Autobiographical Memory Phenomenology and Content Mediate Attachment Style and Psychological Distress

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In 2 studies, the present research tested the phenomenology and content of autobiographical memory as distinct mediators between attachment avoidance and anxiety and depressive symptoms. In Study 1, participants ($N = 454$) completed measures of attachment and depressive symptoms in 1 session and retrieved and rated 2 self-defining memories of romantic relationships in a separate session. In Study 2, participants ($N = 534$) were primed with attachment security, attachment insecurity, or a control prime and then retrieved and rated a self-defining relationship memory. Memory phenomenology, specifically memory coherence and emotional intensity, mediated the association between attachment avoidance and depressive symptoms, whereas the negative affective content of the memory mediated the association between attachment anxiety and depressive symptoms. Priming attachment security led to retrieval of a more coherent relationship memory, whereas insecurity led to the retrieval of a more incoherent relationship memory. Discussion focuses on the construction and recollection of memories as underlying mechanisms of adult attachment and psychological distress, the importance of memory coherence, and the implications for counseling research and practice.

Keywords: adult attachment, autobiographical memory, depression, phenomenology, coherence

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Given that relationships are an intrinsic human need (Baumeister, & Leary, 1995; Leary, 2007), it is not surprising that the way people approach interpersonal interactions matters for their psychological functioning, well-being, and mental health. Individuals high in attachment security, for example, tend to have higher levels of subjective well-being and self-esteem, perceive others as positive, and use adaptive coping mechanisms and strategies (c.f. Mikulincer & Shaver, 2007). In contrast, individuals high on either attachment anxiety or avoidance tend to suffer from psychological distress and psychopathology more than their securely-attached counterparts. For example, these individuals experience greater general anxiety, depression, and negative affect (e.g., Blatt & Levy, 2003; Muris, Meesters, van Melick, & Zwambag, 2001), have poorer coping skills (Wei, Heppner, & Mallinckrodt, 2003), and are more prone to anger (Mikulincer, 1998; Troisi & D'Argenio, 2004) and shame (Lopez et al., 1997) compared with individuals high on attachment security.

The link between attachment style and indicators of psychological distress, such as depression, has been frequently demonstrated, but the underlying mechanisms and specific mediators involved remain unclear. Both attachment style (e.g., Mikulincer & Orbach, 1995) and depression (e.g., Nandrino, Pezard, Posté, Réveillère, & Beaune, 2002) have been associated with the way in which people encode, store, retrieve, and construct their most personally meaningful memories. In the present research, we tested characteristics of autobiographical memories as one pathway through which individual differences in attachment style are associated with depressive symptoms. We propose that specific, measurable components of autobiographical memory mediate the relation between the attachment dimensions and psychological distress. We further propose that the cognitive component of autobiographical memory, that is, the phenomenological experience of the memory, will mediate this relation for attachment avoidance, whereas the emotional component of autobiographical memory, that is, the emotional content of the memory, will mediate this relation for attachment anxiety.

Attachment and Psychological Distress

The association between attachment insecurity and psychological distress is well established (for an extensive review, see Mikulincer & Shaver, 2007; Selcuk & Gillath, in press). Moving beyond simple correlations to a more process-oriented approach to attachment and psychological functioning, researchers have recently identified several underlying mechanisms through which attachment influences distress. For example, poor coping skills (Mikulincer, Shaver, & Pereg, 2003; Wei et al., 2003), a tendency for perfectionism (Wei, Heppner, Russell, & Young, 2006), and alexithymia (Mallinckrodt & Wei, 2005) mediate attachment insecurity and distress. Mediators specific to anxiety and avoidance have also been identified: Hypersensitivity to emotional cues mediates this relation for anxiety, but not avoidance, whereas refusal of social support mediates this relation for attachment avoidance, but not anxiety (Wei, Vogel, Ku, & Zakalik, 2005).

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As this brief summary of mediators shows, the path from attachment to distress is multifaceted. Indeed, Mikulincer and Shaver (2007) commented that "searching for a single, or most important, mediating mechanism seems to be a fruitless task" (p. 372). They argued, instead, that modifications to any one mediator may lead to positive changes throughout the entire network. Mallinckrodt and Wei (2005) echoed this argument and suggested that focusing on specific mediating factors in therapy, particularly when therapy is time limited, may be more effective than attempts to change the individual's attachment style. Autobiographical memory, a factor intimately involved in the therapy process, may be a particularly promising avenue in this regard.

Autobiographical memory is associated with both attachment style (Conway, Singer, & Tagini, 2004) and psychological distress (Hankin, Kassel, & Abela, 2005). These memories are the end result of a reconstructive process, and, as such, are malleable, particularly through therapy (Singer, 2005). Therefore, if specific aspects of autobiographical memories mediate the association between attachment and distress, then these aspects could potentially be modified through therapy, thereby improving the "entire network." More generally, multiple mediators give the therapist greater flexibility in formulating treatment plans specific to the individual client.

Attachment and Autobiographical Memories

Autobiographical memories offer a window into the emotional and motivational functioning of the individual (Singer & Salovey, 1993; Sutin & Robins, 2005). They provide the building materials for the construction and maintenance of self and identity (Conway & Pleydell-Pearce, 2000; Robinson, 1992), create meaning for the self (McLean, 2005), and promote intimacy when shared with others (Alea & Bluck, 2003). Memories, however, do not always serve positive functions: Retrieval style is related to depression vulnerability (Williams et al., 2007), rumination perpetuates depression (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998), and intrusive memories contribute to distress and posttraumatic stress disorder (Brewin, 2007). Thus, memories may serve as a vulnerability and/or pathway to psychological distress.

Two aspects of autobiographical memory—phenomenology and content—have been consistently related to distress (e.g., Gotlib et al., 2004; Williams et al., 2007) and may play different mediating roles for attachment avoidance and anxiety. For example, the phenomenological component of autobiographical memory, such as the memory's coherence or emotional intensity, may mediate attachment and distress for avoidance, but not anxiety. Narrative incoherence has long been associated with attachment avoidance (e.g., Bartholomew & Horowitz, 1991; Conway et al., 2004) and may result from memory deficits specific to attachment-related material (Edelstein, 2006; Edelstein & Gillath, 2008; Fraley & Brumbaugh, 2007) or attentional processes used by individuals high in avoidance (Gillath, Giesbrecht, & Shaver, 2008). In contrast to the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) definition of coherence, which focuses on how well the individual can discuss early childhood experiences in the present, we define *coherence* as the individual's personal experience of the event in the memory as a logical story, in a specific time and place, rather than fragments or the merging of similar experiences

(Sutin & Robins, 2007). Vague and incoherent memories may allow individuals high on avoidance to down-regulate their emotions; these individuals may retrieve disjointed memories to preemptively inhibit the activation of their attachment system. Yet, people rely on their memories to understand who they are, formulate where they are going, and develop intimacy with others (Bluck, Alea, Habermas, & Rubin, 2005); lacking this important tool may result in distress (Singer & Rexhaj, 2006). And indeed, the inability to retrieve memories contextualized in a specific time and place predicts depressive symptoms between 6 months and 1 year later (Brittlebank, Scott, Williams, & Ferrier, 1993; Dalgleish, Spinks, Yiend, & Kuyken, 2001), and major depressive diagnosis status 1 month later (Hermans et al., 2008), even after controlling for initial levels of depression. In addition, some evidence suggests that experimental induction of overgeneral memories leads to greater rumination, a cognitive style highly related to depression (Raes, Hermans, Williams, Geypen, & Eelen, 2006).

