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# A Psychometric Evaluation of the Tripartite Attachment Battery

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## Abstract

The Tripartite Attachment Battery (TAB) includes scales assessing attachment security, organized insecurity (i.e., anxiety and avoidance), and disorganized attachment. This recently developed series of measures provides expanded options for assessing attachment characteristics (e.g., a scale that directly assesses attachment security) and may improve the assessment of attachment anxiety and avoidance by including items capturing the secondary attachment strategies associated with them (viz., hyperactivation and deactivation). The present study utilized a community sample (N = 386) to evaluate and refine these scales. Factor analyses were conducted to: (a) examine the dimensionality of each TAB scale, and (b) guide the creation of empirically-derived subscales. The Secure Attachment Scale and the Organized Insecurity Scale were multidimensional. The Disorganized Attachment Scale was unidimensional. Most of the empirically-derived measures had internal consistency and test-retest reliability levels in the range considered adequate or better. Their correlations with a measure of psychopathology provided preliminary support for their construct validity. The TAB scales are promising measures of adult attachment characteristics. Further investigation of their psychometric properties is warranted.

## Keywords

attachment theory, attachment behavior, attachment security, attachment measurement

The Tripartite Attachment Battery (TAB; McWilliams & Coveney, 2020) is a new set of self-report measures that assess adult attachment characteristics. It is based on Mikulincer and Shaver's (2007) model of adult attachment-system functioning and dynamics and their recommendations (Mikulincer & Shaver, 2007, 2016) regarding the

assessment of individual differences in attachment. Like earlier measures, the TAB includes a measure of anxiety (i.e., fears of rejection and abandonment) and avoidance (i.e., mistrust and discomfort in close relationships). It also includes measures of attachment security and disorganized attachment. Mikulincer and Shaver's model is presented along with its connection to the measures that comprise the TAB. The initial development of the TAB is briefly reviewed and a psychometric study of a revised TAB is presented.

## Mikulincer and Shaver's Model

Attachment theory (Ainsworth et al., 1978; Bowlby, 1969) posits that an innate attachment behavioral system evolved to ensure that infants maintain proximity to individuals, termed attachment figures, who provide protection and care. Enduring cognitive schemas that shape behavior and expectations in other relationships are thought to develop in response to the characteristics and behavior of attachment figures. Mikulincer and Shaver's (2007) model integrates early theoretical writings with more recent research on adult attachment. It includes three sequential modules.

In Module 1, Mikulincer and Shaver's (2007) model proposes that signs of threat activate the attachment system, which prompts a desire for proximity to an attachment figure. In Module 2, the availability of the attachment figure is assessed. If the attachment figure is available and responsive, the individual seeking proximity is expected to experience a sense of security, reduced distress, and increased emotional well-being. If the attachment figure is not available or is unresponsive, attachment insecurity and increased distress are experienced. In Module 3, the usefulness of further efforts to obtain proximity and support are assessed. If further proximity seeking is perceived as having the potential to elicit the desired support, the secondary attachment strategy of hyperactivation is used. It involves vigilance to signs of attachment figure unavailability, clinging and controlling behaviors aimed at obtaining support, and exaggerated appraisals of threat (Mikulincer et al., 2003). If further proximity seeking is perceived as unlikely to elicit support, the secondary attachment strategy of deactivation is used. It involves the avoidance of attachment needs (e.g., closeness and intimacy), efforts to maximize physical and emotional distance from others, and the pursuit of self-reliance (Mikulincer et al., 2003). Hyperactivation is the secondary attachment strategy characteristic of those high in attachment anxiety; whereas deactivation is the secondary attachment strategy characteristic of those high in attachment avoidance.

Mikulincer and Shaver (2007) indicated that their model of attachment-system functioning and dynamics "calls for multiple kinds of scales" (p. 99). While a few new measures of adult attachment were subsequently developed (e.g., Brief Attachment Adjective Checklist; Bowles, 2010), none of these were directly related to Mikulincer and Shaver's (2007) suggestion of having a series of scales connected to specific components of their model. Mikulincer and Shaver (2016) reiterated their initial call for multiple scales along with three specific suggestions regarding such scales. First, they suggested the possibility

of a unidimensional "sense of felt security" scale related to Module 2 of their model. They indicated that it would be suitable when the goal was to differentiate between those with relatively low and high levels of security. Consistent with this suggestion, Bäckström and Holmes (2007) suggested that a measurement model without a security/insecurity dimension would be incomplete because security is an essential component of attachment theory. However, this view has not been widely embraced. Second, they suggested that the commonly used Experience in Close Relationships Questionnaire (ECR; Brennan et al., 1998) or the revised version of it (ECR-R; Fraley et al., 2000) could be used to assess the two forms of organized insecurity. Third, they suggested the possibility of a measure of disorganized attachment. Mikulincer and Shaver (2007) refer to the secondary attachment strategies as organized forms of insecurity. They also note that extremely insecure individuals may vacillate between these two forms of insecurity, which is often referred to as disorganized attachment. While disorganized attachment might be indicated by high levels of both anxiety and avoidance, they suggested the development of a measure that could differentiate between those with disorganized attachment strategies (i.e., activation of the contradictory fear and approach responses to attachment figures) and those with organized forms of attachment insecurity. Mikulincer and Shaver (2007) noted that scores on these types of measures would be correlated with each other, but nonetheless supported the development of such measures because they could assess "the full array of normal and abnormal attachment orientations" (p. 99).

