Mikulincer & Shaver, 2007; Zappulla & Di Maggio, 2016), psychopathology, and lower overall well-being (Cyranowski, et al., 2002; Pickard, Caputi, & Grenyer, 2016; Woodhouse, Ayers, & Field, 2015).

The IA component of fearful attachment distinguishes it from other forms of attachment insecurity. Both dismissive and fearful individuals struggle to connect with others and show limited capacity for intimacy (Horowitz, Dryer, & Krasnoperova, 1997; Mikulincer & Shaver, 2007). However, fearful individuals actively experience desire for connections, while these impulses are more subdued and occur less frequently among dismissive individuals. Thus, fearful individuals are distressed by their isolation and endorse more intense feelings of loneliness (Collins & Feeney, 2004; Pielage, Luteijn, & Arrindell, 2005). In contrast, dismissive individuals' avoidance stems from desires to maintain independence and beliefs that relationships with others are less necessary for their lives (Bartholomew, 1990; Griffin & Bartholomew, 1994; Mikulincer & Shaver, 2007). They endorse less loneliness and see themselves as having access to social support (Mikulincer & Shaver, 2007; Pielage et al., 2005). Dismissive is also more associated with tendencies to suppress the experience and expression of distress (Ciechanowski et al., 2002; Fraley & Shaver, 1997; Mikulincer & Shaver, 2007). In contrast, fearful

attachment involves more frequent and heightened reports of distress (Karreman & Vingerhoets, 2012; Wearden, Lamberton, Crook, & Walsh, 2005) and physical complaints (Ciechanowski et al., 2002).

The tendency to more frequently express distress is also common among preoccupied individuals. Nonetheless, the IA of fearful individuals makes them different from preoccupied individuals in many ways. While preoccupied and fearful individuals both perceive themselves as lacking in social support, fearful individuals are less empathic, sociable, and affiliative even when opportunities for support are available (Collins & Feeney, 2004; Griffin & Bartholomew, 1994; Gallo, Smith, & Ruiz, 2003). When fearful individuals do form relationships they engage in less self-disclosure and devalue partners more than preoccupied individuals do (Gallo et al., 2003; Welch & Houser, 2010). Fearful individuals also experience a broader range of interpersonal problems and experience problems more frequently than preoccupied and dismissive individuals (Horowitz et al., 1988). Overall fearful individuals share many characteristics of dismissive and preoccupied individuals, but the IA they experience contributes to unique patterns of motives, behaviors, and emotions.

Dimensional Measures & the Four-Quadrant Model of Adult Attachment

Independent of Bartholomew's work, others began measuring adult attachment along two dimensions. Levy and Davis (1989) had participants rate Hazan and Shaver's (1987) three attachment prototypes for how well each prototype described the respondent. They found strong inverse correlations between the secure and avoidant ratings. This raised the possibility of two dimensions that could underlie adult attachment. Subsequent studies with multi-item inventories soon yielded similar findings (see Ravitz et al., 2010) leading to the "dimensions versus types" debate in the literature (Crowell et al., 2008).

While the debate continues to a degree, the development of multi-item dimensional measures has greatly contributed to the acceptance of a four-quadrant model of attachment within the self-report community. The work of Brennan, Clark, and Shaver (1998) was particularly important in this respect. These researchers gathered all existing self-report adult attachment measures and administered them to a large sample of research participants. An exploratory factor analysis (EFA) suggested two orthogonal factors. The first, attachment anxiety, involved preoccupation with relationships, concern over rejection

and abandonment, and excessive desires for closeness with others. The second factor, attachment avoidance, involved discomfort depending on others, excessive desires for independence, and reluctance to be emotionally open and intimate in close relationships. Based on their findings, Brennan and colleagues (1998) created 18-itmem scales for attachment anxiety and avoidance. These scales would form the Experiences in Close Relationships Inventory (ECR). Since its development, this measure has been extensively used in several attachment research applications.

As additional further support for the two dimensions emerged (e.g., Griffin & Bartholomew, 1994; Fraley, Wallner, & Brennan, 2000), efforts were made to integrate the dimensions with Bartholomew's model. This was done by intersecting the two dimensions and creating a four-quadrant space (Brennan, Clark, & Shaver, 1998). Each quadrant corresponds to one of Bartholomew's prototypes. Individuals high on avoidance and low on anxiety score in the dismissive quadrant, those with high anxiety and low avoidance score in the preoccupied quadrant, those low on both score in the secure quadrant, and those high on both score in the fearful quadrant.

Dimensional Measures of Adult Attachment and Interpersonal Ambivalence

Today, the four-quadrant model of adult attachment and dimensional self-report attachment scales are widely embraced (Ravitz, et al., 2010), at least among self-report researchers. The ECR (Brennan et al., 1998) and closely related measures, such as the Experiences in Close Relationships Inventory-Revised (Fraley et al., 2000) and the ECR Short-Form (ECR-SF; Wei et al., 2007), are considered gold standards for assessing attachment. Other self-report attachment measures, such as the Adult Attachment Scale (Collins & Read, 1990), the Revised Adult Attachment Scale (Collins, 1996), the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994), and the Relationships Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), can also be scored to produce attachment dimensions.

Estimates for the psychometric adequacy of dimensional adult attachment measures, especially those of the ECR and ECR-R, are quite strong and the number of studies conducted with these measures is notable (Crowell et al., 2008; Graham & Unterschute, 2015; Ravitz et al., 2010). Acknowledging the many strengths of these measures does not imply that they are beyond all improvement. One specific

limitation may involve IA. The sensitivity of current measures for assessing IA may be slightly limited relative to their capacity for assessing other aspects of attachment. Theoretically, individuals high in fearful attachment should strongly endorse both attachment anxiety and avoidance items. Respondents with high levels of IA, however, may not always strongly endorse items when item content only taps one pole of their conflicted position. When confronted with such items, fearful respondents may still endorse the items, but at a lower than expected level (i.e., select responses closer to the middle), *mildly* reducing sensitivity. Reduced sensitivity may also occur simply from a dearth of items tapping IA.

