

Article

Associations Between Explicit and Implicit Self-Esteem and Attachment in Singles and Partnered Adults

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Abstract

Self-esteem and attachment are core constructs in adult relational functioning, yet their interrelations across levels of cognitive processing have remained understudied. This study investigated how explicit and implicit attachment styles relate to self-esteem in individuals seeking a romantic partner ($N = 399$) and in a partnered sample ($N = 108$). Participants completed explicit attachment and self-esteem scales, along with three single-target Implicit Association Tests (IATs) assessing implicit self-esteem and avoidant and anxious attachment styles. Regression analyses were conducted using explicit and implicit attachment as predictors of explicit and implicit self-esteem while controlling for covariates. In singles, explicit anxious attachment was negatively associated with explicit self-esteem, while implicit anxious attachment and implicit avoidant attachment were negatively associated with implicit self-esteem. No cross-level associations were found, supporting a parallel-level interpretation in which explicit and implicit variables relate primarily within, rather than across, processing levels. The same regression models applied to the partnered sample showed generally similar trends, although the associations observed in singles for explicit anxious and implicit avoidant attachment were not detected in the partnered group. The inclusion of implicit measures provides new insight into non-conscious relational insecurity, with both implicit anxious and avoidant attachment showing negative associations with implicit self-esteem.

Keywords: self-esteem; adult attachment; explicit-implicit associations; romantic relationships; singles and partnered adults



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1. Introduction

Attachment and self-esteem are two foundational constructs in adult relational functioning, and both have been extensively studied. However, the relationship between these constructs—especially when considering both implicit and explicit cognitive processing levels—was thus far empirically underexplored. While explicit self-esteem and attachment have been investigated in many studies, implicit measures—especially of general adult attachment—are understudied. Moreover, little is known about whether these associations manifest similarly across different relational contexts, such as singlehood and committed partnerships.

1.1. Self-Esteem and Attachment as Key Factors in Relationship Dynamics

Self-esteem has long been recognized as a determinant of interpersonal functioning. Individuals with chronically low self-worth often display heightened vigilance to signs of rejection and may interpret ambiguous social cues in disproportionately negative ways (Erol & Orth, 2016; Harris & Orth, 2020). Such tendencies can interfere with the formation and maintenance of close relationships by promoting withdrawal, self-protective behavior, or difficulty trusting positive feedback (e.g., Murray et al., 2000). In contrast, individuals with a more stable and positive sense of self typically approach relational situations with greater confidence and flexibility, which may facilitate emotional closeness and more adaptive regulation of intimacy and distance (e.g., Mikulincer & Shaver, 2016).

Attachment theory provides a framework for understanding how individuals organize expectations about closeness, support, and personal worth in intimate relationships. Adult attachment styles are generally captured along two orthogonal dimensions (e.g., Bartholomew & Horowitz, 1991; Fraley & Shaver, 2000). The anxiety dimension reflects concerns about rejection and amplified needs for reassurance, whereas the avoidance dimension captures discomfort with dependency and a preference for emotional distance. Higher levels on either dimension have been linked to reduced comfort with intimacy, greater relational strain, and lower relationship satisfaction across a variety of contexts (Hudson & Fraley, 2017; Mikulincer & Shaver, 2016).

Prior research has consistently shown that both low self-esteem and attachment insecurity can undermine emotional closeness, trust, and responsiveness in relationships (Murray et al., 1996, 2000, 2008). These two processes—self-evaluation and relational expectation—are thought to interact, with numerous studies reporting moderate correlations between self-esteem and attachment (e.g., Mikulincer & Shaver, 2016; Pinquart, 2023; Schmitt & Allik, 2005).

1.2. The Association Between Attachment and Self-Esteem

A comprehensive review by Mikulincer and Shaver (2016) summarized findings from over 100 empirical studies conducted between 1987 and 2015, investigating links between attachment and global self-worth. Across this body of research, secure attachment was consistently associated with higher self-esteem, regardless of the specific attachment or self-esteem measure. A meta-analysis by Gorrese and Ruggieri (2013) confirmed this robust association, reporting an average correlation of $r = 0.27$ between secure peer attachment and self-esteem.