## Development of the Tripartite Attachment Battery

The TAB (McWilliams & Coveney, 2020) was developed in response to Mikulincer and Shaver's (2007, 2016) calls for a more comprehensive approach to assessing attachment. The *Secure Attachment Scale* (SAS) is based on the concept of felt security included in Module 2 of their model. Its items were designed to capture the description of attachment security included within that model. Other descriptions of attachment security, such as articles on "secure-base scripts" (Mikulincer et al., 2009) and attachment prototypes in clinical settings (Maunder & Hunter, 2012) were also consulted.

Mikulincer and Shaver (2007, 2016) suggested that scales assessing anxiety and avoidance, particularly the ECR and ECR-R, could be used to assess the organized forms of insecurity included within Module 3 of their model. However, these measures include few items related to the secondary attachment strategies that are the focus of Module 3. For example, almost all of the anxiety items in the ERC-R concern worry about being loved by one's partner, and only a few items have content that could be considered to even mildly reflect hyperactivation (e.g., "It makes me mad that I don't get the affection and support I need from my partner"). Of particular importance, the anxiety scale does not include items that assess reacting strongly to negative events (i.e., heightened distress) and ineffective coping with distress (i.e., rumination and catastrophizing) that are central to the concept of hyperactivation. The *Organized Insecurity Scale* (OIS) was cre-

ated to address this limitation. Like the earlier measures, it assesses attachment anxiety and avoidance. Importantly, it also includes items related to the secondary attachment strategies. OIS items were based on several descriptions of attachment anxiety and avoidance and their associated secondary attachment strategies (viz., Ein-Dor et al., 2010; Mikulincer et al., 2003). As well, items related to the content of the ERC and ERC-R were included.

Mikulincer and Shaver (2007, 2016) noted the potential value of a measure that directly assesses disorganized attachment. This prompted the inclusion of the *Disorganized Attachment Scale* (DAS). It is a modified version of an earlier measure (Paetzold et al., 2015). The original measure was based on a review of the literature on disorganized attachment in children, and its items captured characteristics such as fear, confusion about relationships, and distrust. The wording of the items and response format were altered to make it less vulnerable to an acquiescence response bias (i.e., the tendency to respond with agreement to statements presented in self-report measures regardless of the content of the item; see Krosnick & Presser, 2010). This involved altering the items so that they presented a particular attribute (e.g., difficulty understanding thoughts and feelings about romantic partners) and asked respondents to rate themselves along a continuous dimension (e.g., "not at all difficult" to "very difficult"). Measures with this format have higher levels of reliability and validity than those that ask respondents to agree or disagree with statements. This format was also used when creating the other TAB scales.

The initial study of the TAB (McWilliams & Coveney, 2020) used a small convenience sample to evaluate the internal consistency level of each measure. As well, poor items were identified by: (a) examining item-total correlation and alpha-if-item-deleted statistics, and (b) asking respondents to identify and comment on items with which they had difficulty responding. The SAS had an internal consistency of .93 and none of its 32 items were deleted or revised. The OIS included a 36-item Anxiety subscale and a 23-item Avoidance subscale. The Anxiety subscale's internal consistency was .92. The internal consistency of the Avoidance subscale was .81. The evaluations of these subscales supported deletion of one anxiety item, rewording of one anxiety item, and rewording of five avoidance items. The version of the TAB used in the current study included these modifications. The 12-item DAS had an internal consistency of .90 and the findings were not suggestive of any changes to it.

## Current Study

The only study of the TAB (McWilliams & Coveney, 2020) found that the internal consistencies of the measures included within it were acceptable or better. Cronbach's alpha is only accurate when the items of a measure assess the same construct (Dima, 2018). If a scale is multidimensional, the alpha coefficient is not interpretable. The current study presents the first factor analytic study of the measures included within the TAB.

These findings are used to: (a) evaluate their dimensionality, (b) identify poor items that should be deleted, and (c) create empirically-derived subscales for the measures found to be multidimensional. Given that its items capture several different descriptions of secure attachment, the SAS may be multidimensional. The subscales of the OIS may also be multidimensional as they were designed to capture the constructs of anxiety and avoidance along with the secondary attachment strategies associated with them. The current study also evaluates the reliabilities (i.e., internal consistency and test-retest reliability) of TAB measures and examines the relationships between them. Psychopathology fits within the nomological network of adult attachment as a huge body of literature indicates attachment security is negatively associated with psychopathology and various forms of insecurity are positively associated with psychopathology (see Mikulincer & Shaver, 2016, Chapter 13). To provide preliminary evidence of the construct validity of the TAB measures, relationships between them and a self-report of psychopathology are examined.

# Method

## Procedures and Participants

Participants completed demographic questions and self-report measures as part of an online survey. All participants were asked to complete a follow-up survey aimed at assessing the test-retest reliability of the TAB scales. In order to collect test-retest reliability estimates at two different follow-up durations, half of the sample was randomly selected for the follow-up 2 weeks after their initial participation and the other half was contacted 4 weeks after their initial participation. The measures described below were administered in the initial survey. The follow-up surveys included the attachment measures. Participants provided informed consent prior to participating in both the initial and follow-up components of the study. The study's procedures were approved by the University of Saskatchewan's Behavioural Research Ethics Board.

The study was open to English-speaking individuals 18 years of age and older. Participants were drawn from a Canadian research company's (viz., EKOS) panel of potential research participants generated by automated telephone calls using random digit dialing. Panel members were not compensated for their time. Invitations to participate were designed to obtain a sample representative of the demographic characteristics of the general adult population of Canada (e.g., young people were over sampled because of their lower response rate). A sample of 384 was utilized because it was sufficient to ensure the descriptive statistics reported would be representative of Canadian adults (i.e., 95% confidence level with a 5% confidence interval). As well, it was expected to be large enough to: (a) obtain large follow-up samples, (b) conduct item-level factor analyses, and (c) have excellent statistical power for the correlational analyses.