A review of item content from several widely-used adult attachment scales indicates that the proportion of items tapping IA is far less than those tapping other aspects of attachment. We considered an item to tap IA if it either focused directly on ambivalent feelings (e.g., I have very mixed feelings about relationships) or contained content reflecting a conflicted position (e.g., I want to get close to others, but I fear others will hurt me). The ECR attachment avoidance scale contains two IA items (Items 5 and 11) as does the attachment anxiety scale (Items 6 and 28). Thus, only 11% of the items of the ECR scale items assess IA. The proportion of items tapping IA is larger on the ECR-short form (roughly 17% of the scale items), though each scale contains only one IA item. The attachment anxiety scale on the ECR-Revised (Fraley et al., 2000) contains two items tapping IA (Items 8 and 15), which comprise 11% of this scale. No ECR-R attachment avoidance items directly assess IA. The original Adult Attachment Scale (AAS; Collins & Read, 1990) contains no IA items, nor does the Adult Attachment Questionnaire (AAQ; Simpson, Rholes, & Nelligan, 1992). The revised version of the AAS (Collins, 1996) contains two items directly tapping IA (Items 10 and 15), which make up 30% of the items on the Anxiety scale. The Relationship Scales Questionnaire (RSQ; Bartholomew & Horowitz, 1991) contains a scale intended to assess fearful-avoidance, yet only one of the four items included (Item 5) taps IA directly. Carver's (2013) Measure of Attachment Qualities (MAQ) contains two scales with the term "ambivalence", but only one of the 14 total items (Item 13) met our criteria for assessing IA.

Of the measures reviewed, the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) arguably appeared to provide the most direct measure of IA. The RQ is unique from the other measures in

that it uses a single-item approach. Respondents read four brief paragraphs, each describing one of Bartholomew's four attachment prototypes, and rate how each describes the individual. The paragraph describing fearful-avoidance contains three sentences, two of which directly tap IA. Though it shows strong test-retest reliability (Scharfe & Bartholomew, 1994) and many of the findings discussed above regarding fearful attachment have been obtained using the RQ, it is used somewhat sparingly as adult attachment researchers seem to prefer multi-item inventories.

The Present Studies

Despite the theoretical prominence of fearful attachment in the attachment literature, current self-report adult attachment measures contain few items assessing its core feature, IA. To examine the merits of using a multi-item measure of IA we administered the IIA-18, along with two well-validated measures of adult romantic attachment and measures of interpersonal- and self-functioning, to a college sample and community sample. We examined four types of hypotheses.

Psychometric Adequacy. We anticipated that the IIA-18 would have adequate to strong psychometric properties comparable to with other multi-item attachment scales. We also expected the measure to show at adequate to good test-retest reliability over a three-month period.

Convergent Validity. We expected the IIA-18 to converge with validated scales of attachment. Specifically, we anticipated a large correlation with the RQ fearful attachment scale and the RQ secure scale (inverse), followed by medium to large correlations with both attachment dimensions. Associations with preoccupied and dismissive attachment were expected to be the smallest.

Construct Validity. We expected to find evidence for the construct validity of the IIA-18 in two ways. First, we anticipated that IIA-18 items would comprise a factor that was distinct from, but related to the ECR factors (avoidance and anxiety). The current model views high levels of attachment anxiety and avoidance as indicative of fearful attachment. Thus, we expected the IIA-18 factor to be associated with anxiety and avoidance to roughly equal degrees. Second, we expected the IIA-18 to be associated with self-functioning and relational-functioning variables in theoretically predicted ways. Specifically, we

expected the IIA-18 to be inversely associated to self-esteem, well-being, and healthy dependency, and positively linked to stress-related physical symptoms and interpersonal problems.

Research Utility. We anticipated that the IIA-18 would demonstrate utility as a research tool in at least one of the following ways: 1) by incrementally increasing the explained variance in theoretically related variables (e.g., self-esteem) beyond that accounted for by the attachment dimensions, 2) by altering the interpretation of initial regression coefficients for attachment dimensions, or 3) by accomplishing both aims.

Method

Participants

College Sample. A total of 326 participants (50% Male; 50% Female) were recruited from a large University in the Midwest. Participants had a mean age of 20.12 (*SD* = 4.70). Regarding race and ethnic identity, 8.0% identified as African-American/Black, 46.9% identified as Caucasian/White, 4.6% identified as Asian/Asian-American, 4.9% identified as Hispanic/Hispanic-American, 1.5% identified as Native American, 25.0% identified as Middle-Eastern/Arab-American, and 8.6% identified as "Other".

Online Sample. A sample was recruited through Amazon's Mechanical Turk (Mturk) participant recruitment website. Individuals were eligible if they lived in the United States and were over the age of 21. A total of 799 individuals began the survey. Of these, 86 were eliminated (52 for completing less than 90% of the survey items, 24 elevated inconsistent responding scores, and 10 for failing to achieve acceptable scores on validity items [e.g., Which item below is a number?"]). This left a final sample of 713 participants (47% Male; 53% Female) with a mean age of 38.83 (*SD* = 12.07). In terms of race and ethnic identity, 7.4% identified as African-American/Black, 79.4% identified as Caucasian/White, 6.6% identified as Asian/Asian-American, 4.5% identified as Hispanic/Hispanic-American, 0.5% identified as Native American, and 0.6% identified as Middle-Eastern/Arab-American, and 1.0% identified as "Other".

Test-Retest Sample. Three months after they had completed the initial study, 100 Mturk participants were randomly selected and asked to participate in a separate study that involved completing four of the scales they had first completed in the first study. Of these 100, 71 participants (47% Male;

53% Female) agreed to participate. These participants had a mean age of 40.14 (*SD* = 12.36). Regarding race and ethnic identity, 9.9% identified as Black/African-American, 75% identified as Caucasian/White, 11.3% identified as Asian/Asian-American, 2.8% identified as Hispanic/Hispanic-American, and 1.4% identified as "Other". Participants were compensated $1.00 for their time.

Measures

The Experiences in Close Relationships Inventory (ECR; Brennan, Clark, & Shaver, 1998). The ECR assesses adult attachment using two dimensional scales that tap attachment anxiety and attachment avoidance respectively. Both scales contain 18 items. Items are written as statements (e.g., I worry that romantic partners won't care about me as much as I care about them) that respondents rate on a scale ranging from one (Strongly Disagree) to seven (Strongly Agree). Studies consistently support the internal consistency (i.e., coefficient alphas of >.90) and factor structure of the ECR-R, and its validity is well established (see Mikulincer & Shaver, 2007). In the present study, internal consistency estimates were excellent for both scales in the college sample (Anxiety $\alpha = .92$; Anxiety $\alpha = .93$) and online sample (Anxiety $\alpha = .95$; Avoidance $\alpha = .97$).

The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991). The RQ is a self-report measure of adult romantic attachment. It provides respondents with four brief paragraphs, each describing an attachment prototype (i.e., Secure; Fearful-Avoidant; Preoccupied; Dismissive-Avoidant). Respondents rate each paragraph for how well it corresponds to their relationship style using a scale of 1 (not at all like me) to 7 (very much like me) Likert Scale. RQ prototype ratings have shown adequate to good test-retest reliability in prior studies (Scharfe & Bartholomew, 1994).