Emotional intensity is a second dimension of phenomenology, independent of memory content (Sutin & Robins, 2007), that may serve to mediate avoidance and distress. Individuals high on avoidance report less emotional intensity in their everyday lives (Searle & Meara, 1999), and avoidance has been associated with the retrieval of memories with relatively shallow emotional content (Mikulincer & Orbach, 1995). Less emotionally intense memories, in turn, have been found to predict depressive symptoms 1 year later, controlling for initial depression status (Rottenberg, Joormann, Brozovich, & Gotlib, 2005). Thus, for individuals high on avoidance, one pathway to distress may be through emotionally impoverished memories.

In contrast to avoidance, attachment anxiety may be more strongly related to the emotional content of memories than phenomenology. Individuals who score high in attachment anxiety have easily accessible memories of negative experiences (e.g., Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005; Mikulincer et al., 2003) that become more negative over time (Feeney & Cassidy, 2003). Previous research has shown that negative mood inductions reliably predict depression (Hernandez, Vander Wal, & Spring, 2003); the retrieval of negative memories likely serves as such a mood induction. More generally, high negative emotional content in personally meaningful autobiographical memories is strongly related to psychological distress (Blagov & Singer, 2004). For individuals high in attachment anxiety, this chronic retrieval of negative memories may strengthen negative self-perceptions through concrete examples of relationship failures, thus leading to distress.

The Present Research

In two studies, we tested whether the phenomenological experience and emotional content of personally meaningful, relationship-related memories mediated the relation between attachment avoidance and anxiety and depressive symptoms. In Study 1, participants retrieved a positive and negative romantic memory and rated each memory for its phenomenology and emotional content. In Study 2, we used an experimental manipulation to test whether activating attachment security versus insecurity had an effect on the subsequent retrieval of a relationship-related memory. In both studies, participants completed measures of at-

tachment and depressive symptoms, and the memory variables were tested as mediators between the two.

Before we turn to the present studies, it is of note to make a distinction between memories formed in a laboratory setting versus personally meaningful autobiographical memories. According to Roediger and Marsh (2003), the "critical defining feature for autobiographical memory is the importance of the information to one's sense of self and one's life history" (p. 485). Individuals may have a multitude of episodic memories, but only memories relevant to a person's self are truly autobiographical. It is these memories that the individual draws on when trying to comfort the self or create intimacy with others (Bluck et al., 2005). Thus, although memories evoked in the lab may provide stringent experimental controls, they tend to lack ecological validity. In the present research, we are concerned with the memories that individuals deem important to their selves and thus the ones most likely retrieved in times of need.

Study 1

In Study 1, we tested whether the phenomenology and content of romantic relationship memories mediated the relation between the attachment dimensions and psychological distress. We hypothesized that, because attachment avoidance has been linked with preemptive emotion regulation strategies (Fraley, Garner, & Shaver, 2000), and because both lower memory coherence (Dalgleish et al., 2001) and emotional intensity (Rottenberg et al., 2005) predict increases in depressive symptoms, these phenomenological characteristics of the memory will mediate avoidance and psychological distress. Specifically, individuals high on attachment avoidance are likely to experience more depressive symptoms because their memories are less coherent (Hypothesis 1) and less emotionally intense (Hypothesis 2). In contrast, because anxiety is associated with difficulty inhibiting negative emotions (Gillath et al., 2005), and because negative affect is intimately associated with depression (Hernandez et al., 2003), the emotional experience of the memory will mediate anxiety and psychological distress. Specifically, individuals high on attachment anxiety will experience more depressive symptoms because their memories are saturated with negative affect (Hypothesis 3).

Method

Participants

A total of 454 undergraduate students (64% women) participated in this study in exchange for course credit. Participants ranged in age from 18 to 29 ($M = 19.69$, $SD = 1.66$) and were Asian (42%), Caucasian (39%), Latino (8%), Black (1%), or biracial (10%). Approximately 28% of participants were freshman, 32% were sophomores, 24% were juniors, and 16% were seniors; 63% of the sample was single (i.e., not currently in any type of committed relationship).

Measures

Self-defining memories. Participants were asked to write about two self-defining relationship memories—a positive and a negative memory with a recent romantic relationship partner. The self-defining memory instructions were adapted from Singer and

Moffitt (1991–1992), retaining their emphasis on the importance and centrality of these memories to the participant's identity:

> Please describe a memory that is personally meaningful to you, and that relates to a *positive* [*negative*] experience you have had in a romantic relationship. The memory can be from any past or present relationship, but it should be relevant to your identity as a romantic partner and reveal something about how you feel about yourself in the context of romantic relationships. It may be a memory about any kind of *positive* [*negative*] experience, but it should be something you have thought about many times.

The two memories were counterbalanced across participants, and participants had as much space as they needed to write about each memory. In previous research, similar memory prompts adapted from Singer and colleagues (Singer & Moffitt, 1991–1992; Singer & Salovey, 1993) have been used successfully to show that self-defining memory content is relatively stable over time (Sutin & Robins, 2005), related to stable individual differences (Sutin & Robins, 2005, 2007), and predicts change in personality and other outcomes such as grade point average (GPA), graduation status, and well-being (Sutin, 2008; Sutin & Robins, 2005).

