Adult Attachment and Preemptive Defenses: Converging Evidence on the Role of Defensive Exclusion at the Level of Encoding

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ABSTRACT The objective of this research was to determine whether the tendency of highly avoidant adults not to recall attachment-related information is best explained through defensive strategies that operate on encoding or retrieval processes. In Study 1 participants listened to an emotionally evocative recording and were given both explicit and implicit tests of their memory for the material. Compared to less avoidant people, highly avoidant people recalled fewer details from the recording and performed worse on an implicit test of their memory for the information. In Study 2 we manipulated people's motivation to retrieve information from memory by offering participants a monetary award for recall. Highly avoidant people recalled less information than less-avoidant people despite the monetary incentive. Taken together, these results suggest that the relative inability of avoidant adults to recall attachment-related information is due to the defensive exclusion of information at the time of encoding rather than the time of retrieval.

One of the core ideas in contemporary adult attachment theory is that defensively avoidant adults (i.e., people who report not worrying about close relationships and who value their own autonomy over their connections with others) are not simply indifferent to close relationships. Their apparent indifference stems from an attempt to minimize the kinds of experiences that may lead them to feel vulnerable or dependent on others. In support of this idea, researchers have found that, compared to less avoidant people, highly avoidant

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people are less likely to forge close emotional bonds with others (e.g., Fraley & Davis, 1997), less likely to turn to others for care and support under stressful situations (e.g., Simpson, Rholes, & Nelligan, 1992), less likely to recall negative experiences (e.g., Miller, 1999; Pereg & Mikulincer, 2004), and, when given the opportunity to do so, are capable of suppressing attachment-related thoughts and feelings (e.g., Fraley & Shaver, 1997; Mikulincer, Dolev, & Shaver, 2004).

How is it that highly avoidant people are able to minimize attachment-related experiences? Drawing on Bowlby's (1980) discussion of cognition and defense, Fraley, Garner, and Shaver (2000) argued that there are at least two distinct ways in which affective information can be excluded from awareness. One way is through the use of *preemptive* strategies. These kinds of defenses are used to minimize attention to events that have the potential to activate unwanted thoughts or feelings. An avoidant individual may, for example, choose not to get involved in a close relationship for fear of rejection, avert his or her gaze from an unpleasant sight, or "tune out" of a conversation that touches upon attachment-related themes. In each of these cases, preemptive strategies serve to limit the amount of information an individual encodes (and hence experiences) regarding the event. Another way to exclude affective information from awareness is by failing to retrieve, dwell upon, or find meaning in the various experiences a person has already had. For example, following a breakup, an avoidant person may suppress memories of his or her former partner as a means to circumvent the reemergence of painful emotions. Fraley and his colleagues (2000) referred to such tactics as *postemptive* strategies to emphasize the notion that these defenses help to prevent the activation of information that has already been encoded. Postemptive defenses may be less effective than preemptive ones because, once unwanted affective information is encoded and represented in a memory system, that information becomes a source of vulnerability, and, if activated, can potentially undermine the self-reliant facade of the defensive individual.

To determine whether highly avoidant people tend to rely upon preemptive strategies to minimize their attention to affective information, Fraley and his colleagues (2000) employed a forgetting paradigm. Specifically, they asked participants to listen to a tape-recorded interview in which a woman discussed her relationship with

a loved one and how the death of that loved one impacted her life. After listening to the recording, participants were given a surprise recall test in which they had to answer questions about the details of the interview. Importantly, the delay between listening to the recording and the memory test was varied, ranging from a few minutes to a few weeks. Fraley and his colleagues found that, compared to less avoidant people, highly avoidant people had more difficulty recalling details from the interview and, importantly, their performance was unrelated to the length of the retention interval. In other words, avoidant people immediately exhibited poorer recall than others, and this difference was sustained across varying lengths of time.