The Swartz Outcome Scale-10 (SOS-10; Blais et al., 1999). The SOS-10 contains 10 items respondents rate on a 7-point Likert scale ranging from 0 (Never) to 6 (all the time or nearly all the time). A total score is calculated by summing all items, resulting in a score ranging from 0-60. Higher scores are indicative of high functioning and positive perceptions of quality of life. Factor analytic investigations of the scale have supported that items load on a single factor (Blais et al., 1999) and SOS-10 scores have

been consistently linked to quality of life outcomes. In the present study, the global score was internally consistent in the college (α = 0.91) and online samples (α = .94).

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSE is a 10-item self-report measure tapping global self-esteem. It is one of the most widely used measures in psychology. Items are statements respondents rate on a four-point Likert scale ranging from one (Strongly Agree) to four (Strongly Disagree). The RSE produces a single score for global self-esteem. Internal consistency has generally been strong, the RSE shows good construct validity, and predicts a variety of outcomes (Greenberger, Chen, Dmitrieva, & Farruggia, 2003). In the present study, internal consistency estimates were in the excellent range for both the college (α = .92) and the online samples (α = .94).

The Physical Symptoms Inventory (PSI; Spector & Jex, 1998). The PSI assesses the presence of common physical symptoms that have been routinely associated with stress and distress (e.g., headaches; stomach aches). The scale contains 18 items, each a physical symptom, condition, or state. Respondents indicate if they have or have not experienced the given condition/state/symptom in the past 30 days. (e.g., headache). If they experienced the symptom, they indicate if they saw a doctor. A total score is computed by summing the number of symptoms the respondent endorses. Though it is a symptom count scale, and not expected to produce high levels of internal consistency, internal consistency estimates ranged from adequate-to-good for both the college (α = .77) and online (α = .80) samples.

The Inventory of Interpersonal Problems – Short Circumplex (IIP-SC; Soldz, Budmen, Demby, & Merry, 1995). The IIP-SC is a 32-item measure assessing difficulties in relational functioning based on the Inventory of Interpersonal Problems-Circumplex (IIP-C; Horowitz et al., 2000). It does not focus on close relationships, but on interpersonal interactions more generally. Items are worded as statements describing common interpersonal problems. Respondents rate each statement, based on how much they experience this problem, using a 5-point Likert scale ranging from 0 (not at all) to 4 (Extremely). Items are organized into sets of statements, things the respondent finds “hard to do” and things the respondent “does too much.” The IIP-SC produces an overall score representing total interpersonal difficulty as well as 8 sub-scales which conform to the Interpersonal Circumplex:

Domineering (PA); Vindictive (BC); Cold (DE); Socially Avoidant (FG); Nonassertive (HI); Exploitable (JK); Overly Nurturant (LM); Intrusive (NO). The IIP-SC was included in the online sample, and not completed by the college sample. Internal consistency for the global scale was strong (α = .93).

Relationship Profile Test-Healthy Dependency Scale (RPT-HD; Bornstein & Languirand, 2003). The RPT is a self-report measure of dependency and detachment that contains three scales. The 10-item Healthy Dependency scale was used in this study. This scale contains items worded as statements (e.g., "it is easy for me to trust people") that respondents rate using a 7-point scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*). Prior studies have generally found the RPT-HD scale to have adequate internal consistency (Bornstein & Languirand, 2003). The RPT-HD scale was only completed by participants in the college sample and it achieved adequate internal consistency (α = .77). Due to space limitations, the RPT-HD scale was not included in the online sample.

The Inventory of Interpersonal Ambivalence-18. The IIA-18 was developed to assess the IA component of fearful attachment. It contains 18-items, worded as statements, that respondents rate on a 1 (False, Not True) to 4 (Very True). Respondents are informed that several statements contain two ideas (e.g., I'd like to form connections with others, but I find myself withdrawing before a connection is made). Respondents are instructed to rate the item as "False, Not True" if either part of the statement is untrue for them. A total IA score is produced by summing all items. Internal consistency estimates in this study were strong for the college (α = .91) and online samples (α = .95).

Procedure

Development of the Inventory of Interpersonal Ambivalence-18. To develop a pool of items we reviewed the literature on fearful-avoidance. This review yielded four themes: 1) general ambivalence (e.g., I have mixed feelings about relationships.), 2) conflicts regarding closeness (e.g., I'd like to form connections with others, but I find myself withdrawing before a connection is made), 3) conflicts regarding vulnerability (e.g., I want to have close relationships, at the same time the idea of letting others into my life is very scary.), and 4) conflicts regarding sharing (e.g., I want to talk about my feelings with others, but find that I keep my feelings bottled up inside).

We then wrote items to reflect these themes. General ambivalence items were written as simple statements (e.g., I have very mixed feelings about connecting with others). Items for the three latter themes contain a pro-closeness phrase (e.g., I want to let myself depend on others…) paired with an anti-closeness phrase (e.g., …but I am afraid sharing will just make things worse). Since the goal was to assess problematic IA (i.e., IA that leads to challenges connecting and maintaining relationships), statements were worded to give slightly more weight to the anti-closeness phrase. Thus, strong endorsement of an item (e.g., Very True) indicates greater IA that limits one's ability to form connections.

The initial pool contained 40 items. Two experts familiar with attachment eliminated redundant items, reducing the pool to 25, and helped with minor word changes. A pilot study further narrowed the number of items to the 18 used in this study.

Data Collection Procedures. For the college sample, data was collected in sessions containing 10 to 20 participants. Participants signed up for a study timeslot via the university participant pool system. Students in Psychology 101 use this system to participate in research studies in exchange for course credit (students who do not wish to participate in research studies have the option of completing alternative assignments). Upon arrival to the lab, participants reviewed a consent form with the research proctor. Those who provided consent were enrolled into the study and were given the self-report measures described above. Measures were given one at a time so the proctor could explain each measure's instructions verbally. Participants filled out pencil and paper versions of the measures and then placed them inside a packet with a participant number. When all measures were completed, the proctor thanked participants for their time. Participants were not required to provide any identifying information.