After describing each memory, participants rated the emotions they experienced during the event described in the memory. Specifically, participants were instructed to "think about how you felt at the time of this memory. Use the following words to describe how you felt during the time the memory happened." Participants rated six positive emotions (determined, enthusiastic, excited, inspired, proud, strong) and six negative emotions (ashamed, distressed, guilty, hostile, scared, upset), drawn from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). All ratings were made on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). The individual emotion ratings were aggregated into Positive Affect (PA) and Negative Affect (NA) scales for both the positive and negative memories; higher scores indicate greater emotional content. Similar affective ratings have been used successfully in previous research on the emotional content of self-defining memories (e.g., Blagov & Singer, 2004; Singer, Rexhaj, & Baddeley, 2007; Wood & Conway, 2006). Using the same measure, previous research has demonstrated moderate stability of both positive and negative affective memory content over time (Sutin & Robins, 2005). In the present sample, PA and NA in the positive romantic memory had means of 3.27 ($SD = 1.01$) and 1.34 ($SD = 0.51$), respectively, and alpha reliabilities of .85 and .75, respectively. PA and NA in the negative romantic memory had means of 1.53 ($SD = 0.67$) and 3.01 ($SD = 0.86$), respectively, and alpha reliabilities of .78 and .71, respectively.

Due to time and space constraints, the PANAS scales were abbreviated from 10 to 6 items. In an independent sample ($N = 2,238$), the full-length trait PA and NA scales both correlated .96 with their respective abbreviated scales, suggesting that the present assessment of PA and NA was not compromised by the abbreviation of the PANAS scales.

Phenomenology. Participants also completed an abbreviated version of the Memory Experience Questionnaire (MEQ; Sutin & Robins, 2007). In the present sample, two dimensions of phenomenology, each measured by five items, were assessed for each memory: Coherence (e.g., "I can picture this memory in great detail in my mind") and Emotional Intensity (e.g., "As I am

remembering the event now, my feelings are very intense"). Ratings were made on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); higher scores indicate greater coherence and emotional intensity. Coherence and emotional intensity are two distinct dimensions of phenomenology that are independent of memory content and have been shown to be related to stable individual-difference variables such as self-esteem (Sutin & Robins, 2007) and health and achievement outcomes (Sutin, 2008). In the present sample, Coherence and Emotional Intensity in the positive romantic memory had means of 4.24 (SD = 0.79) and 3.44 (SD = 0.87), respectively, and alpha reliabilities of .92 and .78, respectively. Coherence and Emotional Intensity in the negative romantic memory had means of 4.11 (SD = 0.83) and 3.09 (SD = 0.83), respectively, and alpha reliabilities of .91 and .70, respectively.

Adult attachment.   Participants completed the 36-item Experiences in Close Relationships inventory (ECR; Brennan, Clark, & Shaver, 1998), a measure of attachment anxiety (e.g., "I worry about being abandoned") and attachment avoidance (e.g., "I prefer not to show a partner how I feel deep down"). Participants rated each item on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); higher scores indicate higher levels of attachment anxiety and attachment avoidance. Both the Anxiety and Avoidance scales of the ECR have been shown repeatedly to be internally consistent (e.g., Brennan et al., 1998) and relatively stable over time (e.g., Picardi, Caroppo, Toni, Bitetti, & Di Maria, 2005). The ECR is associated in expected ways with related attachment measures (Shaver, Belsky, & Brennan, 2000), and both scales are also associated with psychological distress (e.g., Wei, Shaffer, Young, & Zakalik, 2005). In the present sample, the 18-item Anxiety scale had a mean of 3.61 (SD = 1.17) and an alpha reliability of .92; the 18-item Avoidance scale had a mean of 2.92 (SD = 1.20) and an alpha reliability of .94. The two scales were moderately correlated (r = .28, p < .05).

Depressive symptoms.   Participants completed the Mini-Mood and Anxiety Symptom Questionnaire (MASQ; Watson et al., 1995), a measure of psychological distress that differentiates between current symptoms of depression, anxiety, and anhedonia (Keogh & Reidy, 2000; Watson et al., 1995). The 26-item MASQ asks participants to rate from 1 (*none at all*) to 5 (*extremely*), "How much have you felt or experienced each of the following during the past week. How much have you . . . . " The focus of the present research was on the General Depression scale (e.g., "Felt depressed"); higher scores reflect higher levels of depression. Extensive reliability and validity evidence can be found in Watson et al. (1995). Mean levels of these variables, for example, are higher in patient groups than in nonpatient control groups, and the General Depression and General Anxiety scales correlate strongly with the Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1979) and the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer), respectively (Watson et al., 1995). In the present sample, the 10-item General Depression scale had a mean of 2.30 (SD = 0.91) and an alpha reliability of .92. In the present research, depressive symptoms were of the most interest, thus leading to a focus on this scale of the MASQ. Similar analyses on the Anxiety scale yielded a very similar pattern of results; the Anhedonia scale was not analyzed.

Procedure

Participants agreed to participate in a study on memory and personality in exchange for course credit. The memory portion of the study was embedded in a larger questionnaire that participants completed online at their convenience. This questionnaire included additional open-ended items on the functional use of autobiographical memories. These items were presented after all the memory ratings used in the present study. Throughout the questionnaire, participants were free to change their responses to items answered previously. The attachment and depression questionnaires were completed in a separate session a couple of weeks prior to the assessment of memory. Although the measures of attachment and depressive symptoms were collected separately from the memory measures, this study was not conceptualized as longitudinal. Because both the attachment and depressive symptoms measures have high short-term test–retest correlations (rs = .82 and .79 for attachment anxiety and avoidance, respectively; Picardi et al., 2005 and r = .84 for depressive symptoms; Watson et al., 2007), a concurrent, rather than longitudinal, model was considered in the present research. When participants consented to participation, they were assured that their responses would be kept strictly confidential.

Results and Discussion

We first determined whether our variables of interest met the assumption of univariate normality. Despite some deviation from normality, we chose to retain the untransformed variables for several reasons. First, examination of Q-Q plots suggested that the deviation from normality was not substantial in most cases. Second, when we repeated the correlation analyses using Spearman correlations, which do not assume univariate normality, instead of Pearson correlations, we found the identical pattern of correlations. Third, we focus on statistical tests that are robust to deviations from normality (Cohen, Cohen, West, & Aiken, 2003). For the mediation analyses, because we used bootstrapping procedures, the assumption of multivariate normality does not need to be satisfied (Preacher & Hayes, 2008).

Intercorrelations among all of the variables are shown in Table 1. Consistent with previous research, both attachment anxiety and avoidance were associated with depressive symptoms. Attachment anxiety correlated negatively with coherence in the positive romantic memory and positively with NA and Emotional Intensity in the negative romantic memory. Attachment avoidance, in contrast, was related to less Coherence in both romantic memories and less PA, more NA, and less Emotional Intensity in the positive romantic memory. Finally, depressive symptoms were associated with higher NA and less Coherence in both romantic memories, less Emotional Intensity in the positive romantic memory, and more Emotional Intensity in the negative romantic memory.