A total of 386 individuals (193 females, 192 males, and 1 other) completed the initial survey. Participants' ages ranged from 20 to 86 ($M$ = 49, $SD$ = 15.54) years. A majority reported English as their first language (92.9%) and self-identified as White (89.1%). All the other race categories had endorsement rates of 3% or less. Most participants had been involved in a dating or romantic relationship (79.8%). A majority of respondents (58%) identified their current relationship status as married. The others indicated being single/dating (22.2%), common law (9.3%), divorced (4.7%), widowed (3.1%), or separated (2.6%). Analyses were conducted with SPSS (version 24). Missing data were rare. For example, there were only 12 missing data points (< .10% of all potential data points) on the SAS. Given its rarity, missing data was not imputed. List-wise deletion was used in the factor analyses and all the available items were used when scoring the measures.

## Measures

### Attachment

The TAB included the modifications suggested by the initial evaluation of it reviewed earlier (McWilliams & Coveney, 2020). It included the SAS (32-items), the OIS (35 anxiety items and 32 avoidance items), and the DAS (12-items). Each measure used response options tailored to the content of specific items. Details of the items and response options are included in the supplemental materials.

### Psychopathology

Symptoms of depression and anxiety (2 items each) were assessed using the Four-Item Patient Health Questionnaire (Kroenke et al., 2009). Items were presented on a 4-point Likert-type scale (1 = *not at all* to 4 = *nearly every day*) and recoded to be scored from 0 to 3. The sum was used as a measure of psychopathology.

# Results

## Factor Analyses and Scale Revisions

The TAB was created to enable the selection of a measure, or measures, most relevant to specific research or clinical contexts. Given this goal and the possibility that some situations may require the use of only one TAB scale, the factor structure of each scale was examined separately. Diagnostic tests were examined to evaluate the suitability of the scale items for factor analysis. These included the Kaiser-Meyer-Olkin value, Bartlett's Test of Sphericity, and Individual Measure of Sampling Adequacy values. In all cases, the tests indicated that the items were suitable for factor analysis. Exploratory factor analysis (EFA), with principal axis factoring (PAF) and promax rotation, was used. The PAF extraction method was selected because it is robust to violations of normality (Costello & Osborne, 2005), which are common in data from self-report measures. Promax rotation is

an oblique method, which is appropriate when the factors are expected to be correlated. Parallel analysis, using 95$^{th}$ percentile eigenvalues, was used to determine the number of factors to retain.

A minimum absolute-value loading of .32 was the criterion for a primary salient factor loading as such items would account for at least 10% of the variance in the factor on which it loads (Tabachnick & Fidell, 2019). Subscale scores were created by calculating the mean of the items with primary salient loadings on their respective factors. Items with cross-loadings (i.e., a loading with an absolute value of .30 or greater on another factor) were excluded in order to create subscales that maximized their conceptual and empirical distinctiveness. The specific items included in the subscales can be found in Tables 1 and 2 and the number of items in each are reported in Table 3. When presenting the pattern matrices, loadings with absolute values less than .20 were not reported.

The SAS had a three-factor solution that accounted for 55.30% of the variance (42.96%, 6.57%, and 5.77% across the factors). Its pattern matrix is presented in Table 1. Items loading on Factor 1 captured perceived support, emotional closeness in relationships, and the sense of being valued. It was labelled Sense of Support and Respect. Based on their item content, Factors 2 and 3 were labelled Emotion Regulation Capacity and Emotional Attunement, respectively.

**Table 1**

*Pattern Matrix from the Exploratory Factor Analysis of the Secure Attachment Scale*

| Abbreviated Item Content | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| 9. Sure of availability and support when help needed | **.88** | | |
| 26. Comforting close relationships | **.88** | | |
| 16. Helpfulness of others in times of need | **.87** | | |
| 11. Emotional distance of close relationships | **.83** | | |
| 4. Valued by those closest | **.83** | | |
| 22. People closest responsive to needs | **.77** | | |
| 8. Feel safe approaching people closest to you for help | **.76** | | |
| 31. Successful in getting support | **.73** | .20 | |
| 1. Happy with close relationships | **.73** | | |
| 24. Level of respect received in relationships | **.66** | | |
| 7. Success in forming satisfying relationships | **.62** | | .20 |
| 13. Feeling accepted | **.60** | .21 | |
| 14. *Willingness to express needs and desires* | **.53** | | **.39** |
| 5. Satisfaction when dealing with conflicts with close others | **.51** | | |
| 18. Comfort letting close others see your emotions | **.50** | | .26 |
| 28. *Trust in others* | **.39** | **.32** | |
| 20. *Worthy of support* | **.31** | .20 | .27 |
| 3. Effectiveness in coping with stressful events | | **.87** | |
| 15. Success in calming down when distressed | | **.84** | |
| 17. Life difficulties seem manageable | .27 | **.69** | |
| 32. Ability to cope with small, day to day irritations | | **.67** | |
| 29. Effectively working with others to deal with a problem | | **.46** | .29 |

| Abbreviated Item Content | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| 30. Seeing the world as safe | | **.43** | |
| 2. Optimistic | | **.42** | |
| 23. *Effectiveness of expressing anger* | | **.30** | |
| 21. Skill at sensing/understanding others' feelings | | | **.86** |
| 25. Awareness of own feelings and motivations | | . | **.70** |
| 27. Ability to express emotions clearly | | | **.63** |
| 10. Frequency of reflecting on own feelings/emotions | | -.22 | **.60** |
| 12. Capable of understanding others' motivations | | | **.59** |
| 6. Comfort attending to own strong emotions and feelings | | | **.56** |

*Note:* Factor loadings ≥ .30 are in bold face. Italics denotes the items not used in the final subscales.