For the online sample, an advertisement was posted on Mturk informing potential participants about the details of the study. To be eligible for the study, individuals needed to be 21 year of age or older, reside in the United States, and be willing to complete a 20-minute survey. Potential participants were also informed that they would be compensated $1.25 for their time so long as they met the study eligibility criteria, responded to at least 90% of the survey items, and correctly answered at least 90% of the validity items (e.g., "Which option below is a color."). The advertisement also included a hyperlink to

a Qualtrics online survey. Those that clicked the link were taken to a Qualtrics survey and provided with an online consent form that again reviewed eligibility and compensation requirements. Participants then completed the study measures online. At the end of the survey, a random number was generated by Qualtrics. The participant then entered this number into Mturk. This number was used to compensate participants. Participants were not required to provide any identifying information (e.g., name; address).

Participants from the online sample who completed the initial study with acceptable scores on the validity items were also assigned a worker ID for the study. One hundred IDs were randomly selected and approved to participate in a second online study. They were informed that participation required 10 minutes, involved completing three measures they had finished in the prior study, and that the goal of the study was to examine the stability of their responses to scales tapping their relational style. Participants were given 10 days to enroll. Those who participated were compensated $1.00 through Mturk.

Results

Sample Comparisons & Descriptive Statistics

Scale descriptive statistics are reported in Table 1 for each sample. We compared mean scores for the samples with a series of independent *t*-tests. We did not have apriori hypotheses and simply report these values for descriptive purposes. The college sample scored significantly higher on ECR-Anxiety, ECR-Avoidance, the RQ-Fearful scale, and the PSI, but effect sizes small to medium for these differences (*d*'s ranging from .02 to .24). The college sample also scored significantly higher on the RQ-Preoccupied scale and this difference was moderate ($d = .43$). No other differences were significant.

Psychometrics Properties and Test-Retest Reliability

The psychometric properties of the IIA-18 and ECR scales are displayed in Table 2. All scales had excellent internal consistency estimates (all $\alpha > .90$) and mean corrected item-to-scale correlations (CITS) were similar across scales. No scale contained an item with a CITS of < .40. To determine if CITS for each IIA-18 item was larger than its correlation with the ECR scales, we conducted a series of Fisher's *z*-tests to compare within sample correlations. All CITS for the items on the IIA-18 were significantly larger than associations with the ECR scales.

Based on the recommendations of Bland and Altman (1986), we examined test-retest reliability in multiple ways. We first calculated examined relative reliability using Intraclass Correlation Coefficients (ICC) with a two-way mixed model using absolute agreement. The ICC (2,1) for the IIA-18 was .74. ICCs (2,1) for the ECR attachment anxiety and attachment avoidance scales were .76 and .66, respectively. We next generated the repeatability coefficient (CR), a measure of absolute reliability (Lexwell & Downham, 2005) that accounts for random and systematic error. The CR is calculated by determining the within-subject standard deviation (i.e., the square root of the residual mean square) and multiplying this value by 2.77 (Bland & Altman, 1986). In this study, the within-subject standard deviation for the IIA-18 was 4.65, resulting in a CR of 12.61. The CR for the ECR anxiety scale was 29.68 and the CR for the avoidance scale was 27.23. Bland-Altman graphs are shown in Figure 1 (since the IIA-18 and ECR scales are on different Likert scales, the data in Bland-Altman graphs are *z*-scored).

Finally, we calculated variance component estimates, generalizability coefficients ($E\rho^2$), and Phi coefficients (Φ), using Generalizability Theory (GT; Brennan, 2001; for detailed descriptions of these calculations see Shavelson & Webb, 2006 or Arterberry, Martens, Cadigan, & Rohrer, 2014). A two-facet GT design was employed in which persons (*p*) was the subject and items (*i*) and occasions (*o*) were facets. Variance components were estimated for person, item, and occasion, as well as all interactions (e.g., *p* x *i*) using the SPSS syntax from Mushquash and O'Connor (2006). Phi and generalizability coefficients were > .80 for all scales (see Table 2). Variance component estimates for the IIA-18, ECR anxiety scale, and the ECR avoidance scale are in Table 3. We were primarily interested in estimates for occasion. Person x occasion interactions were less than 10% for the IIA-18 and ECR-Anxiety scale, indicating stable responses across occasions. The person x occasion interaction was higher for the ECR Avoidance scale (17.6%), indicating more variability in response patterns across occasions for this scale. This scale, however, also had the largest proportion of variance accounted for by the person level.

Convergent Validity

The pattern of associations between the IIA-18 and the attachment scales was as expected, with the exception that the association with the ECR-Avoidance was slightly larger than the relationship with

the RQ-Secure scale (r = -.61, p < .01). The association between the IIA-18 and the RQ-Fearful scale (r = .70, p < .01) was largest, followed by the associations with the ECR-Avoidance scale (r = .63, p < .01) and ECR-Anxiety scale (r = .55, p < .01). Associations with the RQ-Preoccupied (r = .37, p < .01) and RQ-Dismissive (r = .42, p < .01) scales were smallest.

Construct Validity

Univariate Correlations. The IIA-18 was inversely associated with the SOS-10 (r = -.54, p < .01), RSE (r = -.51, p < .01), and the RPT-HD scale (r = -.56, p <.01). It was also associated with stress-related physical symptoms on the PSI (r = .33, p <.01) and interpersonal problems (r = .63, p <.01). Overall, these associations were as expected.

Exploratory Factor Analysis. We combined the online and college samples and conducted an EFA with Principle Axis Factoring using all ECR and IIA-18 items. Because the ambivalence factor was expected to correlate with the anxiety and avoidance factors, a direct oblimin rotation was selected. The participant-to-item ratio was 19.24 to one, which is at the lower end of the acceptable limit and common for research in the social sciences (Costello & Osborne, 2005). The Kaiser-Meyer-Olkin (KMO) value was .97, well above recommended values, and values in the anti-image diagonal indicated good sampling adequacy, ranging from .93 to .98. Bartlett's test of sphericity was also significant (Approximate X^2 [1431] = 37786.14, p < .001).

We examined two-, three-, four-, and five-factor models, and selected a model based on the Scree Plot, eigenvalues, and factor structure. Models with a simple factor structure were preferred. We considered a model to have a simple factor structure when each item had a single primary loading. An item was said to have a primary loading if it possessed at least one factor loading of >.40 and did not cross-load on another factor with in .20 of its primary loading. Overall, the anticipated three-factor model produced a simple factor structure. In the two-factor model, all IIA-18 items had significant cross-loadings. In the four- and five-factor models, several ECR items had significant cross-loadings. The Scree Plot also indicated three clear factors above the elbow.