In contrast, attachment anxiety and avoidance show diverging patterns of association with self-esteem. Anxious attachment has been consistently and strongly negatively related to self-esteem in both cross-sectional and longitudinal studies (e.g., Dewitte et al., 2008; Mikulincer & Shaver, 2016). Avoidant attachment, by comparison, shows weaker and less consistent associations. Several large-scale studies even report no significant correlation between avoidance and global self-worth (e.g., Schmitt & Allik, 2005). These differences are theoretically meaningful: anxious individuals depend on others for approval and tend to internalize rejection, whereas avoidant individuals suppress closeness needs and protect fragile self-views by emotionally distancing themselves (Mikulincer & Shaver, 2016).

While these findings support a conceptual link, most studies have relied on self-report measures, potentially overlooking automatic, unconscious processes. Research using implicit measures reveals important distinctions between anxious and avoidant attachment patterns.

Anxiously attached individuals exhibit more negative self-evaluations on Implicit Association Tests (IATs), in narrative representations, and in memory-based tasks (e.g., Dewitte et al., 2008). Avoidantly attached individuals, by contrast, may suppress or com-

partmentalize negative self-views, obscuring such associations unless defensive strategies are bypassed (Edelstein & Gillath, 2008; Mikulincer et al., 2004; Mikulincer & Shaver, 2016). Given these differential findings in the literature, it is important to model anxious and avoidant styles as distinct dimensions when investigating how attachment relates to self-esteem across explicit and implicit levels of processing.

1.3. Explicit and Implicit Self-Esteem in Relation to Attachment

While the association between attachment and explicit self-esteem is well-established as measured through self-report questionnaires, less is known about how these constructs relate at the implicit level. Implicit self-esteem has been conceptualized as a relatively stable evaluative bias that may operate outside of conscious awareness and influence affective responses and social behavior (Greenwald & Farnham, 2000; Bosson et al., 2000).

Implicit associations are less subject to volitional self-control (McNally, 1995), and are considered less susceptible to social desirability demands (Riketta, 2005). In contrast to explicit self-esteem, which reflects deliberate and consciously accessible self-evaluations, implicit self-esteem captures spontaneous affective responses toward the self that are activated under conditions of limited cognitive control. Because these automatic evaluations are not fully accessible to introspection, they cannot be reliably assessed through standard self-report measures and may also remain invisible to external observers, particularly when defensive strategies are active.

Explicit self-esteem refers to consciously accessible self-evaluations, whereas implicit self-esteem reflects automatic self-associations, typically assessed with indirect measures such as the Implicit Association Test (Greenwald & Banaji, 1995; De Houwer et al., 2009).

Research has shown that implicit and explicit self-esteem are often only weakly correlated (Mikulincer & Shaver, 2016; Hofmann et al., 2005) and may independently predict behavior (Greenwald et al., 2009). Nevertheless, these weak associations are theoretically meaningful, as they are in line with the dual-process view that implicit and explicit self-esteem reflect partly independent evaluative systems that operate under different cognitive conditions. This distinction is postulated, for example, in the dual-process model of Strack and Deutsch (2004), which posits that human cognition operates as two interacting systems, a reflective system (deliberate, conscious processing) and an impulsive system (automatic, unconscious processing), where the two systems function optimally under different cognitive conditions.

1.4. Current Study

Despite growing interest in dual-process models and implicit measures of self-evaluation (e.g., Strack & Deutsch, 2004; Greenwald & Farnham, 2000; Jordan & Zeigler-Hill, 2020), few studies have examined how implicit and explicit self-evaluations relate to adult attachment styles. The present study addresses this gap by including both processing levels in a single design.

We conducted a cross-sectional study in two independent samples: single adults seeking a romantic partner and partnered individuals in ongoing relationships. Because self-esteem is partly sustained by ongoing relational feedback (Murray et al., 2000), attachment–self-esteem associations may manifest differently in individuals currently in relationships compared to those seeking one. Prior research has shown that relationship status is positively associated with self-esteem levels (Luciano & Orth, 2017) and that attachment patterns can shift across relationship transitions (Kirkpatrick & Hazan, 1994; Chopik et al., 2019). Testing whether similar patterns emerge across these relational contexts provides insight into the generalizability of these associations.