We next turn to our main question of whether memory phenomenology and content mediated the relation between the attachment dimensions and psychological distress. Several strategies for testing mediation effects have been popularized over the past several years. Most approaches initially rely on the four steps outlined by Baron and Kenny (1986): (a) The predictor variable must correlate significantly with the outcome variable, (b) the predictor must correlate significantly with the mediator, (c) the mediator must

Table 1
Means, Standard Deviations, and Intercorrelations for all Observed Variables in Study 1

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Avoidance	2.92	1.20	—										
2. Anxiety	3.61	1.17	.28*	—									
3. Depressive symptoms	2.30	0.91	.30*	.47*	—								
Positive romantic memory													
4. Positive Affect	3.27	1.01	−.17*	−.06	−.02	—							
5. Negative Affect	1.34	0.51	.11*	.01	.10*	−.08	—						
6. Coherence	4.24	0.79	−.34*	−.16*	−.21*	.31*	−.15*	—					
7. Emotional Intensity	3.44	0.87	−.32*	−.06	−.16*	.32*	−.15*	.64*	—				
Negative romantic memory													
8. Positive Affect	1.53	0.67	.07	.00	.04	.14*	.25*	−.12*	−.06	—			
9. Negative Affect	3.01	0.86	−.06	.17*	.14*	.26*	.06	.15*	.13*	.01	—		
10. Coherence	4.11	0.83	−.15*	−.01	−.11*	.20*	−.05	.52*	.32*	−.08	.23*	—	
11. Emotional Intensity	3.09	0.83	−.03	.22*	.09*	.10*	.04	.15*	.27*	.05	.27*	.52*	—

Note. N = 454.
* p < .05.

correlate significantly with the outcome variable, and (d) the association between the predictor and the outcome must be reduced significantly when the mediator is included in the model. Some researchers, however, have noted that the Baron and Kenny approach to mediation has low statistical power to detect such effects (see MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002, for a comparison of mediation techniques).

Bootstrapping is a nonparametric resampling procedure that overcomes the problem of low power (Mallinckrodt, Abraham, Wei, & Russell, 2006; Shrout & Bolger, 2002) and does not assume multivariate normality of the sampling distribution (Preacher & Hayes, 2008). We applied this technique in the present research: Cases were randomly selected, with replacement, from the original sample of *N*. For each bootstrap sample, the model was estimated and the parameter estimates saved. The distribution of these estimates was then examined. The indirect

effect was deemed significant if the confidence interval around that effect did not include zero (Preacher & Hayes, 2008; Shrout & Bolger, 2002). We used the SPSS macro developed by Preacher and Hayes (2008) for testing multiple mediators via bootstrapping. This procedure is particularly useful because all mediators can be tested simultaneously. That is, the indirect effect of one variable, conditional on the effect of all of the other mediators, can be evaluated. This reason is particularly important in the present research, given that the memory variables can never be independent; the emotional aspects of a memory cannot be retrieved independently of the phenomenological aspects (see Figure 1 for the conceptual path model). We set the number of bootstrap samples to 5,000.

Table 2 shows the results of the mediation analyses, and Table 3 shows the path coefficients for each model. Because we entered all four memory variables simultaneously for each attach-
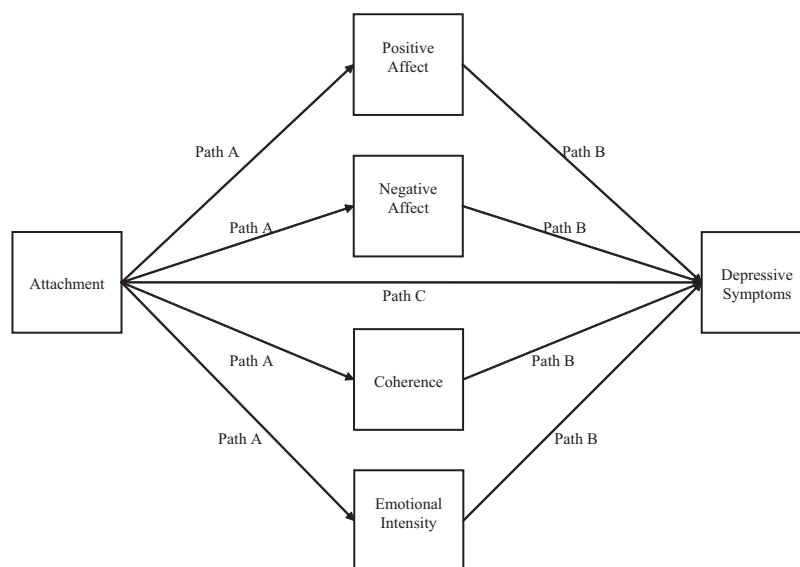

Figure 1. Path model of the mediation of the effect of adult attachment on depressive symptoms through memory content and phenomenology.

Table 2
Mediation of the Effect of Adult Attachment on Depressive Symptoms Through Positive and Negative Romantic Memory Content and Phenomenology in Study 1

| | | Positive romantic memory | | | | | Negative romantic memory | | | |
| | Point estimate | Product of coefficients | | BC 95% CI | | Point estimate | Product of coefficients | | BC 95% CI | |
Variable		SE	Z	Lower	Upper		SE	Z	Lower	Upper
Avoidance										
Positive Affect	−.0092	.0065	−1.41	−.0244	.0025	−.0004	.0023	−0.16	−.0068	.0039
Negative Affect	.0049	.0043	1.15	−.0018	.0157	−.0064	.0058	−1.09	−.0243	.0038
Coherence[a]	.0335	.0158	2.12*	.0031	.0661	.0205	.0088	2.34*	.0067	.0445
Emotional Intensity[b]	.0015	.0143	0.11	−.0319	.0317	−.0036	.0058	−0.63	−.0194	.0073
Total	.0307	.0143	2.14*	.0020	.0657	.0101	.0099	1.02	−.0108	.0335
Anxiety										
Positive Affect	−.0032	.0033	−0.99	−.0146	.0015	.0000	.0009	−0.05	−.0041	.0037
Negative Affect[c]	.0006	.0029	0.21	−.0043	.0080	.0110	.0066	1.68	−.0005	.0304
Coherence	.0120	.0076	1.58	−.0003	.0314	.0019	.0052	0.36	−.0088	.0161
Emotional Intensity	.0040	.0040	1.01	−.0011	.0194	.0078	.0090	0.87	−.0104	.0268
Total	.0134	.0085	1.59	.0000	.0335	.0207	.0115	1.80	−.0021	.0481

Note. $N = 454$. BC = bias corrected; CI = confidence interval; 5,000 bootstrap samples.
[a] Test of Hypothesis 1. [b] Test of Hypothesis 2. [c] Test of Hypothesis 3.
* $p < .05$.