The OIS had a six-factor solution that accounted for 45.32% of the variance (19.66%, 10.45%, 5.05%, 3.62%, 3.35%, and 3.18% across the factors). Its pattern matrix is presented in Table 2. Fourteen items had their strongest loading on Factor 1. Most were from the Anxiety subscale and concerned responses to stress. However, two (Items 15 and 56) were from the Avoidance subscale. Both of them had salient cross-loadings on another factor. This factor was labelled Heightened Stress Reactivity.

**Table 2**

*Pattern Matrix from the Exploratory Factor Analysis of the Organized Insecurity Scale*

| | Factor | | | | | |
|---|---|---|---|---|---|---|
| **Item content** | **1** | **2** | **3** | **4** | **5** | **6** |
| 21. Feeling extremely overwhelmed when experiencing stressful life events | **.79** | | | | | |
| 14. Getting "stuck" on negative thoughts | **.77** | | | | | |
| 57. Doubting self-worth | **.73** | | | | | |
| 13. Over-sensitive to disapproval | **.67** | | | | | |
| 31.*Stable sense of confidence | **.67** | | -.29 | | | -.22 |
| 4. Helpless in managing emotions | **.58** | | | | | |
| 30. Tendency to ruminate about upsetting issues | **.57** | | | | | |
| 56. *Trying to avoid thinking about problems* | **.51** | | | | **.40** | |
| 1. Expecting the worst possible consequences | **.50** | | | | | |
| 35. Worrying about not being supported | **.48** | .20 | | | | |
| 15. *Relying on others leading to frustration* | **.43** | | **.37** | | | |
| 7. *Feeling unappreciated* | **.43** | **.30** | | | | -.25 |
| 41. Sharing too much personal information | **.38** | | | | -.27 | |
| 39. Feeling misunderstood | **.37** | .25 | .21 | | | |
| 51. Resentment when partner spends time away | | **.72** | | | | |
| 2. Attention to signs partner may be losing interest | | **.64** | | | | |
| 37. Worried about being rejected by romantic partners | | **.64** | | | | |
| 52. *Emotional intensity when partner does not show enough interest* | | **.59** | | | | **.32** |
| 16. Upset with partners prompts memories of past disappointments. | .20 | **.55** | | | | |
| 44. Reassurance needed about partner's love | | **.54** | | | | |
| 8. Anxiety about relationship triggered by distance | | **.54** | | | | |

| | Factor | | | | | |
|---|---|---|---|---|---|---|
| **Item content** | **1** | **2** | **3** | **4** | **5** | **6** |
| 55. Attention to signs of partner unavailability | | **.53** | | | | |
| 45. Wanting more emotional closeness with romantic partners than they want | | **.49** | | | | |
| 49. Concerned about the loyalty of close others | | **.49** | | | | |
| 58. "Clingy" with romantic relationship partners | | **.47** | -.27 | | | .20 |
| 47. *Worry about being abandoned* | **.40** | **.46** | | | | |
| 28. *Forcing partner to express commitment* | | **.45** | | | | **.31** |
| 33. Upset when close others do not pay enough Attention | | **.35** | | | | .20 |
| 5. "Needy" in relationships | | **.33** | | -.26 | | |
| 34. Important to be self-reliant | | | **.71** | | | |
| 23. Prefer to handle problems on own | | | **.65** | | | |
| 29. Want to face challenges on own | | | **.64** | | | |
| 12. Important to be independent | | | **.57** | | | |
| 27. *Emotional distance wanted from others* | | | **.41** | | **.30** | .23 |
| 17. Easy to go without comfort and reassurance | -.21 | | **.40** | | .20 | |
| 19. *Valuing reason over feelings* | **-.32** | | **.36** | | .24 | |
| 9. *Helpfulness of turning to partner in times of need | | | | **.70** | | |
| 32.*Emotional involvement in close relationships | | | | **.68** | | |
| 18. Desire to be intertwined emotionally with partner | | .20 | | **-.67** | | |
| 40.*Upset if a close relationship ended | | | | **.66** | | |
| 10. Pessimism about the benefits of relationships | .25 | .21 | | **.39** | | |
| 3. *Important to avoid getting really close to partner* | .27 | | | .29 | | |
| 43. Unwilling to tell others about feelings | | | .20 | | **.62** | |
| 22. *Expressive when talking about something upsetting* | | | **.34** | | **-.52** | |
| 6. *Frequency of discussing problems and concerns | | | | .21 | **.50** | |
| 48. Uncomfortable with emotional intimacy | | | | | **.43** | |
| 25. Ability to ignore a problem that would upset most others | | | .20 | | **.38** | |
| 36. Trying to block out upsetting thoughts and memories | | | | | **.37** | |
| 54. Being insistent with others to get support | | | | | | **.60** |
| 42. Exaggerating when telling others about distress | | | | | | **.47** |
| 38. *Unwilling to see and admit short-comings* | | | | | .27 | **.41** |
| 11. Demanding when wanting support from partner | | | | | -.29 | **.35** |
| 20. *Ability to cope with challenges on own* | .29 | | -.21 | | | **.34** |
| 50. *Focused on own self-interests* | | | **.32** | | .20 | **.34** |
| 24. *Over-dependent on relationship partners* | **.31** | | -.27 | | | **.33** |
| 26. Noticeable emotional distress when upset | .29 | | | | -.26 | **.30** |
| 46. *Finding new activities unenjoyable* | | | | | | .26 |

*Note.* Factor loadings ≥ .30 are in bold face. Italics denotes the items not used in the final subscales. Asterisk denotes item was reverse coded prior to the factor analysis.