Prior research has shown that age and gender can affect self-esteem (Bleidorn et al., 2016) and attachment styles (Chopik et al., 2013; Del Giudice, 2009). Because we were mainly interested in the associations between self-esteem and attachment styles as key constructs, age, education level, and gender were included as covariates in the analyses to control for potential confounding effects.

The primary objective of the present study was to examine whether associations between attachment and self-esteem occur primarily within or across levels of cognitive processing. We further examined whether these patterns generalize across relational contexts (i.e., singles seeking a partner and partnered individuals).

Hypotheses

Based on the literature reviewed above, we formulated the following hypotheses. First, we expect that explicit anxious attachment and explicit avoidant attachment are negatively associated with explicit self-esteem, controlling for age, gender, and education (H1). Second, we expect that implicit anxious attachment and implicit avoidant attachment are negatively associated with implicit self-esteem (H2).

In line with dual-process perspectives, cross-level associations between implicit and explicit constructs may be less pronounced than within-level associations. Meta-analytic and empirical work indicates that implicit and explicit measures of the same evaluative construct are typically only modestly correlated, with reported correlations ranging from approximately $r = 0.24$ to $r = 0.37$ (Hofmann et al., 2005; Nosek, 2005). These modest associations suggest that implicit and explicit measures partly reflect distinct evaluative processes operating under different cognitive conditions. Accordingly, when examining relations between different constructs across processing levels (e.g., implicit attachment and explicit self-esteem), strong associations are theoretically less likely than within-level associations.

In line with the dual-process framework (Strack & Deutsch, 2004), these hypotheses assume parallel-level associations between constructs measured at the same level of cognitive processing. Cross-level associations (e.g., implicit attachment predicting explicit self-esteem or explicit attachment predicting implicit self-esteem) were included in the analysis on an exploratory basis and were not formally hypothesized.

2. Methods

2.1. Participants

The first sample ($N = 399$) consisted of single adults who had recently enrolled in a Dutch matchmaking program including individualized coaching. During their intake process, participants were informed about the study and invited to participate. Those who agreed provided informed consent and completed an online survey assessing explicit self-esteem and explicit attachment. Next, they completed Implicit Association Tests (IATs) to measure implicit self-esteem and implicit attachment.

The second sample of partnered individuals was included for exploratory comparison. This sample ($N = 108$) was recruited within the social networks of psychology students of Open University of the Netherlands. Inclusion criteria were age (≥ 18 years), being in a romantic relationship, and sufficient understanding of the Dutch language. In both samples, informed consent was obtained prior to participation, and all data were anonymized. Participants were informed of their right to withdraw at any time without consequences.

2.2. Study Design

This study used a cross-sectional design with two independent samples: singles seeking a partner and individuals in relationships. Including both groups allowed us to examine whether attachment–self-esteem associations generalize across relational contexts,

consistent with recommendations for testing boundary conditions (Anderson & Maxwell, 2016). In the analyses, attachment styles were modeled as predictor variables and self-esteem as the criterion variable.

2.3. Measures

Explicit self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), a widely used 10-item questionnaire measuring global self-worth (e.g., “On the whole, I am satisfied with myself”). Responses were given on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The internal consistency in the present study was good, with Cronbach’s $\alpha = 0.87$ in singles and $\alpha = 0.85$ in partnered individuals.

Implicit self-esteem was assessed using an indirect evaluative task designed to capture automatically activated self-associations. During the task, participants made rapid judgments involving self-related and valenced content, enabling the assessment of spontaneous positive or negative self-evaluations under conditions of limited deliberation. The task assessed global evaluative self-associations rather than domain-specific self-esteem content. Stimuli consisted of self-related words (e.g., ‘me’, ‘myself’) and valenced attributes (positive vs. negative adjectives). The implicit self-esteem score is based on the difference in reaction times between trials in which self-related words are paired with positive attributes and trials in which they are paired with negative attributes; faster responses in the former relative to the latter indicate a more positive implicit self-evaluation (Greenwald et al., 2003). D-scores were computed using the D600 algorithm (Greenwald et al., 2003) and used as an index of implicit global self-evaluation. This measure captures automatic self-evaluative associations and is intended as the implicit counterpart of explicit global self-esteem. Internal consistency was acceptable, with split-half reliabilities of $r = 0.76$ in the singles sample and $r = 0.73$ in the partnered sample.