ment dimension and each memory, we conducted 16 tests of mediation. Only 6, however, were relevant to our hypotheses (denoted by superscripts in Tables 2 and 3); 2 were significant: Consistent with Hypothesis 1, Coherence emerged as a mediator of the avoidance–distress relation: Attachment avoidance was associated with more incoherent positive and negative relationship memories, and this incoherence was associated, in turn, with higher depressive symptoms. Coherence of either memory did not completely mediate the association between attachment and distress; avoidance still had a direct effect. This effect was modest in magnitude ($\Delta\beta = .04$ and .01, for the positive and negative memory, respectively). Neither Emotional Intensity (Hypothesis 2) nor Negative Affect (Hypothesis 3)[1] in either memory mediated the relation between attachment and depressive symptoms.[2]

The present findings support Hypothesis 1: The coherence of the relationship memory, whether positive or negative, partially mediated the relation between attachment avoidance and depressive symptoms. In contrast, we found no support for Hypotheses 2 and 3: Emotional Intensity did not mediate the relation between avoidance and depressive symptoms, and NA did not mediate the relation between anxiety and depressive symptoms. These null findings, however, may be the result of our memory prompts. Constraining the memories by both valence and relationship domain may have eliminated the effect of individual differences. These effects may be more apparent when participants are not constrained to retrieve valenced memories from a specified relationship domain. In everyday life, individual differences influence the types and valence of memories retrieved; leaving the memory prompt open-ended is more likely to capture the effect of individual differences in attachment on memory. Therefore, in Study 2, we asked participants to retrieve and rate a relationship memory unconstrained by valence or relationship domain.

Study 2

The findings from Study 1 suggest that the coherence of the memory is an important mediator between avoidance and psychological distress. Given the correlational nature of the data, however, it is unclear whether attachment insecurity is the cause or consequence of memory incoherence. In Study 2, in addition to using a different memory prompt, we manipulated attachment security in an attempt to alter the phenomenology and content of the subsequently retrieved memory. Participants first were exposed to a secure, insecure, or control prime and then retrieved a relationship memory, unconstrained by valence or relationship domain. In addition to the manipulation, we again tested whether memory phenomenology and content mediated the relation between the attachment dimensions and depressive symptoms. We make the same three hypotheses as in Study 1 regarding the mediation effect of memory phenomenology and content: Coherence and Emotional Intensity will mediate avoidance and de-

[1] There was one effect of order: Participants who retrieved their negative romantic memory first reported less NA in this memory than participants who retrieved their positive romantic memory first ($M = 2.93$ [$SD = 0.83$] vs. $M = 3.10$ [$SD = 0.88$]). Controlling for order in the mediational analyses revealed that NA mediated the relation between attachment anxiety and depression (point estimate = .0110; bias-corrected 95% confidence interval = .009–.0295). All other findings held when controlling for order.

[2] As an alternative exploratory model, we tested whether the memory variables moderated, rather than mediated, the relation between the attachment dimensions and depressive symptoms. We found no evidence for such interactions: Neither the phenomenology nor the content of either the positive or negative romantic memory moderated the relation between the attachment dimensions and depressive symptoms; βs ranged from −.13 to .04 ($Mdn = -.01$), all ns, for the positive romantic memory, and βs ranged from −.02 to .04 ($Mdn = .01$), all ns, for the negative romantic memory.

Table 3
Coefficients for the Mediation of the Effect of Adult Attachment on Depressive Symptoms Through Positive and Negative Romantic Memory Content and Phenomenology in Study 1

Attachment	Positive romantic memory		Negative romantic memory	
	Memory (Path A)	Depressive symptoms (Path B)	Memory (Path A)	Depressive symptoms (Path B)
Avoidance				
Positive Affect	−.14*	.07	.03	−.01
Negative Affect	.05	.11	−.04	.16*
Coherence[a]	−.22*	−.15*	−.10*	−.20*
Emotional Intensity[b]	−.23*	−.01	−.02	−.17*
Direct effect (Path C)		.23* (.19*)		.23* (.22*)
Anxiety				
Positive Affect	−.06	.06	.00	.03
Negative Affect[c]	.05	.14	.13*	.09
Coherence	−.22*	−.11	−.01	−.16*
Emotional Intensity	−.23*	−.08	−.02	.05
Direct effect (Path C)		.37* (.36*)		.37* (.35*)

Note. $N = 454$. Path coefficients in parentheses are the effects of attachment on depressive symptoms after inclusion of the mediators.
[a] Test of Hypothesis 1. [b] Test of Hypothesis 2. [c] Test of Hypothesis 3.
* $p < .05$.

pressive symptoms (Hypotheses 1 and 2), whereas NA will mediate anxiety and depressive symptoms (Hypothesis 3). In addition, we hypothesize that the secure prime will lead to greater PA, less NA, and greater Coherence of the subsequently retrieved memory, whereas the insecure prime will lead to less PA, greater NA, and less Coherence of the subsequently retrieved memory (Hypothesis 4).

Method

Participants

A total of 534 (62% women) undergraduate students participated in this study for course credit. Participants ranged in age from 18 to 51 ($M = 19.3$, $SD = 2.1$) and were Asian (40%), Caucasian (30%), Latino (8%), Black (1%), or biracial (11%); 10% did not report their ethnicity. Approximately 45% of participants were freshman, 23% were sophomores, 20% were juniors, and 12% were seniors; 50% of the sample was single.

Attachment Prime

Participants received one of three primes. In the secure condition ($n = 195$), participants were asked to:

> Try to imagine that someone who is very close to you (e.g., a good friend, a partner, or a close relative) has been, over a fairly long period of time, consistently available to you, sensitive to your needs, and highly reliable—clearly having your best interests at heart and supporting you in every way he/she can.

In the insecure condition ($n = 157$), participants were asked to:

> Try to imagine that someone who is very close to you (e.g., a good friend, a partner, a close relative) has been, over a fairly long period of time, unreliable, not always very sensitive to your needs, and not always as supportive as one would expect from a friend/partner.

In the control condition ($n = 182$), participants were asked to:

> Try to imagine doing a household chore that you do on a regular basis (e.g., cook, wash dishes, clean the bathroom). Think about the process of doing the chore, the actions that lead up to it, and how the chore usually ends.

After participants imagined the scenario, they wrote down a few adjectives describing how the situation would make them feel.