Although these findings are compatible with the hypothesis that avoidant people fail to encode interpersonal information to the same extent as others, there is an alternative explanation for these findings. It may be the case that avoidant people encoded the information to the same extent as less avoidant people but were less likely to retrieve that information at the time of recall. It is possible, for example, that they could not access the information they encoded for defensive reasons. It is also possible that avoidant people were unmotivated to retrieve the information they encoded. After all, if retrieval attempts have the potential to bring to mind thoughts and feelings that one wishes to avoid, there would be little incentive for recalling the information in an effortful fashion.

The possibility that affective knowledge can exist, yet be inaccessible to conscious recollection, has important implications for understanding the psychology of avoidant attachment. If attachment-related experiences are encoded and represented in the mind, it is possible for those representations to influence a person's behavior despite the use of conscious defense mechanisms. For example, if highly avoidant people hold representations of insecure experiences from their pasts, those representations may serve as latent vulnerabilities that, when activated, can interfere with their well-being. The idea that knowledge can play a role in human behavior, even when that knowledge is not available for conscious inspection, has a long and controversial history in psychology (see Westen, 1998). It has become less contentious in recent decades, however, due to advances in cognitive methods for assessing memory. Cognitive psychologists now commonly distinguish between explicit and implicit tests of memory (Graf & Schacter, 1985; Roediger, 1990). An *explicit test* of

memory draws upon people's conscious attempts to remember what they have learned. An example of an explicit memory test is the well-known cued recall test in which people are asked to recall freely information they previously studied. An *implicit test* of memory draws upon the knowledge that people may possess in an indirect manner, without requiring them, consciously, to recollect having learned the information. One commonly used implicit test is the fragment- or stem-completion task (e.g., Tulving, Schacter, & Stark, 1982; Warrington & Weiskrantz, 1968). In this task, participants are shown a word fragment, such as COF_ _ _ , and are asked to complete the fragment with a real word. One of the intriguing findings from this area of research is that, even when people are not able to recall having studied a word like COFFEE, they are more likely than people who did not study the word COFFEE to complete the fragment with this word. Such observations indicate not only that previously experienced information can be encoded and influence a person's behavior without awareness but that such knowledge can be tapped with fairly simple and inexpensive procedures.

The objective of the present set of studies was to determine whether or not the preemptive strategies used by highly avoidant people are capable of minimizing the encoding of affective knowledge. We addressed this question using two converging methodologies. In Studies 1 and 2 we instructed research participants to listen to a highly engaging tape-recorded interview of a woman describing attachment-relevant issues (see Fraley et al., 2000). After listening to the interview, participants were given two memory tests. One test was an implicit test of memory—a fragment completion task. The word fragments could be completed either with words that were related to the ideas expressed in the recording or words that were unrelated to the ideas expressed in the recording. The other test was an explicit test of memory—a cued recall test that required participants to answer specific questions about the details of the interview. This design allowed us to accomplish two goals. First, it enabled us to replicate previous findings on the negative association between avoidant attachment and memory using explicit tests of memory (see Fraley et al., 2000). Second, and more importantly, it allowed us to examine the association between attachment and memory using an implicit test of memory. If it is the case that highly avoidant people are encoding the information discussed in the interview but are unable to recall it, that knowledge should be revealed when it is

assessed via an implicit test. In contrast, if highly avoidant people are truly encoding less information than other people, their memory performance should be worse than that of others regardless of whether memory is tested using explicit or implicit measures.

In Study 2 we expanded our research design to test the hypothesis that highly avoidant adults are unmotivated to retrieve attachment-related information they have encoded. To do so, we manipulated people's motivation to retrieve information from the interview by providing participants with $1 for each question they were able to answer correctly. Importantly, the monetary incentive was introduced to participants after they had heard the interview (i.e., after encoding took place) but before they were given the cued recall test. As such, the incentive should have selectively influenced their willingness to retrieve information they had learned and not influence how much information they encoded. If the negative association between avoidant attachment and the recall of affective information is best explained by a failure to retrieve that information, then that association should be diminished when a financial incentive is introduced. In contrast, if the negative association between avoidance and recall is best explained by a relative failure to attend to and encode affective information, manipulating the incentive to retrieve information should be inconsequential.