The explicit attachment style was assessed using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), which captures general adult attachment. This questionnaire was designed to classify individuals into one of four attachment styles, secure, anxious, avoidant, and fearful-avoidant, based on participants’ self-perceptions of their ways of interacting with others in close relationships. Participants selected the description that best matched their experiences. For the regression analyses, attachment was coded into two dummy variables representing anxious and avoidant attachment styles, with secure attachment as the reference category.

In this study, adult attachment was modeled categorically rather than dimensionally. This decision followed directly from the research question. Our aim was not to test whether attachment anxiety or avoidance is linearly related to self-esteem but to examine whether insecure attachment orientations, relative to secure attachment, are associated with differences in self-esteem. A categorical representation is well suited to this aim because it allows for the examination of threshold effects and qualitative differences between attachment patterns. Such differences are central to attachment theory, which conceptualizes attachment as organized patterns of affect regulation and interpersonal behavior (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2016; Ravitz et al., 2010). Although categorical classifications are grounded in underlying dimensional models of self and other (Griffin & Bartholomew, 1994), they remain appropriate when research questions focus on prototypical patterns rather than subtle dimensional variation (Fraley et al., 2015). These qualitative contrasts are more apparent when attachment is modeled as prototypes rather than only as continuous anxiety and avoidance dimensions.

Implicit attachment anxiety and avoidance were assessed using two indirect associative tasks designed to capture automatically activated relational tendencies. Existing implicit attachment measures have primarily focused on attachment to specific figures, such

as parents or romantic partners. While informative, implicit measures targeting specific attachment figures are less suited to capturing general adult attachment orientations in a way that can be directly compared across relational contexts, such as singles seeking a partner versus partnered individuals. The present study therefore employed two Single-Target Implicit Association Tests (ST-IATs) designed to assess general adult attachment styles independent of a specific attachment figure. This approach enabled the assessment of implicit attachment-related tendencies in both singles and partnered individuals and allowed for direct comparison across relational contexts.

In each task, participants made rapid evaluations involving self-related stimuli and attachment-relevant content, allowing the task to detect spontaneous activation of anxious or avoidant styles under conditions of limited deliberation. The resulting indices represent the relative accessibility of attachment-related concerns or distancing tendencies at an automatic level. The tasks followed standard principles for implicit assessment and were implemented uniformly across participants.

A pilot study was conducted to select stimulus words representing relational anxiety and avoidance. Based on the attachment literature (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2016), 43 candidate adjectives were generated and independently categorized by 18 psychologists and 5 professional matchmakers as “relationally avoidant,” “not relationally avoidant,” “relationally anxious,” “not relationally anxious,” or “not suitable.” Stimuli rated as most representative of each target category were subsequently selected, following established procedures for stimulus selection in implicit tasks (Nosek, 2005; see Visser et al., 2021).

In the partnered sample, the IATs had been administered twice with 4 weeks in between, but only the first measurement was used for the present study to maintain consistency with the singles sample, which had only one measurement occasion.

Further psychometric details regarding the development and validation of these implicit attachment measures can be found in Visser et al. (2021).

2.4. Data Analysis

2.4.1. Preliminary Analyses

Prior to the regression analyses, the assumptions of linear regression were evaluated. Normality of residuals was assessed through visual inspection of histograms and normal Q-Q plots of standardized residuals. Although normality tests were sensitive in this sample, visual inspection indicated approximately normal residual distributions across models.

Homoscedasticity was examined using scatterplots of standardized residuals against standardized predicted values, which showed no systematic patterns or evidence of heteroscedasticity.

Multicollinearity was assessed using variance inflation factors (VIFs) and tolerance values. All VIFs were low (range ≈ 1.03 – 1.22), indicating no concerns regarding multicollinearity.

Potential outliers and influential cases were evaluated using standardized residuals, the Mahalanobis distance, Cook’s distance, and leverage values. Although a small number of cases showed standardized residuals exceeding ± 3 , Cook’s distances remained low (maximum = 0.14) and leverage values were minimal, indicating that no individual cases exerted undue influence on the regression estimates. All cases were therefore retained.