Fifteen items had salient primary loadings on Factor 2. All of them were from the Anxiety subscale and focused on respondents' relationships with romantic partners. This factor was labeled Vigilance and Preoccupation with Partner. Eight items had a primary salient loading on Factor 3. They were all from the Avoidance subscale. Based on the content of these items, this factor was labelled Self-Reliance.

There were five items with primary salient loadings on Factor 4. Three of these (i.e., 9, 32, and 40) were reverse scored items from the Avoidance subscale and one was a non-reversed item from that scale (i.e., 10). Item 18 ("How desirable would it be for you to be deeply intertwined emotionally with your romantic partner?") from the anxiety subscale also had a negative loading on this factor. Item 3 had its highest loading on Factor 4, but it did not meet the criterion for salience. Relative to the other factors, the theme of the items loading on Factor 4 was less consistent. The items captured the perceived helpfulness of romantic partners, emotional involvement, being emotionally intertwined with a partner, reactions to losing a close relationship, and pessimism regarding relationships. To succinctly capture this factor's content, it was labelled Preference for Distance.

There were six items with their primary salient loading on Factor 5. Five of these were from the Avoidance subscale. Item 22, which belonged to the Anxiety subscale, also had a negative loading on Factor 5. This factor was labelled Restricted Expression of Emotion. There were seven items with primary salient loadings on Factor 6. Two of these had salient cross-loadings (i.e., Items 24 and 50). There were also two items belonging to this factor (i.e., Items 26 and 46) with loadings below the criterion for being considered salient. Factor 6 was labelled Demanding Support on the basis of items 54 and 11, which concerned being insistent when wanting support and demanding support. Several items with no obvious connection to demanding support also loaded on this factor (i.e., Item 38, "How unwilling are you to see and admit your own weaknesses and short-comings"). In light of this, the item content was emphasized when developing a subscale designed to capture this factor. Items 11, 42, and 54 were included. Despite its loading on the factor being slightly lower than the *a priori criteria* for inclusion (i.e., .30 vs. .32), Item 26 was also included because its content (i.e., displaying emotions when upset) was related to the construct of demanding support. As well, Items 20 and 38 were not included because their content did not fit the focus of the subscale.

The DAS had a single factor that accounted for 44.83% of the variance. All but one item had a large salient loading (i.e., .52 to .80) on this factor. Item 7 was the exception (loading of .27) and was not included when scoring the DAS.

## Descriptive Statistics and Internal Consistencies of the TAB Measures

Descriptive statistics and internal consistency values for each empirically-derived TAB measure are reported in Table 3. The mean scores indicate that participants generally experienced a sense of security and minimal insecurity. For example, the SAS subscales scores were all above the midpoint response option of 3.5. When considering internal consistencies, values below .70 were considered unacceptable, values between .70 and .79 were regarded as fair, values between .80 and .89 were considered good, and values of .90 and above were regarded as excellent (Cicchetti, 1994). The internal consistencies for the SAS subscales ranged from good to excellent.

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**Table 3**

*Correlations, Descriptive Statistics, and Internal Consistency Values*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Sense of Support and Respect | | | | | | | | | | | |
| 2. Emotion Regulation Capacity | .62*** | | | | | | | | | | |
| 3. Emotional Attunement | .63*** | .49*** | | | | | | | | | |
| 4. Heightened Stress Reactivity | -.53*** | -.72*** | -.32*** | | | | | | | | |
| 5. Vigilance and Preoccupation with Partner | -.40*** | -.45*** | -.20*** | .68*** | | | | | | | |
| 6. Self-Reliance | -.12* | -.03 | -.09 | -.02 | -.05 | | | | | | |
| 7. Preference for Distance | -.50*** | -.21*** | -.36*** | .10 | .01 | .33*** | | | | | |
| 8. Restricted Expression of Emotion | -.42*** | -.20*** | -.51*** | .18*** | .11* | .40*** | .34*** | | | | |
| 9. Demanding Support | .12* | -.15** | .10 | .32*** | .39*** | -.19*** | -.24*** | -.25*** | | | |
| 10. Disorganized Attachment | -.66*** | -.51*** | -.43*** | .60*** | .56*** | .21*** | .46*** | .36*** | .07 | | |
| 11. Psychopathology | -.52*** | -.60*** | -.28*** | .72*** | .48*** | .07 | .13* | .22*** | .16** | .49*** | |
| Number of items | 15 | 7 | 6 | 11 | 12 | 5 | 5 | 5 | 4 | 11 | 4 |
| *M* | 4.77 | 4.52 | 4.82 | 1.44 | .99 | 2.61 | 1.14 | 1.77 | 1.45 | .76 | 2.84 |
| *SD* | .96 | .87 | .87 | .69 | .64 | .73 | .74 | .69 | .81 | .76 | 3.29 |
| Alpha | .95 | .83 | .82 | .87 | .86 | .76 | .73 | .62 | .63 | .90 | .90 |
| ICC at 2 Weeks ($n$ = 54) | .97 | .95 | .94 | .96 | .95 | .69 | .90 | .74 | .74 | .94 | — |
| ICC at 4 Wees ($n$ = 115) | .95 | .93 | .90 | .94 | .87 | .85 | .86 | .82 | .83 | .88 | — |

*Note.* Unless otherwise indicated, all values are based on baseline data ($N$ = 386). ICC = intraclass correlation coefficient with baseline scores.
*$p$ < .05. **$p$ < .01. ***$p$ < .001 (two-tailed tests).