STUDY 1

To determine whether avoidant people are less likely to encode social/affective information, we built upon the methodological paradigm used by Fraley et al. (2000) by introducing an implicit test of memory. If avoidant adults encode affective information to the same extent as other people, then their implicit memory performance should be equal to that of less avoidant adults. In contrast, if avoidant people are encoding less information than other people, their implicit memory performance, like their explicit memory performance, should be poorer than that of less avoidant people.

Method

Participants. One hundred forty-five undergraduate participants were recruited to take part in the study in exchange for credit in a psychology course. The mean age was 18.7 years ($SD = 1.3$). Seventy-one percent of the participants were female.

Procedure and materials. Participants were tested in groups of 1 to 5. After arriving at the laboratory, participants were asked to complete a questionnaire containing demographic items and the Relationship Styles Questionnaire (RSQ; Griffin & Bartholomew, 1994b), a 30-item measure of adult attachment organization. Each questionnaire item was rated on a 1 (*not at all like me*) to 5 (*very much like me*) scale. Responses to the RSQ items were aggregated in the way described by Fraley and Waller (1998) to create scores for the dimensions of anxiety and avoidance. In previous studies in our laboratory, these RSQ scales have exhibited test–retest reliabilities above .70 over a 3-week period. The internal consistency estimates of reliability in the present study were .71 and .86 for anxiety and avoidance, respectively.[1] The two scales were correlated .41; as such, we included them simultaneously in the regression analyses reported below.[2]

After completing the questionnaire, participants were told they would be listening to a tape-recorded clinical interview of a woman describing her family relationships. The interview was constructed by the authors to touch on attachment-related themes, including intimacy, separation, and loss (see Fraley et al., 2000). In the interview, a young woman, "Jennifer," truthfully describes (a) several of her most memorable childhood experiences with her sister, "Mary" (e.g., experiences that made them feel close and interdependent), (b) the premature, relatively recent death of

1. Contemporary models of individual differences in attachment organization hold that there are two fundamental dimensions underlying adult attachment patterns: attachment-related anxiety and attachment-related avoidance (see Brennan, Clark, & Shaver, 1998; Griffin & Bartholomew, 1994a; Fraley & Shaver, 2000). *Attachment-related anxiety* refers to variation in the degree to which people are vigilantly attuned to attachment-related concerns (Fraley & Shaver, 2000). A highly anxious person, for example, may worry that his or her attachment figure is unresponsive, whereas a less-anxious person may feel relatively secure about attachment-related matters. *Attachment-related avoidance* corresponds to variation in people's tendencies to use avoidant versus proximity-seeking strategies to regulate attachment-related behaviors, thoughts, and feelings. People on the high end of this dimension tend to withdraw from close relationships, whereas people on the low end of this dimension are more comfortable opening up to others and relying on others as a secure base (Fraley & Shaver, 2000). By definition, highly secure adults are low on both the anxiety and avoidance dimensions. People may be considered insecure because they are generally worried about the availability and responsiveness of significant others (i.e., they are high in the anxiety dimension), or because they are uncomfortable or unwilling to rely on others as a secure base (i.e., they are high in the avoidance dimension), or both.

2. In both studies we also tested the interaction of anxiety and avoidance. As is the case in most research on adult attachment, the interaction of the two dimensions did not help to explain variation in the outcomes of interest.

her sister, and (c) the ways in which her sister's death has affected her life. The interview was broadcast to all participants in the session simultaneously. After listening to the interview, the experimenter instructed participants to complete a test of "verbal ability." In reality, this verbal ability test was a fragment-completion task containing 34 word fragments that could be formed into real words by adding a few additional letters. Each fragment could be completed based on words relevant to the content of the interview (e.g., "sister") or words that were *not* mentioned in the interview (e.g., "sitter"). Each fragment could be completed unambiguously with a theme relevant to the interview; however, for two fragments, two participants nominated a word that was not the expected one but that was relevant to the interview. In these two cases, the fragment was scored as if it had been completed correctly. Participants were given 2 minutes to complete as many of the fragments as possible. Next, participants were given a 42-item, cued-recall test concerning details from the interview (e.g., "How old was Jennifer when her sister died?" "What musical instrument did Jennifer and Mary play when they were little?"). After participants completed the test, they were fully debriefed and thanked.