2.4.2. Main Analyses

All analyses were performed using IBM SPSS version 24.0 (IBM Corp, 2016), with a significance threshold of 5%. Continuous variables were standardized before analysis. Explicit attachment was recoded into binary dummy variables representing anxious and avoidant attachment styles, with secure attachment as the reference category.

Hypotheses were tested using multiple regression analyses. Two models were specified, one predicting explicit self-esteem and one predicting implicit self-esteem, with attachment styles (explicit and implicit anxious and avoidant) entered as predictor variables and with age, gender, and education entered as covariates. All predictors were entered simultaneously.

2.4.3. Exploratory Analyses

In the partnered sample, the same regression models and correlation analyses were conducted as in the single sample. Descriptive comparisons between the two samples were also conducted to contextualize any observed differences.

3. Results

3.1. Sample Characteristics and Descriptive Statistics

Of the 399 participants in the singles sample, 356 completed the explicit self-esteem measure, and 270 completed all three IATs. The reduction in sample size for the implicit measures was due to technical issues during online administration and participants who did not complete the full assessment battery. Only participants with complete data on all implicit measures were included in the regression analyses.

Table 1 presents descriptive statistics for the key variables in both samples.

Table 1. Descriptive statistics and reliabilities for explicit and implicit measures in singles and partnered individuals.

Variable	Singles M	Singles SD	Singles α/r	Partnered M	Partnered SD	Partnered α/r
Explicit self-esteem	21.47	4.86	0.87	21.79	4.93	0.85
Implicit self-esteem	0.31	0.36	0.76	0.28	0.34	0.73
Explicit anxious attachment	2.89	0.94	—	2.71	0.88	—
Explicit avoidant attachment	2.64	0.91	—	2.58	0.87	—
Implicit anxious attachment	−0.18	0.41	—	−0.21	0.38	—
Implicit avoidant attachment	−0.29	0.39	—	−0.33	0.37	—
Age	34.62	11.28	—	45.16	10.96	—

Note. For implicit measures, split-half reliabilities (r) are reported. Cronbach's alpha (α) is reported for explicit self-esteem. Higher scores indicate higher levels of self-esteem or attachment-related insecurity. Age is reported in years.

Explicit self-esteem scores showed a relatively normal distribution with a mean above the scale midpoint. Implicit self-esteem scores clustered around zero (the IAT midpoint), while both implicit attachment dimensions showed negative mean D-scores, indicating weaker associations with insecure attachment characteristics.

3.2. Regression Analyses in Singles Sample

Two multiple regression analyses were conducted to test the study hypotheses. Table 2 presents the results for the regression models predicting explicit and implicit self-esteem in the singles (and partnered samples).

Table 2. Multiple regression analyses predicting explicit and implicit self-esteem in singles and partnered individuals.

Predictor	Singles—Explicit SE β	Singles—Implicit SE β	Partnered—Explicit SE β	Partnered—Implicit SE β
Explicit anxious attachment	−0.226 ***	0.110	−0.183	0.010
Explicit avoidant attachment	0.024	0.006	−0.050	−0.125
Implicit anxious attachment	0.029	−0.180 **	0.151	−0.252 *
Implicit avoidant attachment	−0.068	−0.228 ***	−0.191	−0.177
Age	0.021	−0.061	0.132	−0.410 **
Gender	0.152 *	−0.027	—	—
Relationship duration	—	—	0.111	0.216
Education	0.091	0.102	0.095	−0.147
R^2	0.087	0.140	0.131	0.214
F	3.57 ***	5.97 ***	2.14 *	3.84 **

Note. Standardized beta coefficients (β) are reported. Explicit anxious and avoidant attachment were dummy-coded with secure attachment as the reference category. Implicit attachment variables reflect IAT-based D-scores and were entered as continuous predictors. Gender was coded as 0 = male, 1 = female (singles sample only). Age, education, and relationship duration (partnered sample only) were included as covariates. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The overall model was statistically significant ($F(7, 262) = 3.57, p = 0.001, R^2 = 0.087$).