Together, the three factors accounted for a total of 53% of the variance. As shown in the pattern matrix (Table 4), the three factors correspond to the three attachment scales (i.e., avoidance; anxiety; ambivalence). Only Item 11 of the ECR cross-loaded, loading on both the avoidance and ambivalence factors. Given this items content clearly relates to IA, this was not viewed as problematic. All additional items showed clear primary loadings on unique factors. The factor correlation matrix indicated that the anxiety factor was very modestly correlated with the avoidance factor ($r = .17$, $p < .01$), while the ambivalence factor was correlated roughly equally with the anxiety factor ($r = .52$, $p < .01$) and the avoidance factor ($r = .54$, $p < .01$). These findings support the position that the IIA-18 is assessing a dimension that is simultaneously related to and distinct from the two attachment dimensions.

Research Utility Regressions

A series of hierarchical regressions were conducted to determine if the IIA-18 could aid ECR scales in explaining variance and/or alter interpretations of initial patterns. The dependent variables for the first three regressions were the self-functioning variables: life satisfaction (SOS-10), stress-related physical symptoms (PSI), and self-esteem (RSE). The latter two regressions focused on the interpersonal-functioning variables: interpersonal problems (IIP-SC) and healthy dependency (RPT-HD). In each regression, the *z*-scores for attachment anxiety and avoidance were entered at Step 1, their multiplicative interaction was entered at Step 2, and the IIA-18 (*z*-score) was entered at Step 3.

As seen in Table 6, the IIA-18 made small, significant incremental increases in the variance explained for all three self-functioning variables. In the regression predicting life satisfaction, the IIA-18 significantly increased R^2 by .04 (ΔF [1, 1034] = 60.30, $p < .01$). The final model was significant and accounted for 36% of the variance ($R = .60$, $R^2 = .36$, F [4, 1034] = 143.44, $p < .01$). The contributions of both attachment anxiety and avoidance decreased from the first to the third step, though the contributions of the IIA-18 ($\beta = -.29$, $p < .01$), attachment anxiety ($\beta = -.21$, $p < .01$) and attachment avoidance ($\beta = -.21$, $p < .01$) were all significant in the final model.

For stress-related physical symptoms, the IIA-18 again significantly increased R^2 by .04 (ΔF [1, 974] = 45.92, $p < .01$). The final model was significant, accounting for 17% of the variance ($R = .41$, $R^2 =$

.17, F [4, 974] = 45.92, $p < .01$). At Step 1, the contribution of attachment anxiety was significant (β = .33, $p < .01$), but avoidance did not contribute. At Step 3, when the IIA-18 was introduced to the model, the estimate for attachment anxiety decreased but remained significant (β = .20, $p < .01$). Again, in the final model, the IIA-18 had the largest beta estimate (β = .30, $p < .01$). High scores on ambivalence or attachment anxiety increased the likelihood of physical symptoms (and high scores on both dimensions yielded the highest risk).

Results for the regression predicting self-esteem varied from the two prior regressions in that the contribution of the multiplicative interaction term did not achieve significance (ΔF [1, 1035] = 1.78, p = .18). We re-ran the model without the interaction term (see Table 5). Inclusion of the IIA-18 significantly improved the explained variance by .03 (ΔF [1, 1035] = 38.11, $p < .01$). The final model was significant and accounted for 34% of the variance (R = .59, R^2 = .34, F [3, 1035] = 177.24, $p < .01$). The inclusion of the IIA-18 (β = -.23, $p < .01$) at Step 2 reduced the contribution of anxiety from -.40 ($p < .01$) to -.30 ($p < .01$) and reduced the contribution of avoidance from -.30 ($p < .01$) to -.18 ($p < .01$).

Table 6 contains the hierarchical regression analyses predicting interpersonal problems (in the Mturk sample only) and healthy dependency (in the college sample only). The multiplicative interaction between anxiety and avoidance failed to achieve statistical significance in both regressions, so we re-ran the models without this variable. The IIA-18 incrementally increased the prediction of variance in IIP-SC scores by 8% (ΔF [1, 709] = 108.72, $p < .01$). The final model was significant and accounted for 34% of the variance (R = .67, R^2 = .45, F [3, 709] = 194.77, $p < .01$). Inclusion of the IIA-18 at Step 2 vastly altered the interpretation of the findings for attachment avoidance. While avoidance made a significant contribution at Step 1 (β = .30, $p < .01$), this dropped to an insignificant level (β = .07, *ns*) at Step 2. In contrast, the standardized best estimate for the IIA-18 was quite large (β = .44, $p < .01$), suggesting that individuals who are high on avoidance, but are not high on ambivalence may not necessarily be at increased risk for interpersonal problems. Though the contribution of attachment anxiety dipped from Step 1 to Step 2, it remained a strong, unique predictor in the final model (β = .27, $p < .01$).

The IIA-18 incrementally increased the prediction of variance in RPT-HD scores by .03 (ΔF [1, 297] = 16.73, $p < .01$). The final model was significant and accounted for 41% of the variance ($R = .64$, $R^2 = .41$, F [3, 297] = 69.30, $p < .01$). This time, inclusion of the IIA-18 at Step 2 altered the interpretation of the findings for attachment anxiety. The contribution of attachment anxiety at Step 1 ($\beta = -.30$, $p < .01$) was almost halved at Step 2 ($\beta = -.18$, $p < .01$). Though the IIA-18 ($\beta = -.26$, $p < .01$) was a significant predictor in the final model, the largest contribution was from attachment avoidance ($\beta = -.37$, $p < .01$). Thus, while individuals high in ambivalence may struggle to depend on others in a healthy manner, those high on attachment avoidance (i.e., dismissive) are most likely to find this challenging.

Discussion

We began this project with the assumption that the ECR provides a solid assessment of adult attachment. A wealth of studies support the psychometric strengths and construct validity of its scales (see Graham & Unterschute, 2015). Despite these strengths, we questioned if sensitivity for assessing IA might be improved by including the IIA-18. We anticipated that the IIA-18 would converge with similar measures of adult attachment (especially those tapping fearful attachment), possess adequate to good psychometric properties, and show some incremental utility. Overall, the present findings provide some support for these positions. While additional work is needed, the present findings are encouraging and suggest that the measure has merit and is likely to be useful to those studying adult attachment.

The IIA-18 evidenced strong psychometrics. Internal consistency estimates were excellent in both samples, and CITS were also strong. Psychometrics for the IIA-18 were highly comparable with the well-established ECR scales. We also looked at several indicators of test-retest reliability and generally conclude that the IIA-18 is sufficiently stable for use as a research tool. Again, test-retest reliability estimates were generally aligned with the values produced by the ECR scales. Similarly, factor loadings for IIA-18 items were of a similar magnitude to those produced by the ECR items for their respective scales. Thus, the measure appears to have adequate psychometrics with scores similar to two of the most widely adult attachment scales.