The proportion of items that were recalled correctly in the cued-recall test was used as our measure of explicit memory for attachment-related information. The number of fragments that were completed with ideas and concepts from the recording was taken as our measure of implicit memory for attachment-related information. Compatible with other research on implicit and explicit performance (e.g., Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005), our measures of implicit and explicit memory were only weakly correlated ($r = .12$).

Results and Discussion

On average, participants answered 38 of the 42 (i.e., 90%) of the cued-recall questions correctly ($SD = 4$, range 21 to 42). To determine whether avoidant adults recalled less information from the attachment-related interview, we simultaneously regressed the number of items answered correctly on attachment-related anxiety and avoidance. Consistent with previous findings, avoidance was negatively associated with recall ($\beta = -.25$, $p < .05$). Attachment-related anxiety was not related to recall ($\beta = .03$, *ns*).

To determine how the attachment dimensions were related to implicit memory performance, we simultaneously regressed the number of fragments that were completed with words from the interview on attachment-related avoidance and anxiety. Highly avoidant people were less likely to complete the fragments with interview-related

words ($\beta = -.18$, $p < .05$). In addition, there was a tendency for highly anxious people to complete the fragments with interview-related words ($\beta = .14$, $p = .12$). When we controlled for the number of fragments that were completed with non-interview-related words as a way of controlling total response output, the negative association between avoidance and interview-related fragment completions remained ($\beta = -.19$, $p < .05$).

In some auxiliary analyses we estimated the same regression models but included participant sex and age in the models as control variables. Women recalled more details from the interview than men ($\beta = .13$, $p = .15$), but the effect was not statistically significant. Avoidance continued to predict recall performance when these variables were added to the model ($\beta = -.26$, $p < .05$). Neither sex nor age predicted implicit memory performance ($\beta = .08$, $p = .35$; $\beta = -.11$, $p = .19$, respectively). The coefficient for avoidance was similar to that estimated in the previous analyses ($\beta = -.14$, $p = .13$).

In summary, these findings replicate and extend those reported by Fraley et al. (2000). Specifically, they show that highly avoidant people, when exposed to the same information as everyone else, were less likely to recall that information than less avoidant people. Moreover, an implicit test of their memory indicates that highly avoidant people may have encoded less information than other people.

STUDY 2

The previous results suggest that avoidant adults are less likely than other adults to encode attachment-related information when memory for that information is tested implicitly. These data help to rule out the hypothesis that the poorer recall of attachment-related information exhibited by avoidant adults is due to failures to retrieve information they encoded. Another way to test this hypothesis, however, is to manipulate people's motivation to retrieve information they have encoded. In Study 2 we used the same research procedure described previously but randomly assigned some participants to receive a monetary reward for each question they answered correctly. Importantly, participants in the monetary reward condition were informed of the award *after* they listened to the interview, and *after* they took the implicit test, but *before* they were given the cued-recall test. As such, this manipulation should directly affect their motivation to retrieve information already encoded, but

it should not affect their ability to encode the information per se. If it is the case that the negative association between avoidance and recall reflects a failure to encode information, we should observe a negative relationship between avoidance and recall despite the introduction of a monetary incentive. In contrast, if this negative relationship reflects a relative failure to retrieve acquired information, the negative association between avoidance and recall should be attenuated when people are given an incentive to recall as much information as possible.

Method

Participants. One hundred thirty undergraduates were recruited to participate in this study in exchange for credit in their psychology courses. Fifty-seven percent of the participants were women. The mean age was 19.6 years ($SD = 2.2$).