Explicit anxious attachment was significantly negatively associated with explicit self-esteem ($\beta = -0.226, p < 0.001$). Explicit avoidant attachment did not show a significant association ($\beta = 0.024, p = 0.696$). Neither implicit anxious attachment ($\beta = 0.029, p = 0.661$) nor implicit avoidant attachment ($\beta = -0.068, p = 0.309$) were significantly associated with explicit self-esteem. Among the covariates, only gender emerged as a significant predictor, with women reporting higher explicit self-esteem than men ($\beta = 0.152, p = 0.013$). As shown in Table 2, the model predicting implicit self-esteem was statistically significant, $F(7, 262) = 5.97, p < 0.001, R^2 = 0.140$.

Both implicit attachment dimensions showed significant associations with implicit self-esteem. Implicit anxious attachment was negatively associated with implicit self-esteem ($\beta = -0.180, p = 0.005$), as was implicit avoidant attachment ($\beta = -0.228, p < 0.001$). None of the explicit attachment styles were significantly associated with implicit self-esteem (anxious: $\beta = 0.110, p = 0.071$; avoidant: $\beta = 0.006, p = 0.915$). None of the covariates reached statistical significance.

3.3. Regression Analyses in Partnered Sample

To examine whether the observed associations would generalize to individuals in ongoing relationships, the same regression models were tested in the partnered sample ($N = 108$). Table 2 presents the regression results for explicit self-esteem in the partnered sample. The overall model was statistically significant, $F(7, 100) = 2.14, p = 0.046, R^2 = 0.131$. Explicit anxious attachment was not significantly associated with explicit self-esteem ($\beta = -0.183, p = 0.084$). None of the other attachment styles or covariates were significantly associated with explicit self-esteem. Table 2 also shows the results for the model predicting implicit self-esteem in the partnered sample. This model was also significant, $F(7, 100) = 3.84, p = 0.001, R^2 = 0.214$. Implicit anxious attachment was negatively associated with implicit self-esteem ($\beta = -0.252, p = 0.014$), while implicit avoidant attachment did not reach significance ($\beta = -0.177, p = 0.087$). Age emerged as a significant covariate ($\beta = -0.410, p = 0.006$), with older participants showing lower implicit self-esteem. No cross-level associations were observed.

To facilitate interpretation, Table 3 provides a concise overview of the study hypotheses and whether they were supported by the regression analyses.

Table 3. Overview of hypotheses and outcomes.

Hypothesis	Description	Outcome
H1a	Explicit attachment orientation is associated with explicit self-esteem	Supported
H1b	Explicit attachment orientation is associated with implicit self-esteem	Not supported
H2a	Implicit attachment orientation is associated with implicit self-esteem	Supported
H2b	Implicit attachment orientation is associated with explicit self-esteem	Not supported
H3	Patterns of association are comparable across singles and partnered individuals	Largely supported

Note. Outcomes are based on the regression analyses reported in Table 2. “Supported” indicates statistically significant associations in the hypothesized direction; “Not supported” indicates non-significant associations. “Largely supported” reflects consistent patterns across groups, despite minor variations in specific effects.

Across analyses, explicit attachment was positively associated with explicit self-esteem, and implicit attachment was positively associated with implicit self-esteem. Cross-level associations were small and not consistently observed across relational contexts.

4. Discussion

4.1. Patterns of Association

This study examined associations between explicit and implicit self-esteem and attachment in singles seeking a partner and in partnered individuals. The results supported a parallel-level interpretation, with associations occurring primarily within processing levels rather than across them.

In the singles sample, explicit anxious attachment was negatively associated with explicit self-esteem, consistent with extensive previous research documenting that attachment anxiety undermines self-esteem (Mikulincer & Shaver, 2016; Foster et al., 2007). At the implicit level, both anxious and avoidant attachment were negatively associated with implicit self-esteem. The absence of significant cross-level associations aligns with dual-process models distinguishing between associative and propositional processes (Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004).