A majority of the OIS subscales had internal consistency levels that were in in the fair to good range. However, two subscales (i.e., Demanding Support and Restricted Expression of Emotion) had levels of internal consistency considered inadequate. The internal consistency of the DAS was excellent.

## Correlations between the Attachment Variables and Psychopathology

Correlations between the attachment variables are presented in Table 3. The SAS subscales all had statistically significant positive associations with each other. The OIS subscales related to attachment anxiety (viz., Heightened Stress Reactivity, Vigilance and Preoccupation with Partner, and Demanding Support) had statistically significant positive correlations with each other, and the subscales relating to attachment avoidance (i.e., Self-reliance, Preference for Distance, and Restricted Expression of Emotion) had statistically significant positive correlations with each other. As expected, in most cases the OIS subscales and the DAS had statistically significant positive associations with each other and statistically significant negative correlations with the subscales of the SAS. The most notable exception to this pattern was the small positive correlation between the Demanding Support subscale and one of SAS subscales (i.e., Sense of Support and Respect). Given that the Demanding Support subscale was conceptualized as an anxiety-related measure, this finding was surprising.

Correlations between the attachment variables and the measure of psychopathology are also reported in Table 3. All the SAS subscales had statistically significant negative correlations with psychopathology and, with one exception, all the attachment measures capturing insecurity had statistically significant positive correlations with psychopathology.

## Test-Retest Reliability

Fifty-four individuals responded to the Time 2 survey conducted at 2 weeks and 115 responded at the Time 2 survey conducted at 4 weeks. Those that completed a Time 2 survey were slightly older in age than those that did not complete a Time 2 Survey ($M$ = 50.86, $SD$ = 16.07, vs. $M$ = 47.54, $SD$ = 14.98; $t$ = 2.10, $p$ = .04). There were no other statistically significant differences between these two groups in terms of the demographic variables and scores on the TAB and the measure of psychopathology.

Intraclass correlation coefficients (ICCs), based on absolute agreement and a 2-way mixed-effects model, between the attachment measures at Time 1 and Time 2 were calculated to examine the test-retest reliabilities of the TAB measures and are reported in Table 3. Koo and Mae's (2016) suggestions for characterizing test-retest reliabilities (i.e., ≤ .50 = poor, .50–.75 = moderate, .75–.90 = good, > .90 = excellent) were used when evaluating the ICCs. In the 2-week follow-up subsample, most of the ICCs indicated

good to excellent reliability. The exceptions to this were the Self-Reliance, Restricted Expression of Emotion, and Demanding Support subscales, which had moderate reliabilities (i.e., .50–.75). In the 4-week follow-up subscale, the ICCs all indicated good to excellent reliability.

## Higher-Order Factor Structure

An EFA of the empirically-derived TAB measures was used to further explore their relationships with each other. The procedures used were identical to those used for the item-level analyses. A two-factor solution that accounted for 61.40% of the variance was found. The pattern matrix for this solution is presented in Table 4.

**Table 4**

*Pattern Matrix from Exploratory Factor Analysis of the Tripartite Attachment Battery Measures*

| Measure | Factor 1 | Factor 2 |
|---|---|---|
| Heightened Stress Reactivity | **.95** | |
| Vigilance and Preoccupation with Partner | **.83** | -.26 |
| Emotional Regulation Capacity | **-.73** | |
| Disorganized Attachment Scale | **.61** | **.32** |
| Sense of Support and Respect | **-.52** | **-.52** |
| Preference for Distance | | **.65** |
| Restricted Expression of Emotion | | **.65** |
| Demanding Support | **.50** | **-.58** |
| Emotional Attunement | **-.30** | **-.51** |
| Self-Reliance | | **.46** |

*Note.* Factor loadings ≥ .30 are in bold face.

Factor 1 was labelled attachment anxiety because the subscales with the strongest loadings on it were the OIS subscales related to attachment anxiety. The subscales with the strongest loading on Factor 2 were the OIS subscales related to attachment avoidance, so it was labelled attachment avoidance. Three measures had salient loadings on both factors (i.e., Sense of Support and Respect and Emotional Regulation Capacity subscales and the DAS).

# Discussion

The TAB (McWilliams & Coveney, 2020) was created to: (a) facilitate the comprehensive assessment of individual differences in attachment characteristics in a manner that corresponds to components of Mikulincer and Shaver's (2007) model, and (b) provide several

different scales that could be selected for use in for specific research or clinical contexts. The following sections discuss the TAB measures in relation to the widely adopted two-factor model of attachment, highlight the main findings for each TAB measure, and provide recommendations regarding their further use and development.

## The TAB and Two-Factor Model of Attachment

The six-factor solution for the OIS could be viewed as inconsistent with the two-factor model of adult attachment. However, it is important to understand the origin of the two-factor model. Brennan et al. (1998) factor analyzed subscale scores of all the self-reports of adult attachment available at the time. They found higher-order anxiety and avoidance factors, and created the ECR by selecting individual items with the highest correlations with these higher-order factors. This produced highly reliable scales, but limited the heterogeneity of the items in the ECR. In contrast, the OIS was intended to capture a wider range of experiences related to the two dimensions, including the secondary attachment strategies. Thus, the finding of multiple anxiety and avoidance dimensions should not be surprising. They can be conceptualized as lower-order facets of anxiety and avoidance that are similar to the earlier subscales used to identify the two higher-order factors. Consistent with this, many of the labels used for the OIS subscales are similar to the subscales included Brennan et al.'s (1998) factor analysis (e.g., Discomfort with Closeness).