Procedure and materials. We used the same attachment measures used in Study 1. The anxiety and avoidance scales again correlated positively ($r = .34$) and were therefore entered simultaneously in the regression analyses. The other procedures were virtually identical to those described for Study 1. The key exception was that after participants heard the interview and completed the fragment-completion task, they were randomly assigned to one of two conditions. In the monetary incentive condition, participants were told that they were about to be given a 44-item test regarding the contents of the interview they had just heard and that they would be awarded a dollar for each question they answered correctly. (Two extra questions were added to the memory test in Study 2, making 44 test items rather than 42.) Thus, each person had the opportunity to earn up to $44 total. In the nonincentive condition, participants were given the cued-recall test with no cash award. Although participants in the incentive condition were instructed not to tell other students about the study, we took two additional steps to help ensure that participants were not aware of the possibility of earning money prior to the study. Specifically, participants were tested in groups of 8 to 12 people over the course of 2 days, thereby allowing us to conduct the research relatively quickly. Second, all participants were scheduled prior to the first experimental session and no sign-ups were permitted once the first experimental session began.

The number of items that were recalled correctly in the cued-recall test was used as our measure of explicit memory for attachment-related information. The number of stems that were completed with ideas and concepts from the recording was taken as our measure of implicit memory for attachment-related information. Performance on the implicit and explicit memory measures correlated .01.

Results and Discussion

On average, participants answered 33 of the 44 (i.e., 75%) of the cued-recall questions correctly ($SD = 6$, range 16 to 44).[3] To test our hypotheses regarding avoidance and memory, we conducted a hierarchical regression analysis. In the first step of the analysis, we modeled recall simultaneously as a function of avoidance, anxiety, and experimental condition (dummy coded as 0 [no incentive] or 1 [incentive]). In the second step, we entered the interaction terms for (a) anxiety by condition and (b) avoidance by condition to see if the manipulation had any effect on the association between attachment and recall.

Our analyses indicated that highly avoidant people recalled less information about the interview than less avoidant people ($\beta = -.21$, $p < .05$). Importantly, this association was not moderated by condition; the interaction between avoidance and condition was not significant ($\beta = .07$). Thus, avoidant people recalled less information than other people regardless of whether they were given a monetary incentive for retrieving the information they learned. It should also be noted that there was not a main effect of condition ($\beta = -.07$, *ns*), indicating that recall performance in general was not affected by the monetary incentive. This suggests that, overall, participants were motivated to recall the information they had learned regardless of the incentive and, importantly, that retrieval was not a factor in their recall performance.

We also studied the relationship between implicit memory and attachment in order to replicate the results from Study 1. To do so we regressed simultaneously the number of fragments that were completed with words from the interview on attachment-related avoidance and anxiety. Highly avoidant people tended to be less likely to complete the fragments with interview-related words ($\beta = -.17$, $p < .10$).[4] In addition, highly anxious people were more likely to complete the fragments with interview-related words, but this result was not statistically significant ($\beta = .14$, $p = .18$). When we controlled for the number of fragments that were completed with

3. Memory performance was lower in this sample than in the previous one, probably due to the fact that more people were being tested simultaneously. As such, there may have been more distractions, thereby preventing people from fully focusing on the recording while it was playing.

4. Although this coefficient was not significant, we note that it is virtually identical to the one estimated in Study 1.

non-interview-related words as a way of controlling total response output, the negative association between avoidance and interview-related fragment completions remained ($\beta = -.18$, $p < .10$).

We also estimated regression models in which sex and age were included as covariates. For the model predicting explicit recall performance, women tended to recall more information than men ($\beta = .19$, $p = .06$). With sex in the model, avoidant attachment continued to predict performance ($\beta = -.24$, $p < .05$). For the model predicting implicit memory performance, women tended to complete more fragments with interview-related information than men ($\beta = .17$, $p = .09$). With sex in the model, avoidant attachment tended to be associated with completing fewer fragments within interview-related information ($\beta = -.19$, $p = .07$).