The partnered sample showed a broadly similar pattern, although the association between explicit anxious attachment and explicit self-esteem did not reach significance. This difference between samples may reflect reduced statistical power, but it might also suggest that relationship status plays a role in these associations. Research has shown that relationship transitions can influence both self-esteem (Lehnart et al., 2010; Luciano & Orth, 2017) and attachment patterns (Chopik et al., 2019). The ongoing relational feedback available to partnered individuals may provide a buffer against attachment-related self-esteem vulnerabilities (Murray et al., 2000; Erol & Orth, 2016).

At the implicit level, anxious attachment was negatively associated with implicit self-esteem in both samples. This finding aligns with research showing that automatic relational schemas shape self-evaluations outside conscious awareness (Dewitte et al., 2008; Zayas & Shoda, 2005).

Implicit avoidant attachment showed a different pattern across samples. While it was negatively associated with implicit self-esteem in the singles sample, this association was not significant in the partnered sample. Although this difference may simply reflect reduced statistical power, it could also suggest that defensive strategies characteristic of avoidant attachment operate differently across relational contexts. Avoidantly attached individuals engage in defensive exclusion of attachment-related information, suppressing negative self-views to maintain a positive self-image (Mikulincer et al., 2004; Mikulincer & Shaver, 2016). Research has shown that they limit self-disclosure and distrust partner feedback, which

prevents partners from truly knowing them (Emery et al., 2018). These defensive processes operate particularly at the implicit level, where avoidant individuals show positivity biases and decreased accessibility of negative self-representations (Edelstein & Gillath, 2008).

For singles seeking a partner, the absence of an established relationship may create more variable defensive patterns. Without a consistent relational context, their defensive strategies may fluctuate between self-protective distancing and the competing need to engage for potential connection, making negative self-associations more detectable through implicit measures. In contrast, partnered individuals have likely established stable defensive routines within their relationships. This stability in defensive processing may create more consistent suppression of negative self-views, potentially reducing the variability that the IAT methodology can detect (Mikulincer et al., 2004).

In addition to these attachment-related patterns, age and gender emerged as significant covariates in specific models and merit brief consideration. Age-related differences in implicit self-esteem may reflect developmental and relational processes that unfold across adulthood, including cumulative relational experiences and changing self-evaluations over the life course. Prior research suggests that self-esteem and attachment-related representations continue to evolve in midlife and older adulthood, particularly in response to long-term relational contexts (e.g., Chopik et al., 2019; Luciano & Orth, 2017).

Gender differences in explicit self-esteem, observed in the singles sample, are consistent with earlier findings indicating systematic variation in self-evaluative processes between men and women in adulthood (Bleidorn et al., 2016). Importantly, in the present study, age and gender functioned as covariates rather than primary predictors, and their effects should therefore be interpreted as contextual influences operating alongside attachment-related processes rather than as focal explanatory mechanisms.

The overall pattern of results—with associations occurring primarily within rather than across processing levels—extends previous work on implicit attachment processes by examining general adult attachment rather than attachment to specific figures (Zayas & Shoda, 2005). This parallel-level pattern underscores that explicit and implicit measures tap into distinct but related aspects of attachment and self-esteem, highlighting the value of assessing both levels to fully understand these constructs in relational contexts.

4.2. Interpreting Effect Sizes and Practical Relevance

Before turning to limitations, it is important to contextualize the effect sizes observed in the present models. The R^2 values across models ranged from 9% to 21%, indicating that attachment accounts for a systematic but limited proportion of variance in self-esteem. Several study-specific features may contribute to this pattern, including the use of categorical attachment representations, which collapse within-category variation, and the modest split-half reliability of the implicit measures ($r = 0.73$ – 0.76), both of which can attenuate observed associations.

Beyond measurement considerations, self-esteem is shaped by multiple factors—such as personality traits, relational context, and life experiences—most of which were not captured in the present models, which included only attachment styles and basic demographic covariates. As a result, the findings describe group-level associations rather than providing accurate predictions for individual outcomes. They characterize how attachment-related self-evaluations differ across levels of cognitive processing, but cannot support individual-level prediction or clinical decision-making.

4.3. Strengths and Limitations

This study has several strengths. First, explicit and implicit attachment styles were included in the same regression models, allowing for a direct comparison of their unique

contributions to explicit and implicit self-esteem. Second, the inclusion of two independent samples (singles and partnered individuals) enabled an initial examination of whether patterns generalize across relational contexts.