Measures

Self-defining memory. Participants were asked to retrieve a relationship-related self-defining memory. In contrast to Study 1, participants were not asked about a specific relationship or valence. Because we were interested in how the prime influenced the accessibility of relationship-related memories, participants' responses were not constrained. Instead, participants could write about any memory within a relationship context:

> Please briefly describe a memory that is personally meaningful to you, and that relates to an important experience that you have had in a *relationship* context (i.e., romantic partner, friend, family member, etc.). The memory can be from any past or present relationship, but it should be relevant to your identity and reveal something about how you feel about yourself in the context of relationships. It may be a memory of either a positive or negative experience, but it should be something you have thought about many times.

Participants had as much space as they needed to write out their memory. Participants then self-reported both the valence of the memory and its relationship context. These memories were primarily positive (63%) and were about romantic partners (50%), close friends (25%), family members (24%), or other people close to the participant (1%).

Participants made the same affect ratings as in Study 1. In the present sample, PA had a mean of 2.65 ($SD = 1.15$) and an alpha

reliability of .88, and NA had a mean of 2.17 ($SD = 1.08$) and an alpha reliability of .87.

Participants also completed the full Coherence and Emotional Intensity scales of the MEQ. Ratings were on the same scale as Study 1. In the present sample, the eight-item Coherence scale had a mean of 3.99 ($SD = 0.64$) and an alpha reliability of .76, and the six-item Emotional Intensity scale had a mean of 3.91 ($SD = 0.79$) and an alpha reliability of .85.

Adult attachment. Participants completed the same attachment measure as in Study 1. In the present sample, anxiety had a mean of 3.80 ($SD = 1.06$) and an alpha reliability of .91, and avoidance had a mean of 3.08 ($SD = 1.10$) and an alpha reliability of .94. The two scales correlated .22 ($p < .05$).

Depressive symptoms. Participants completed the same measure of depression as in Study 1. In the present sample, the General Depression scale had a mean of 2.21 ($SD = 0.81$) and an alpha reliability of .91.

Procedure

Participants agreed to participate in a study on memory and personality in exchange for course credit. The memory portion of the study was embedded in a larger questionnaire that participants completed online at their convenience. Participants first received one of the three primes and then they immediately retrieved and rated the self-defining memory. Although primes were supposed to be randomly assigned to participants by the computer, problems with the programming led to an oversampling of the secure prime. The attachment and depression questionnaires were completed in a separate session prior to the assessment of memory. As in Study 1, given the high test–retest correlations for attachment and depressive symptoms, despite not being collected at precisely the same time, these data are considered concurrent rather than longitudinal. When participants consented to participation, they were assured that their responses would be kept strictly confidential.

Results and Discussion

Preliminary Analyses

Similar to Study 1, some of our variables of interest were not univariate normal. Also similar to Study 1, we chose to retain the untransformed variables because the Q-Q plots indicated that these variables did not differ substantially from normality, and Spearman correlations revealed the same pattern of associations as the

Pearson correlations. Intercorrelations among all of the variables are shown in Table 4.

Effect of Attachment Prime

To determine the effect of the attachment prime, we conducted a multivariate analysis of variance, with prime type (secure, insecure, control) as the independent variable and PA, NA, Coherence, and Emotional Intensity as the dependent variables (see Table 5). There was a significant main effect of prime type (Wilks's $\Lambda = .98$), $F(8, 1056) = 1.71$, $p < .05$, one-tailed. Specifically, prime type had a significant effect on Coherence. Post hoc analyses revealed that participants in the secure condition reported more coherent memories than participants in the insecure condition. A series of planned comparisons revealed a trend for the effect of both the secure and insecure prime on memory coherence: Compared with the control condition, participants in the secure condition reported a more coherent memory, $F(1, 375) = 2.00$, $p = .08$, and participants in the insecure condition reported a more incoherent memory, $F(1, 337) = 1.90$, $p = .08$. There was no significant effect of the prime on the remaining three memory variables. Thus, we found mixed support for Hypothesis 4: Priming security increased memory coherence, whereas priming insecurity decreased memory coherence (although both were trends). Regression analyses revealed that the attachment dimensions did not moderate the effect of the prime (βs ranged from $-.03$ to $.06$ for avoidance, all *n*s, and βs ranged from $-.04$ to $.03$ for anxiety, all *n*s). The full results of these regression analyses are in an online supplement to this article.

Correlational and Mediation Analyses

The zero-order correlations revealed the expected pattern of associations among the variables (see Table 4). Both anxiety and avoidance were related positively to depressive symptoms and NA and negatively with PA and Coherence. The attachment dimensions only differed with respect to Emotional Intensity: Anxiety correlated positively, whereas Avoidance correlated negatively with this dimension. Finally, depressive symptoms were associated positively with NA and negatively with Coherence. All findings held when prime condition was included as a covariate. Furthermore, of the 21 correlations in Table 4, there was only one significant difference across conditions: Emotional Intensity and Coherence correlated more strongly in the insecure prime condi-

Table 4
Means, Standard Deviations, and Intercorrelations for all Observed Variables in Study 2

Variable	M	SD	1	2	3	4	5	6	7
1. Avoidance	3.08	1.10	—						
2. Anxiety	3.80	1.06	.22*	—					
3. Depressive symptoms	2.21	0.81	.26*	.44*	—				
4. Positive Affect	2.65	1.15	−.12*	−.09*	−.03	—			
5. Negative Affect	2.17	1.08	.10*	.20*	.18*	−.54*	—		
6. Coherence	3.99	0.64	−.25*	−.09*	−.27*	.10*	−.13*	—	
7. Emotional Intensity	3.91	0.79	−.19*	.12*	.01	.08	.12*	.42*	—

Note. $N = 534$.
* $p < .05$.

Table 5
Means, Standard Deviations, and Summary of Mean Differences Between Prime Types

	Condition						
	Secure		Insecure		Control		
Variable	M	SD	M	SD	M	SD	F(2, 531)
Positive Affect	2.72	1.14	2.57	1.15	2.65	1.17	0.75
Negative Affect	2.08	1.03	3.22	1.08	2.15	1.13	2.32
Coherence	4.08	0.63	3.88	0.64	3.98	0.65	3.86*
Emotional Intensity	3.88	0.78	3.92	0.83	3.93	0.77	0.20

Note. $n = 195$ for Secure prime, $n = 157$ for Insecure prime, and $n = 182$ for Control prime. Wilks's $\Lambda = .98$, $F(8, 1056) = 1.71$, $p < .05$, one-tailed.
* $p < .05$.

tion ($r = .53$, $p < .05$) than in the control condition ($r = .31$, $p < .05$; $z = 2.45$, $p < .05$). Thus, in general, the prime did not affect the interrelations among our variables of interest.