The validity of the IIA-18 was supported in multiple ways. First, the pattern of correlations for convergent validity generally mirrored expectations. The strongest association was with the RQ-Fearful scale. Importantly, associations with the ECR scales were roughly similar in magnitude, as the four-quadrant model would suggest (especially in the EFA model). If plotted within the four-quadrant space, the IIA-18 would fall along the diagonal intersecting the fearful quadrant of this model. Thus, though it focuses exclusively on the IA component of fearful-avoidance, the pattern of convergent correlations supports the contention that IA is an important aspect of fearful attachment that distinguishes it from other forms of insecurity.

The factor analytic results generated similar conclusions. Unlike some prior studies (e.g., Brennan, Clark, & Shaver, 1998), our EFA produced a three-factor solution. There are multiple possible reasons for this discrepancy. First, we included a larger “dosage” of IA items in our EFA. Prior measures included a very limited number of this type of item. Thus, even though Brennan, Clark, and Shaver (1998) utilized all available adult attachment measures at the time, a three-factor solution may not have been obtained. Second, we had the benefit of a well-established model for adult attachment to guide our interpretation of loadings. Without this model, we may have accepted a two-factor solution and simply concluded that the IIA-18 items (which cross-loaded notably on both factors in the two-factor model) were poor items. Third, the existence of well-validated adult attachment measures informed our approach to creating item content. By referencing existing attachment scales, we were better able to write items in a manner that minimized overlap with current measures while still retaining fidelity with the attachment literature on fearful attachment. There are alternative explanations for our EFA results that have nothing to do with theory or scale development. Both samples in this study differ notably from the sample used in Brennan, Clark, and Shaver (1998). The college sample is more divers and contains many more individuals identifying at middle-eastern/Arab-American. Our Mturk sample is older and data was collected online. While we view such explanations as unlikely to fully explain the differences in the findings of the two studies, these explanations cannot be ruled out at this time.

Though limited to self-report variables collected in a cross-sectional manner, the study provides some evidence that using the IIA-18 in conjunction with dimensional measures of attachment has benefits. Including the IIA-18 modestly increased the variance explained in variables linked to self- and relational-functioning. While we felt the sensitivity of the ECR might be limited for assessing IA, we did not feel the scales were performing poorly. Thus, modest increases in explained variance are aligned with our expectations. As this was our initial study on the IIA-18, we selected variables, such as self-esteem, interpersonal problems, and stress-related physical symptoms, expected to be influenced by fearful-avoidance (Bartholomew, 1990; Griffin & Bartholomew, 1994; Horowitz et al., 1988; Mikulincer & Shaver, 2007). It is important to note that we would *not* expect inclusion of the IIA-18 to increase variance in all outcomes. There may be little improvement in explained variance for variables and outcomes that are more dependent on a specific attachment dimensions (e.g., avoidance). In fact, in the future it will be important to include variables that the IIA-18 does not incrementally explain variance in predicting. Such findings would support our contention that the IIA-18 is capturing a specific component of fearful attachment (and not just assessing a more general form of insecurity). A theoretically-relevant pattern of convergent and divergent correlations is needed to better establish this claim.

At times, inclusion of the IIA-18 may be useful to better understand some main effects. For example, the regression analysis for interpersonal problems initially suggested that avoidance and anxiety were both uniquely associated with interpersonal problems. When the IIA-18 was included in the model, the main effect for avoidance dropped notably. This suggests that interpersonal problems are more strongly linked to IA than they are to avoidance, and tends to fit some theoretical expectations regarding differences between fearful and dismissive individuals (Bartholomew, 1990; Mikulincer & Shaver, 2007). In all regression analyses, using the IIA-18 proved to be a more sensitive and efficient than the interaction term created by multiplying the two ECR scales. Especially in smaller studies, the ability to examine main effects for assessing the role of IA is particularly valuable.

In closing, though our EFA produced different findings, our results can largely be viewed as supportive of the four-quadrant model of adult attachment supported by Brennan, Clark, and Shaver

(1998) as well as others (see Mikulincer & Shaver, 2007). Theoretically, if fearful attachment truly is on the diagonal between high avoidance and high ambivalence, then it should be possible to measure this directly. The results of the EFA and the convergent validity analyses suggest that the IIA-18 was generally able to accomplish this aim. The regression analyses also provide support. All three dimensions were, as would be expected, inversely linked to life satisfaction. This suggests that the presence of anxiety, avoidance, and ambivalence likely lower well-being, while the absence of these features (i.e., attachment security) increases well-being. Likewise, regressions predicting variables theorized to be influenced more by fearful and preoccupied attachment than by dismissive attachment (e.g., self-esteem; interpersonal problems; physical complaints; Bartholomew, 1990; Gallo et al., 2003) returned results highlighting the importance of ambivalence and anxiety. Of course, current findings are limited in that we relied solely on the ECR to assess the attachment dimensions. To determine if the IIA-18 is likely to complement and enhance the attachment dimensions more generally subsequent research using other well-validated dimensional measures (e.g., ECR-R) is needed.

This study, like all studies, had limitations. First, it relied entirely on self-report measures and utilized a cross-sectional design. Ideally, this study would be complemented by diary studies and longitudinal studies focusing on IA. Diary studies may be especially necessary, as IA may be associated with more day-to-day variance in interpersonal experiences. Second, the ECR was the only measure of the attachment dimensions included. Though the ECR is one of the most widely used measures of adult attachment, it is important to demonstrate the IIA-18's utility and convergence with other validated dimensional attachment measures. Third, different forms of data collection (online and pencil-and-paper) were used across our two samples and our two samples were drawn from different populations (college students; community adults). This appears to have contributed to some differences in sample characteristics. Also, because we confounded the method of data collection with sampling two populations, we are unable to interpret the meaning of the statistically significant differences that emerged[1]. Despite these limitations, the present study does provide initial validation of

the IIA-18 setting the stage to pursue additional research with this measure. Finally, our test-retest sample was small and we used a 3-month interval. Ideally, a future study would include a larger sample and make use of multiple intervals (some short and some longer) to better understand consistency over different time periods.

[1] Though not reported in present paper, we performed all analyses within the individual samples. The pattern of findings for the EFA were virtually identical in both groups (though avoidance and anxiety factors were less correlated in the College sample and slightly more correlated in the Mturk sample). In both samples, IIA-18 was most strongly associated with the RQ-Fearful scale, increased variance explained in self- and interpersonal functioning variables, and altered beta-estimates for the attachment dimensions. The latter was slightly more common in the College sample. These analyses are available from the first author upon request.