The absence of a separate security factor in the current higher-order factor analysis could be interpreted as further support for the two-factor model, which raises the possibility that a measure of security is not required. While Brennan et al. (1998) did find two factors, they also found that numerous subscales loaded on both factor (e.g., Distrust, Availability of Partners, Frustration with Partners). These earlier subscales can be considered general measures of insecurity/security that are similar to the SAS subscales. Thus, the finding that two SAS subscales had salient loadings on both factors is actually consistent with prior research on the dimensionality of adult attachment. Current popular self-reports of attachment, such as the ECR and ECR-R, emphasize the unique aspects of attachment anxiety and avoidance and ignore aspects of security and insecurity that overlap with both attachment dimensions. The SAS of the TAB provides a means to assess these shared aspects of security.

## SAS

The development of psychometrically strong subscales capturing three components of attachment security may be the most substantial contributions of the current research. However, their development raises the question of how they should be used. The Sense of Support and Respect subscale includes core elements of several descriptions of attachment security and closely matches the content of Module 2 of Mikulincer and Shaver's

(2007) model. Thus, it has the potential to be widely adopted as a measure of attachment security, particularly by those using Mikulincer and Shaver's model as a framework for their research. In the higher-order factor analysis, this subscale had large negative loadings on the anxiety factor and the avoidance factor. Thus, it is well suited to capturing attachment security in a manner that reflects the absence of both attachment anxiety and avoidance. In contrast, the Emotional Regulation Capacity subscale had a salient loading on only the attachment anxiety factor. Thus, the form of attachment security captured by this subscale is highly related to the absence of anxiety and is unrelated to avoidance. The capacity to regulate emotions effectively is a hallmark of attachment security, so the finding that the Emotional Regulation Capacity subscale is unrelated to avoidance may seem counterintuitive. However, its items are generally about the effectiveness of one's coping (i.e., "How successful are you in calming yourself down when distressed?") and it does not capture difficulties with emotion regulation characteristic of avoidance (e.g., downplaying distress and inflated self-perceptions of competence), which would be difficult to capture via self-reports. Given this situation, the use of the Emotional Regulation Capacity subscale as part of a larger measure of attachment security (i.e., a global score including all the SAS items) may inadvertently emphasize the absence of attachment anxiety.

The strongest association in this study was between the Emotion Regulation Capacity subscale and the Heightened Stress Reactivity subscale of the OIS. Given this substantial overlap (i.e., over 50% shared variance) and the inability of the Emotional Regulation Capacity subscale to capture emotional regulation difficulties characteristic of those high in attachment avoidance, the TAB might be improved by dropping the Emotional Regulation Capacity subscale.

## OIS

Three OIS factors were related to attachment anxiety and/or hyperactivation and three were related to attachment avoidance and/or deactivation. There was strong support for the reliability of two anxiety-related subscales (i.e., Heightened Stress Reactivity and Vigilance and Preoccupation with Partner) and two avoidance-related subscales (i.e., Self-Reliance and Emotional Distance). The anxiety-related Demanding Support subscale and the avoidance-related Restricted Expression of Emotion subscale both had inadequate internal consistency. However, these subscales included only four or five items, so their low internal consistency was likely partially an artifact of their length. More supportive of their reliability, both had good test-retest reliability.

The correlations between the anxiety-related subscales ranged from large to moderate, so these subscales can be considered as overlapping but not redundant with each other. Thus, it would be reasonable to use all three anxiety subscales either individually or as part of a larger anxiety scale. The Heightened Stress Reactivity factor primarily captures difficulties with emotion regulation that are characteristic of those high in

attachment anxiety, such as feeling overwhelmed, rumination, and catastrophizing. The Vigilance and Preoccupation with Partner factor has content similar to the anxiety scales of the ECR and ECR-R. It also includes items with unique content, such as vigilance to signs of a partner's unavailability and painful memories about past disappointments with a partner. If the aim is to capture attachment anxiety in a manner similar to the ECR-R, based on its item content, the Vigilance and Preoccupation with Partner subscale would likely be the most appropriate option. The Demanding Support factor included a mix of items. Many of these items related to the expressive or demanding aspect of hyperactivation. Thus, this subscale might be particularly relevant to Module 3 of Mikulincer and Shaver's (2007) model as it emphasized efforts to obtain support. It should also be noted that this subscale had a small positive association with the SAS Sense of Support and Respect subscale. This raises the possibility of some overlap in these constructs. While the aim was to create a subscale capturing more maladaptive approaches to demanding support, the subscale may nonetheless also partially capture characteristics of security, such as a willingness to persist when seeking support. Given the large number of associations examined, the small correlation in question could also simply be an instance of Type I error.

The correlations between the avoidance-related subscales suggested they capture overlapping but non-redundant constructs. Thus, using all three avoidance subscales would be a reasonable option. The content of the Self-Reliance subscale reflects a key secondary attachment strategy used by those high in attachment avoidance and is unique relative to what is included in the avoidance scale of the ECR-R. If the aim is to capture attachment avoidance in a manner similar to the ECR-R, the Preference for Distance and the Restricted Expression of Emotion subscales would likely be the most appropriate options. The Preference for Distance subscale is comprised primarily of reverse scored avoidance items, and it includes items (e.g., "How helpful is it for you to turn to your romantic partner in times of need?") that are very similar to reverse scored items in the avoidance scale of the ECR-R. The Restricted Expression of Emotion subscale has three items (e.g., "How often do you discuss your problems and concerns with others?") that are similar to ECR-R avoidance scale items. However, it also includes two items related to suppression (i.e., ability to ignore a problem and attempting to block out or ignore upsetting memories).