This study also has several limitations. First, although the analytic structure was identical across samples, statistical power was lower in the partnered group, which limits the strength of cross-sample comparisons. This is particularly relevant given that explicit anxious attachment was significantly associated with explicit self-esteem in the singles sample, but not in the partnered sample, and implicit avoidant attachment was significantly associated with implicit self-esteem in singles but not in partnered individuals. Second, the cross-sectional design precludes any directional conclusions regarding how attachment and self-esteem influence one another.

Third, although implicit and explicit variables were measured in parallel, the analyses relied on observed scores rather than latent modeling approaches such as structural equation modeling. Future studies could use SEM to test more refined models of parallel and cross-level processes. Lastly, the operationalization of implicit attachment relied on a relatively novel adaptation of the IAT. While the IAT demonstrated internal consistency and theoretical convergence with self-esteem measures, its construct validity remains an area for further examination. Replication studies using alternative implicit measures (e.g., affect misattribution, priming tasks) might help to establish robustness.

As with all cross-sectional designs, the present findings do not allow for conclusions about the directionality of the observed associations.

4.4. Implications for Clinical Practice

Although causal conclusions cannot be drawn from these cross-sectional findings, the observed associations suggest that the association between anxious attachment and explicit self-esteem might be moderated by relationship status, which could have implications for intervention strategies. For singles with anxious attachment styles, the observed link with lower self-esteem suggests that cognitive-behavioral interventions targeting self-esteem may be particularly beneficial. Such interventions could include self-compassion training (Neff & McGehee, 2010), cognitive restructuring of negative self-schemas (Beck et al., 1979), and behavioral experiments to challenge self-critical beliefs. Building a more stable sense of self-worth before entering a relationship may help these individuals develop more secure relationship patterns (Stinson et al., 2015).

In contrast, for individuals with self-esteem or attachment issues who are currently in a relationship, different therapeutic approaches may be more appropriate. The buffering effect of the relationship suggests that interventions could leverage this existing resource rather than focusing primarily on individual self-esteem. Evidence-based approaches such as Emotionally Focused Therapy (Johnson, 2019), which directly addresses attachment insecurities within the relational context, or mindfulness-based interventions that improve emotion regulation in attachment-related distress (Pepping et al., 2017), may be more effective. These approaches recognize that for partnered individuals with anxious attachment, the relationship itself serves a regulatory function that can be therapeutically enhanced rather than bypassed.

The parallel-level pattern observed in our study also has implications for assessments and intervention planning. Given that explicit and implicit measures showed only modest correlations, relying solely on self-report measures may miss important aspects of relational functioning that operate outside conscious awareness, regardless of relationship status.

4.5. Conclusions

This study examined how explicit and implicit attachment styles relate to self-esteem across two samples differing in relationship status. Three key findings emerged:

First, the results support a parallel-level framework, with associations occurring primarily within rather than across processing levels. Explicit attachment styles were associated with explicit self-esteem, while implicit attachment styles were associated with implicit self-esteem, with no significant cross-level associations observed.

Second, the different patterns observed between singles and partnered individuals suggest that relationship status may play a role in these associations. Explicit anxious attachment showed a robust negative association with explicit self-esteem in the singles sample, but this association was not significant in the partnered sample. While the cross-sectional design and separate samples preclude causal conclusions, this pattern suggests that being in a relationship may buffer against the self-esteem vulnerabilities associated with attachment anxiety.

Third, by incorporating both explicit and implicit measures across two relational contexts, this study provides preliminary evidence for the importance of considering relational context when examining attachment–self-esteem associations. The differential patterns observed between singles and partnered individuals, though requiring replication in larger samples, offer preliminary insights that may inform both theoretical understanding and clinical approaches to attachment-related difficulties.

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Informed Consent Statement: Informed consent was obtained from all participants prior to participation. All data were anonymized and sensitive data were encrypted and securely stored in compliance with ethical guidelines. Participants were informed of their right to withdraw at any time without consequences.

Data Availability Statement: The data and analysis scripts are available at https://osf.io/n9fcb/?view_only=dbbdf8ab070c4800ab7ddeb3099bfff03 (accessed on 2 February 2026).

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