Conclusion

The development of self-report measures to assess adult attachment has massively increased in research in this area. Based on research in this field, a four-quadrant model of adult attachment has optimally assess the fearful attachment. The IIA-18 may complement dimensional measures by more directly measuring the fearful diagonal. In the present study, the IIA-18 proved an excellent complement to the ECR scales. It led to mild incremental increases in explained variance and produced findings aligned with attachment theory. The present evidence suggests the measure can be used in future studies. That said, it is important to continue to assess the value and utility of the IIA-18. Ultimately, we hope that the IIA-18 aids researchers interested in IA, fearful attachment, and attachment theory more generally.

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Table 1. Descriptive Statistics and Sample Comparisons

	College Sample		Online Sample					
Scale	Mean	*SD*	Mean	*SD*	*t*	*df*	*p*	*d*
ECR-Anxiety	63.85	22.33	57.96	22.91	3.87	1037	<.01	.24
ECR-Avoidance	51.50	20.76	47.37	22.09	2.85	1037	<.01	.17
IIA-18	36.23	11.00	34.85	13.09	1.66	1037	ns	.10
RQ-Secure	4.18	2.00	4.31	1.91	1.02	1037	ns	.06
RQ-Fearful	3.96	1.94	3.56	1.99	2.85	1037	<.01	.18
RQ-Preoccupied	3.59	2.01	2.77	1.64	6.90	1037	<.01	.43
RQ-Dismissive	3.34	1.88	3.43	1.88	0.66	1037	ns	.04
SOS-10	42.56	11.67	42.76	12.89	0.27	1037	ns	.02
RSE	30.46	6.60	31.08	6.60	1.36	1037	ns	.06
PSI	6.92	3.92	5.90	4.27	3.38	977	<.01	.21
IIP-SC	na	na	33.31	20.61				
RPT-HD	33.64	6.70	na	na				

Note. ECR = Experience in Close Relationships Inventory; IIA-18 = Inventory of Interpersonal Ambivalence-18; RQ = Relationships Questionnaire; SOS-10 = Swartz Outcome Scale-10; RSE = Rosenberg Self-Esteem Scale; PSI = Physical Symptoms Inventory; IIP-SC = Inventory of Interpersonal Problems – Short Circumplex; RPT-HD = Relationship Profiles Test – Healthy Dependency Scale.

Table 2. Attachment scale psychometric properties.

	α	*M* CITS (*SD*)	Min	Max	*M* II Cor	*Φ*	Eρ^2
ECR-Anxiety	.94	.66 (.09)	.48	.77	.45	.82	.83
ECR-Avoidance	.96	.75 (.05)	.66	.81	.57	.94	.94
IIA-18	.94	.66 (.06)	.51	.72	.46	.83	.84

Note. ECR = Experiences in Close Relationships Inventory; IIA-18 = Inventory of Interpersonal Ambivalence-18; RQ = Relationship Questionnaire; *M* CITS = Mean corrected item-to-scale correlation; Min = Minimum corrected item-to-scale correlation; Max = Maximum corrected item-to-scale correlation; *M* II Cor = Mean inter-item correlation; *Φ*= Absolute error coefficient (i.e., phi coefficient) based on the test-retest sample (N = 71); Eρ^2 = Relative error coefficient (i.e., generalizability coefficient) based on the test-retest sample (N = 71).

Table 3. Variance component estimates from generalizability analyses in the test-retest sample (N = 71).

	IIA-18		ECR-Anxiety		ECR-Avoidance	
	Estimate	%	Estimate	%	Estimate	%
P	0.184	29.6%	0.921	31%	0.570	37.1%
i	0.022	3.5%	0.339	11%	0.056	3.6%
o	0.000	0.0%	0.000	0%	0.000	0.0%
p x i	0.093	15.0%	0.631	21%	0.202	13.1%
p x o	0.052	8.4%	0.220	7%	0.271	17.6%
i x o	0.001	0.2%	0.000	0%	0.000	0.0%
p x i x o, e	0.270	43.4%	0.851	29%	0.438	28.5%

Note. *p* = person level; *i* = item facet; *o* = occasion facets; Estimate = variance component estimate; % = proportion of variance accounted for by this level/facet; IIA-18 = Inventory of Interpersonal Ambivalence-18; ECR-Anxiety = Experiences in Close Relationships Inventory Anxiety scale; ECR-Avoidance= Experiences in Close Relationships Inventory Avoidance scale

Table 4. Communalities and factor loadings for the exploratory principal axis factoring (Oblimin Rotation) analysis.

		Factor					Factor					Factor		
	h2	**Amb**	**Anx**	**Avo**		***h2***	**Amb**	**Anx**	**Avo**		***h2***	**Amb**	**Anx**	**Avo**
ECR1	.50			-.65	ECR2	.65		.71		IIA1	.43	.51		
ECR3	.63			.73	ECR4	.60		.70		IIA2	.43	.62		
ECR5	.61			-.62	ECR6	.66		.74		IIA3	.54	.70		
ECR7	.61			-.64	ECR8	.62		.74		IIA4	.47	.65		
ECR9	.65			-.68	ECR10	.53		.70		IIA5	.47	.62		
ECR11	.57	.30		-.48	ECR12	.40		.62		IIA6	.55	.72		
ECR13	.62			-.62	ECR14	.53		.68		IIA7	.48	.51	.25	
ECR15	.48			.69	ECR16	.39		.61		IIA8	.54	.70		
ECR17	.66			-.70	ECR18	.59		.76		IIA9	.52	.66		
ECR19	.62			.71	ECR20	.46		.69		IIA10	.33	.57		
ECR21	.53			-.55	ECR22	.33		-.55		IIA11	.44	.67		
ECR23	.68			-.75	ECR24	.50		.73		IIA12	.49	.73		
ECR25	.60			.80	ECR26	.50		.68		IIA13	.49	.68		
ECR27	.54			.75	ECR28	.34		.58		IIA14	.55	.72		
ECR29	.48			.63	ECR30	.49		.73		IIA15	.45	.59		
ECR31	.60			.80	ECR32	.41		.64		IIA16	.29	.48		
ECR33	.55			.79	ECR34	.28		.45		IIA17	.48	.73		
ECR35	.60			.86	ECR36	.37		.62		IIA18	.51	.68		

Note. *h2* = Extraction Communalities; ECR = Experiences in Close Relationships Inventory; IIA = Inventory of Interpersonal Ambivalence-18; Amb = Ambivalence Factor; Anx = Attachment Anxiety Factor; Avo = Attachment Avoidance Factor. Loadings of < .25 not shown.