## DAS

The DAS was included in the TAB to address Mikulincer and Shaver's (2007, 2016) calls for a measure that directly assesses disorganized attachment. Similar to the original measure (Paetzold et al., 2015), it had a single factor solution. It had excellent internal consistency and good to excellent test-retest reliability. In the higher-order factor analysis, the DAS had salient loadings on both the anxiety and avoidance factors. Thus, as would be expected on the basis of theory, it overlaps with both anxiety and avoidance.

This pattern of findings is supportive of the construct validity of the DAS. However, the pattern of associations between the DAS and the other attachment measures also points to the possibility that scores on it may simply reflect the absence of security. Additional research is required to determine whether the DAS provides unique information about attachment beyond that captured by the other attachment measures (i.e., incremental validity).

## Limitations and Future Directions

Additional factor analytic research is required to determine whether: (a) the empirically-derived subscales utilized in the current study can be replicated, and (b) the factor structures of the scales are invariant across groups that would be expected to differ in terms of attachment characteristics (e.g., those in a romantic relationship vs. those not in a romantic relationship). This research could identify consistently weak items (e.g., those with low primary loadings or substantial cross-loadings). The deletion of such items could reduce the time needed to compete the TAB, and would improve the factor structures of its scales (viz., simple structure and total variance accounted for).

The largest limitation of the study is arguably the restricted assessment of the validity of the TAB measures. Their correlations with the measure of psychopathology provide some partial preliminary support (viz., convergent validity) for their construct validity. Further research assessing the convergent and discriminant validity of the new measures is required. This could involve examining their associations with well-established attachment measures as well as other variables within the nomological network surrounding adult attachment. Such research could include variables thought to be involved in the development of attachment insecurity (e.g., neglect during childhood) and variables reflecting current functioning that are theoretically linked to specific attachment measures (e.g., mentalizing could be related to the Emotional Attunement subscale). Research investigating the incremental validity of the TAB is also warranted. Given the widespread use of ERC and ECR-R, it is unlikely that the much longer TAB would replace these measures. However, it is possible that the Sense of Support and Respect subscale might perform equally well as either the ECR or ECR-R in some contexts, such as predicting psychological distress. In such a situation, the Sense of Support and Respect subscale would be a more pragmatic method of assessing attachment. It also remains possible that the TAB could outperform established measures and be used in contexts in which a more comprehensive assessment of attachment is feasible.

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## References

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

Bäckström, M., & Holmes, B. M. (2007). Measuring attachment security directly: A suggested extension to the two-factor adult attachment construct. *Individual Differences Research, 5*(2), 124–149.

Bowlby, J. (1969). *Attachment (Attachment and loss, Vol. 1)*. Penguin Books.

Bowles, T. (2010). The brief attachment adjective checklist: A measure of the fourfold definition of the theory of attachment. *Journal of Relationships Research, 1*(1), 17–30. https://doi.org/10.1375/jrr.1.1.17

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

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284–290. https://doi.org/10.1037/1040-3590.6.4.284

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*, Article 7. https://doi.org/10.7275/jyj1-4868

Dima, A. L. (2018). Scale validation in applied health research: Tutorial for a 6-step R-based psychometrics protocol. *Health Psychology and Behavioral Medicine, 6*(1), 136–161. https://doi.org/10.1080/21642850.2018.1472602

Ein-Dor, T., Mikulincer, M., Doron, G., & Shaver, P. R. (2010). The attachment paradox: How can so many of us (the insecure ones) have no adaptive advantages? *Perspectives on Psychological Science, 5*(2), 123–141. https://doi.org/10.1177/1745691610362349

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*(2), 350–365. https://doi.org/10.1037/0022-3514.78.2.350

Koo, T. K., & Mae, L. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155–163. https://doi.org/10.1016/j.jcm.2016.02.012

Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Lowe, B. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ-4. *Psychosomatics, 50*(6), 613–621. https://doi.org/10.1176/appi.psy.50.6.613

Krosnick, J. A., & Presser, S. (2010). Question and questionnaire design. In P. V. Marsden & J. D. Wright (Eds.), *Handbook of survey research* (2nd ed., pp. 263–313). Emerald Group Publishing.

Maunder, R. G., & Hunter, J. J. (2012). A prototype-based model of adult attachment for clinicians. *Psychodynamic Psychiatry, 40*(4), 549–573. https://doi.org/10.1521/pdps.2012.40.4.549

McWilliams, L. A., & Coveney, A. (2020). Development and preliminary psychometric evaluation of the Tripartite Attachment Battery. *Psychreg Journal of Psychology, 4*(2), 112–122. https://doi.org/10.5281/zenodo.3872093

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

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in adulthood: Structure, dynamics, and change* (2nd ed.). Guilford Press.

Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion, 27*(2), 77–102. https://doi.org/10.1023/A:1024515519160

Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment dimensions. *Journal of Personality and Social Psychology, 97*(4), 615–633. https://doi.org/10.1037/a0015649

Paetzold, R. L., Rholes, W. S., & Kohn, J. L. (2015). Disorganized attachment in adulthood: Theory, measurement, and implications for romantic relationships. *Review of General Psychology, 19*(2), 146–156. https://doi.org/10.1037/gpr0000042

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson Education.