We next turn to whether the memory variables mediated the relation between attachment and depressive symptoms (see Table 6). We again hypothesized that the phenomenology of the memory, specifically Coherence and Emotional Intensity, would mediate avoidance and distress, whereas the emotional content of the memory, specifically NA, would mediate attachment anxiety and distress. This is exactly the pattern that emerged (see Table 7). Participants who scored high on avoidance reported that their memories were less coherent and less emotionally intense, which, in turn, were both related to more depressive symptoms. Participants high on anxiety, in contrast, reported that their memories had greater negative affective content, which, in turn, was related to more depressive symptoms. In neither case did the memory variables completely mediate the association between attachment and depressive symptoms; avoidance and anxiety still had direct effects. Again, these effects were modest in magnitude ($\Delta\beta = .03$ for both avoidance and anxiety). All findings held when prime condition was included as a covariate.[3]

General Discussion

In the present research, we tested whether two components of relationship-related autobiographical memories—phenomenology and content—uniquely mediated the association between attachment and depressive symptoms. As expected, attachment avoidance and anxiety were related to depressive symptoms, and, consistent with our hypotheses, phenomenology mediated this association for avoidance, whereas the emotional content mediated this association for anxiety (but only in Study 2). Specifically, the coherence (Hypothesis 1) and emotional intensity (Hypothesis 2) of memory mediated the association between attachment avoidance and depressive symptoms, and the negative emotional content (Hypothesis 3) of memory mediated the association between attachment anxiety and depressive symptoms, although Hypotheses 2 and 3 were only supported in Study 2. In addition, priming attachment security increased memory coherence, whereas priming attachment insecurity decreased memory coherence (Hypothesis 4).

Our findings add to the growing literature demonstrating different mediating mechanisms for people with different attachment styles (e.g., Wei, Vogel et al., 2005). Not surprisingly, anxious individuals' memories of their most important relationship experiences were saturated with negative emotions. Easy accessibility to the negative content of such a memory, in turn, was associated with increased psychological distress. Memories are often used to soothe the self when distressed and help create intimacy with others (Bluck et al., 2005), so individuals who are unable to inhibit the retrieval of negative experiences, that is, individuals high on attachment anxiety, may not be able to take advantage of the soothing function that memories provide.

Of greater note, however, is the association between attachment avoidance and the phenomenological experience of the memory. Avoidant individuals were found to have relationship memories characterized by greater negative and less positive emotional content, but they experience these memories as incoherent. Through either selective encoding or retrieval processes (e.g., Edelstein & Gillath, 2008; Fraley & Brumbaugh, 2007; Conway et al., 2004), individuals high in attachment avoidance may distort their phenomenological experience of the memory as a way of limiting its emotional impact. This strategy is consistent with the retrieval style of other conceptually similar dispositions. Individuals high in defensiveness, for example, tend to retrieve memories devoid of specific imagery and detail, but not negative emotional content (Blagov & Singer, 2004). Blagov and Singer suggested (2004) that the imagery of the memory, rather than the negative emotions per se, is responsible for the reliving of the recollected experience. Thus, individuals high in defensiveness—or attachment avoidance—may inhibit this component of the memory to downregulate how the recalled event is experienced at retrieval.

But such regulative strategies are not always beneficial. Indeed, these strategies may be effective in the short term, but they also may have negative, long-term, self-defeating consequences. Substance abuse is a clear example: Drinking excessively surely reduces immediate distress, but its long-term consequences are serious, sometimes fatal. Although not as stark as the substance abuse example, similar processes might be implicated for avoidance and coherence. Individuals high on avoidance may retrieve a relationship memory incoherently to reduce its immediate emotional impact, but, as a consequence, these individuals are not able

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[3] Similar to Study 1, we found no evidence for the memory variables as moderators; βs ranged from $-.07$ to $.02$ ($Mdn = -.01$), all ns.

Table 6

Mediation of the Effect of Adult Attachment on Depressive Symptoms Through Memory Content and Phenomenology in Study 2

Variable	Point estimate	Product of coefficients		BC 95% CI	
		SE	Z	Lower	Upper
Avoidance					
Positive Affect	−.0097	.0055	−1.75	−.0258	−.0003
Negative Affect	.0120	.0065	1.86	.0012	.0290
Coherence[a]	.0475	.0116	4.10*	.0272	.0748
Emotional Intensity[b]	−.0187	.0076	−2.44*	−.0401	−.0049
Total	.0311	.0129	2.42*	.0047	.0606
Anxiety					
Positive Affect	−.0074	.0047	−1.57	−.0205	−.0005
Negative Affect[c]	.0181	.0080	2.27*	.0045	.0411
Coherence	.0168	.0087	1.93	−.0012	.0345
Emotional Intensity	.0042	.0042	0.99	−.0034	.0174
Total	.0317	.0114	2.78*	.0100	.0607

Note. N = 534. BC = bias corrected; CI = confidence interval; 5,000 bootstrap samples.
[a] Test of Hypothesis 1. [b] Test of Hypothesis 2. [c] Test of Hypothesis 3.
* $p < .05$.

to take advantage of the beneficial functions that such memories serve such as self-understanding and creating intimacy with others. Ultimately, this may lead to greater psychological distress (see also Berant, Mikulincer, & Shaver, 2008, for long-term effects of avoidance-related deactivating strategies).

In the present research, we were most concerned with the individual's own *phenomenological experience* of their memories' coherence. Most previous research on avoidance and memory coherence has focused on *rater's* judgments of coherence (e.g., Bartholomew & Horowitz, 1991; Conway et al., 2004). Although undeniably important, independent judgments of coherence do not get at how the individual personally experiences the memory, which is what will be available to the individual when the memory

Table 7

Coefficients for the Mediation of the Effect of Adult Attachment on Depressive Symptoms Through Memory Content and Phenomenology in Study 2

Attachment	Memory (Path A)	Depressive symptoms (Path B)
Avoidance		
Positive Affect	−.13*	.08
Negative Affect	.09	.13*
Coherence[a]	−.14*	−.33*
Emotional Intensity[b]	−.14*	.14*
Direct effect (Path C)		.19* (.16*)
Anxiety		
Positive Affect	−.11*	.07*
Negative Affect[c]	.20*	.09*
Coherence	−.05*	−.31*
Emotional Intensity	.09*	.05
Direct effect (Path C)		.33* (.30*)

Note. N = 534. Path coefficients in parentheses are the effects of attachment on depressive symptoms after inclusion of the mediators.
[a] Test of Hypothesis 1. [b] Test of Hypothesis 2. [c] Test of Hypothesis 3.
* $p < .05$.

is needed. It is possible, for example, that the individual could relate an incoherent narrative but perceive it as coherent in his or her mind. By limiting the study of coherence to rater's judgments of coherence, an important, and possibility distinct, aspect of memory is neglected.