GENERAL DISCUSSION

The objective of the present research was to examine the way in which preemptive defenses affect memory for attachment-related information. Across two studies, we found that highly avoidant people were less likely than others to recall attachment-related information, replicating the findings reported in previous research (e.g., Fraley et al., 2000). We also found a similar pattern of results when we used an implicit memory test. Specifically, highly avoidant people were less likely than less avoidant people to complete word fragments with words relevant to the interview. This finding suggests that the relative inability of avoidant adults to recall attachment-related information may be due to defensive maneuvers that prevent the encoding of that information. In Study 2, we manipulated people's motivation to retrieve information they heard through the use of monetary rewards. Despite being offered a dollar per question answered correctly, highly avoidant people were still unable to recall as much information as less avoidant people. Taken together, these findings suggest that psychological defenses used by avoidant adults primarily operate at preemptive levels, minimizing attention to and the encoding of attachment-related information.

Implications for Attachment Theory

In the literature on adult attachment, avoidant individuals are often portrayed as emotionally vulnerable (e.g., Dozier & Kobak, 1992;

Hesse, 1999; Klohnen & John, 1998; Kobak & Sceery, 1988; Mikulincer & Orbach, 1995). Our findings, however, indicate that the defensive strategies avoidant people use may operate to prevent the encoding of the kinds of experiences that serve to make people emotionally vulnerable. If this is correct, then it may be the case that avoidant people are much less emotionally fragile than has been assumed previously.

How might preemptive strategies create and sustain a defensive representational system? From a social-cognitive developmental perspective, it would seem that memory systems initially acquire a defensive quality when an individual minimizes the number of emotional events he or she attends to and processes. The failure to attend to attachment-related experiences constrains the degree to which one can create a detailed, rich, or sophisticated representation of those experiences. Further, it seems likely that this process can feed back on itself to help maintain an effective defensive stance. According to Collins (Collins, 1996; Collins & Read, 1994), the representations one holds with respect to attachment play a "top-down" role in guiding the kinds of information one attends to and selects for further processing. Thus, an individual with fewer attachment-related memories will be less likely to recognize the emotional implications of interpersonal events and attend to them. In these respects, preemptive defenses may play an important role in the construction and maintenance of a defensive mental system.

Although the use of preemptive defenses may help keep the attachment system relatively deactivated, it is noteworthy that there is considerable variability in the emotional experiences of avoidant individuals, and there may be other factors at work that counter or facilitate the use of such defenses. According to contemporary two-dimensional models of individual differences in attachment organization (e.g., Brennan, Clark, & Shaver, 1998; Fraley & Shaver, 2000; Griffin & Bartholomew, 1994a), the degree to which an individual is avoidant is theoretically distinct from the degree to which he or she is chronically anxious about attachment-related concerns. Thus, some people can be highly avoidant but also highly anxious. Bartholomew labeled this additive combination of avoidance and anxiety *fearful-avoidance*. Fearfully avoidant adults are uncomfortable with closeness and dependence, yet they fear rejection or abandonment in close relationships (Bartholomew, 1990; Bartholomew & Horowitz, 1991). In other words, they have high avoidance scores

and high anxiety scores. Although our data suggest that fearful individuals are less attentive to emotional information (avoidance was negatively associated with memory performance), other evidence indicates that they cannot use psychological defenses to their advantage, possibly because they have an explicit sensitivity to emotional concerns. Indeed, in both of the studies reported here, we found that attachment-related anxiety tended to be related to better performance on the implicit memory test, suggesting that the anxiety underlying fearful avoidance may undermine their ability to maintain effectively a defensive state of mind.