Table 5. Hierarchical regressions predicting self-functioning variables.

Dependent Variable: SOS-10 Life Satisfaction Total Score

Step	R	R^2	F	df	ΔR^2	ΔF	Δdf	Predictor	β
1	.56	.32	238.48**	2, 1036	-	-	-		
								Anxiety	-.33**
								Avoidance	-.36**
2	.56	.32	161.99**	3, 1035	<.01	7.02**	1, 1035		
								Anxiety	-.33**
								Avoidance	-.36**
								Interaction	.07**
3	.60	.36	143.43**	4, 1034	.04	60.30**	1, 1034		
								Anxiety	-.21**
								Avoidance	-.21**
								Interaction	.10**
								Ambivalence	-.29**

Dependent Variable: PSI Stress Related Physical Symptoms Total Score

Step	R	R^2	F	df	ΔR^2	ΔF	Δdf	Predictor	β
1	.35	.12	238.48**	2, 976	-	-	-		
								Anxiety	.33**
								Avoidance	-.05
2	.36	.13	161.99**	3, 975	.01	13.12**	1, 975		
								Anxiety	.32**
								Avoidance	.04
								Interaction	-.12**
3	.41	.17	143.43**	4, 974	.04	45.92**	1, 974		
								Anxiety	.20**

								Avoidance	-.12**
								Interaction	.14**
								Ambivalence	.30**

Dependent Variable: RSE Self-Esteem Total Score

Step	R	R^2	F	df	ΔR^2	ΔF	Δdf	Predictor	β
1	.56	.31	238.48**	2, 1036	-	-	-		
								Anxiety	-.40**
								Avoidance	-.30**
2	.59	.34	177.24**	3, 1035	.03	38.11**	1, 1035		
								Anxiety	-.30**
								Avoidance	-.18**
								Ambivalence	-.23**

Table 5. Hierarchical regressions for interpersonal functioning variables.

Dependent Variable: IIP-SC Total Score for Interpersonal Problems

Step	R	R^2	F	df	ΔR^2	ΔF	Δdf	Predictor	β
1	.61	.37	206.47**	2, 710	-	-	-		
								Anxiety	.44**
								Avoidance	.30**
2	.67	.45	194.77**	3, 709	.08	108.72**	1, 709		
								Anxiety	.27**
								Avoidance	.07
								Ambivalence	.44**

Dependent Variable: RPT-HD Healthy Dependency Score

Step	R	R^2	F	df	ΔR^2	ΔF	Δdf	Predictor	β
1	.62	.38	90.76**	2, 296	-	-	-		
								Anxiety	-.30**
								Avoidance	-.49**
2	.64	.41	69.30**	3, 297	.03	16.73**	1, 297		
								Anxiety	-.18**
								Avoidance	-.37**
								Ambivalence	-.26**

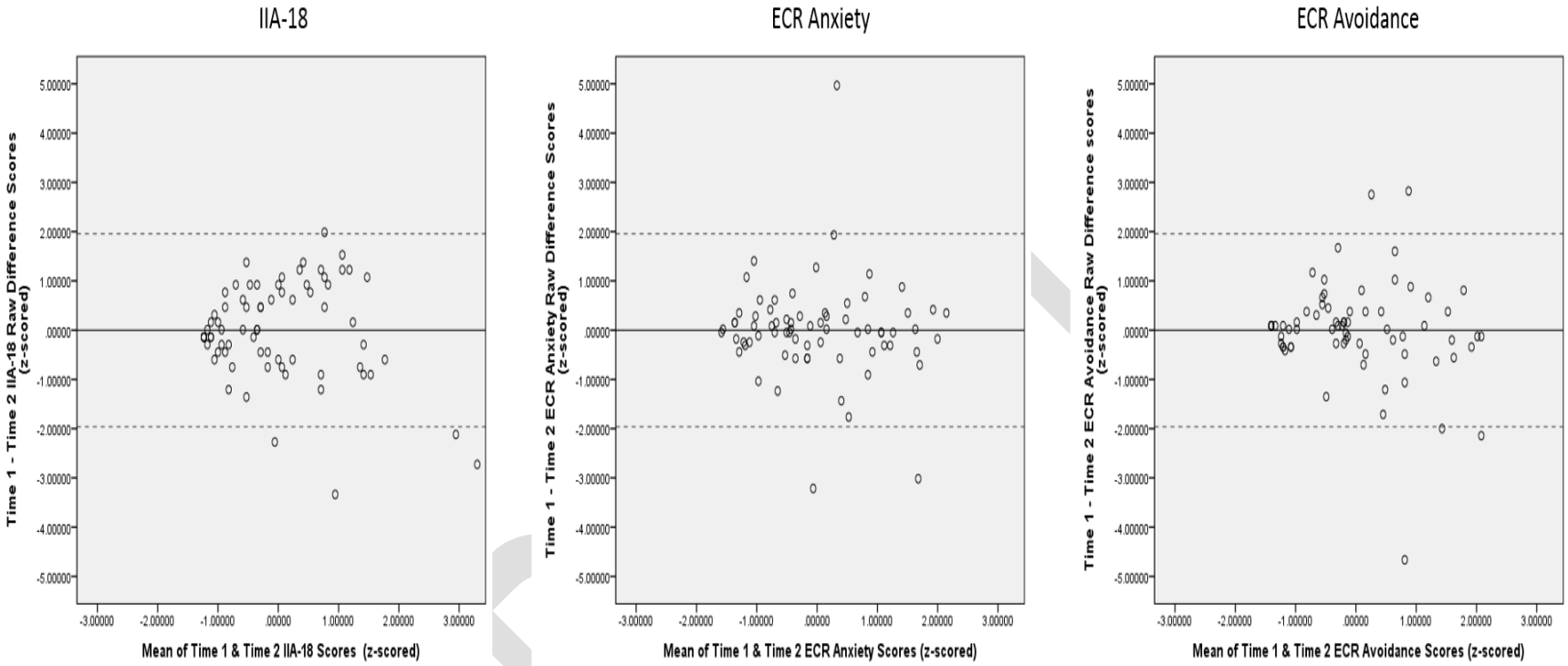

Figure 1. Bland-Altman plots for the Inventory of Interpersonal Ambivalence-18, the experiences in close relationships anxiety scale, and the experiences in close relationships avoidance scale.