De Haas, Bakermans-Kranenburg, and van IJzendoorn (1994) suggested that coherence of the AAI transcript shows the strongest association with the AAI classifications. More specifically, transcript coherence was found to have a strong positive association with loving experiences and a negative association with rejecting experiences the interviewee had. De Haas et al. claim that their results support the idea that the AAI classifications reflect mental representations of attachment and, in particular, the coherence of the interview. For individuals high on avoidance, the inability to reflect meaningfully on past experiences may contribute to both incoherent memories and incoherent life narratives. If a life narrative is constructed from weaving together memories of specific experiences, then incoherent building blocks would necessarily lead to an incoherent narrative foundation.

Incoherent memories have consequences. McAdams (2006) argued that a coherent life story contributes to psychological health because it organizes and gives meaning to the individual's lived experiences. When a life narrative is incoherent, the individual cannot meaningfully connect significant experiences, use those experiences to understand the self, or explain the self to others. Thus, in addition to its impact on processes within the self, memory coherence can also have an impact on interpersonal relationships. For example, incoherent memories may lead to interpersonal conflict because the listener may misinterpret the teller's intentions and motives, which may result in feelings of isolation, mistrust, and doubt (Singer & Rexhaj, 2006). All of which likely contributes to depression.

More generally, memories provide scripts for how interpersonal interactions should play out (Singer, 2004; Waters & Waters, 2006). Individuals who score high on insecurity develop scripts early on that tell them that others are unavailable

and cannot be relied on. Subsequent experiences are encoded and retrieved through the lens of this script (Waters & Waters, 2006). Throughout the life span, however, the narratives that individuals construct for themselves evolve, as does the meaning individuals take from them (Singer, 2004). Given this plasticity, individuals can actively work to move their scripts in a more positive direction over time, a process facilitated by psychotherapy. Singer and Rexhaj (2006) suggested that one role of the therapist is to help the client develop narrative coherence. Knowing what aspects of memories are most problematic for individuals with certain dispositions will assist in that process. For example, focusing on developing coherent relationship narratives may be more useful for individuals high on avoidance, whereas focusing on controlling the negative affective content of relationship narratives may be more useful for individuals high on anxiety. Ultimately, individuals who can retrieve both positive and negative experiences without being overwhelmed by the associated emotion and who can integrate these experiences and draw meaningful lessons from them should show higher levels of adjustment (Blagov & Singer, 2004). And indeed, such flexible, open working models are associated not only with the individual's own attachment security and ability to regulate emotions effectively but also with the individual's parenting skills and infants' subsequent attachment (Slade & Cohen, 1996).

Finally, therapists may also find it useful to use memories in conjunction with other mediators, such as perceived coping (Wei et al., 2003). That is, memories can serve as a concrete reminder of when a strategy worked well versus when it did not work at all. For example, when a client successfully uses a beneficial coping strategy, the therapist may help the client maintain a clear memory of the experience to draw on in future situations that require such coping skills. By identifying real examples from their personal histories, clients can be encouraged to retrieve these memories as they work to develop positive coping strategies. Over time, these strategies together may help to push the individual toward greater attachment security.

Several limitations of the present research need to be addressed in future research. First, our approach was primarily correlational. Although we did successfully manipulate memory retrieval, this was limited to one aspect of the memory (coherence). Even though our prime turned out not to be very strong, it is very encouraging that even a weak prime could have effects that match the theory on the phenomenology of the memory. In future research, stronger attachment primes would likely replicate and extend the results of the present study. In addition, we were unable to manipulate every link in our model. Future research could test whether the manipulation of memory content and phenomenology lead to changes in psychological distress in the hypothesized direction.

Second, our sample consisted entirely of nontreatment-seeking college students. Although we assume that the underlying mechanisms will be similar across diverse populations, it is important to replicate these findings with other samples. Despite relying on what might be perceived as a convenience sample, there are several important reasons to focus on college populations. Although undergraduate enrollment has increased substantially in recent years, the number of students actually graduating from college is on the decline (e.g., Mattanah, Hancock, & Brand, 2004). It is estimated that 1 in 5 students experience depression at some point during their early adulthood (e.g., Kessler et al., 2003), and students who experience depression earn lower GPAs, are more likely to drop out of school, and are more likely to commit suicide or think about it than their nondepressed counterparts (Sax, Astin, Korn, & Mahoney, 1999; Strage & Brandt, 1999; U.S. Department of Education, 1995). Thus, it is critical to identify the individuals most likely to suffer from depression and to develop effective treatment strategies.

Third, the results were not entirely consistent across the two studies. Specifically, Hypotheses 2 and 3 were supported in Study 2 but not in Study 1. This difference may be the result of the memory prompts used in each study. In Study 1, participants were instructed to retrieve a positive and a negative romantic relationship memory, whereas in Study 2, participants were instructed to retrieve any memory about any relationship. The less constrained memory prompt in Study 2 may have been more susceptible to the effect of individual differences on memory retrieval. It is also possible that the larger sample size in Study 2 provided greater power to render the mediation effects significant.

Fourth, several methodological ambiguities may limit the findings. First, participants completed questionnaires outside of the laboratory; it is possible that they could have been distracted while filling out the measures or otherwise not have followed the procedures diligently. In addition, we did not have an explicit manipulation check or truly random assignment in Study 2. Although these ambiguities need to be corrected in future research, the relative consistency of findings across the two studies helps alleviate these concerns in the present research.

Finally, all of our measures were self-report. For the memory variables, we chose self-reports because we were most interested in how the individual understands his or her experiences. In addition, most work on attachment and memory coherence has relied on others' judgments of coherence (e.g., AAI; George et al., 1985) and has not looked at whether the individual perceives his or her memories to be coherent. It would be interesting to compare whether there is congruence between the teller's and listener's perception of the experience. Thus, in future work, it would be informative to code the emotional content and coherence of the memory from the narrative as well as collect self-reports on these dimensions.

Despite these limitations, the present research offers provocative evidence for how individual differences in attachment style are related to the content and phenomenology of autobiographical memory and how these memory characteristics, in turn, are associated with psychological distress. Moving beyond simple correlations, our work joins a growing effort to elucidate the mechanisms through which adult attachment leads to outcomes such as depression. In particular, our findings highlight the importance of the phenomenological experience of memory coherence for attachment avoidance, which is of both theoretical and practical importance. From a theoretical standpoint, our findings suggest that individuals high on avoidance recognize that their relationship narratives are incoherent. From a practical perspective, individuals high on avoidance may benefit from learning to construct coherent narratives of recent relationship-related experiences. Although this critical question needs to be addressed in future research, the present research offers a fruitful framework from which to start.

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