Dismissing-avoidant individuals, on the other hand, are characterized by an additive combination of high avoidance and low anxiety. Dismissing individuals claim that they do not want to be emotionally close to others but, in contrast to fearful people, do not explicitly worry about rejection or abandonment. Although observers and peers tend to consider dismissing adults to be cold and, sometimes, emotionally fragile (Bartholomew & Horowitz, 1991; Kobak & Sceery, 1988), it appears that they can use defensive strategies to their advantage. For example, dismissing-avoidant adults are able to deactivate unwanted emotions relatively effectively (Fraley & Shaver, 1997). Furthermore, they do not get particularly distraught following the end of a relationship (Sprecher, Felmlee, Metts, Fehr, & Vanni, 1998) and report fairly high levels of self-esteem (Bartholomew & Horowitz, 1991; Shaver et al., 1996). Although the repeated use of preemptive defenses may eventually cause a dismissing person to appear emotionally blunted, it could be argued that he or she is less emotionally fragile than otherwise would be the case. In this sense, defenses may be operating effectively for the dismissing individual but in a way that leads peers or relationship partners to feel uncomfortable or dissatisfied (Fraley, Davis, & Shaver, 1998; Fraley & Shaver, 1999).

Strengths and Limitations

There are several strengths to the present research. First, most research at the interface of attachment and memory has focused on the recall of personal experiences that may vary across participants. For example, prior research has found that when people are asked to recall affective memories from their childhood, avoidant people recall fewer affective episodes and take longer to recall

the ones that they do recall (Dorfman-Botens, 1994; Mikulincer & Orbach, 1995). Although these kinds of findings suggest that avoidant people may be failing to recall negative episodes for defensive reasons, such a design does not allow one to examine the possibility that they had fewer negative episodes to recall in the first place. In the present research we tested participants' memory for a common stimulus. As such, we were able to ensure that everyone had the potential to learn the same information. This allowed us to focus on the role of defenses at the level of encoding without confounding defensive encoding and the defensive selection of social experiences. A second strength of the present research is that we examined memory for attachment-related experiences by using both explicit and implicit tests. This allowed us to examine (and rule out) the possibility that highly avoidant people were encoding affective information but were unable to retrieve it. A third strength of this research is that we were able to investigate the interface of motivation and cognition by varying people's incentive to retrieve information to which they had been exposed. Our findings suggest that highly avoidant people are less likely to recall attachment-related information not simply because they are unwilling to retrieve information they have encoded but perhaps because they have failed to encode it when it was originally presented.

Despite some of the advantages of the present research, our findings should be interpreted with a degree of caution. One of the limitations of the present studies is that we only used one kind of implicit memory task. Although fragment completion tasks are commonly used in research on memory (see Ratcliff & McKoon, 1996; Russo, Fox, & Bowles, 1999), there are other ways of assessing the knowledge that people may hold independently of their ability to articulate that knowledge. For example, if avoidant people do in fact encode just as much information as other people, we might find greater interference from that information in a Stroop task. Moreover, it might be possible to observe faster response times in a recognition paradigm or a lexical decision task. We think future research on these issues would be useful for converging on the role of encoding processes in psychological defense.

Another limitation of the present work is that we did not study the relation between individual differences in attachment and memory for nonaffective experiences. It is possible that highly avoidant people are less able to recall the details of any event—not just those

involving themes of intimacy and loss. There is at least one study of which we are aware that examined this possibility. Edelstein (2005) examined the association between attachment and working memory capacity using both attachment-related stimuli and neutral stimuli. She found that highly avoidant people had poorer working memory performance when asked to remember attachment-related words but that their working memory performance was comparable to that of less avoidant people when they were asked to remember neutral words. This indicates that avoidant people do not simply have poorer memory in general.

We should also note that there may have been ceiling effects in our explicit measures of memory. On average, people tended to recall most of the information with which they had been presented. Although there was variability in performance—and some of that variability was explained by avoidant attachment—it still may be the case that the effects are underestimated due to restrictions in range. In our future work, we hope to find alternative ways of assessing memory that enable more variation in performance.

A final caveat is in order. Although our data suggest that highly avoidant people encode less information about attachment-related experiences than other people, these findings should not be interpreted in an absolute fashion. In other words, it is important to keep in mind that highly avoidant people did recall details from the interview they heard. But, relative to less avoidant people, they recalled fewer details. In closing, these data suggest that the defensive strategies used by highly avoidant people may in fact operate to limit or minimize the amount of information they encode about attachment-related experiences. We hope this research will help advance our understanding of the role of psychological defense in attachment dynamics.

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