



Shorter communication

A prospective investigation of the impact of attachment style on stress generation among clinically depressed individuals

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Abstract

The present study sought to determine if attachment style contributed to the generation of stressful life events among clinically depressed individuals during the course of treatment. Participants ($N = 68$) were interviewed about life stressors experienced during a 3-month treatment protocol using a contextual approach (Life Events and Difficulties Schedule; [Brown, G. W., & Harris, T. O. (1978). *Social origins of depression: A study of psychiatric disorder in women*. New York: Free Press]). Results suggested interactive effects between severity of depression and attachment style on stress associated with future sociotropic and dependent life events. Mildly depressed individuals who reported a dismissing attachment style (higher levels of avoidant attachment and lower levels of anxious attachment) or preoccupied style (lower levels of avoidant attachment and higher levels of anxious attachment) experienced higher levels of stress associated with sociotropic events. Likewise, a dismissing attachment style predicted stress associated with dependent events among mildly depressed individuals. These effects were not present among our more severely depressed participants.

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Introduction

Previous research has demonstrated that depression-prone individuals contribute to some degree of the elevated life stress they experience (e.g., Brown, Bilfulco, Harris, & Bridge, 1986). Hammen (1991) investigated this hypothesis of “stress generation” by comparing unipolar depressed women to medically ill, bipolar disordered, and control women. Results indicated that depressed women experienced more stress that was interpersonally focused and somewhat dependent on their own behavior than other women. Furthermore, research has demonstrated that depressive symptomatology prospectively predicts occurrence of interpersonal conflict among adolescents (Daley et al., 1997), minor social stressors among college students (Potthoff, Holahan, & Joiner, 1995), and interpersonal stressors among psychiatric patients (Chun, Cronkite, & Moos,

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2004). This body of research suggests that depressive symptoms predispose individuals to experience more stressful life events, particularly interpersonally oriented events.

As past research has found that depressed individuals tend to generate interpersonal stress, it seems likely that something about their interpersonal characteristics and behavior increases their risk for conflict and stress with friends, co-workers, and loved ones. Consistent with this perspective, Potthoff, Holahan, and Joiner (1995) reported that excessive reassurance seeking prospectively predicted social stressors among college students. Unfortunately, most previous research has not directly examined the role of interpersonal style, but instead has focused on aspects of personality that have implications for interpersonal functioning. Several investigations have tested the impact of dependency and self-criticism on stress generation, and have generally reported that dependency and self-criticism are associated with greater numbers of interpersonal events and achievement events, respectively (Mongrain & Zuroff, 1994; Priel & Shahar, 2000; Shahar, Joiner, Zuroff, & Blatt, 2004; see also Daley et al., 1997).

Individual differences in attachment style may also contribute to stress generation. Attachment style can be conceptualized as an individual's mode of thinking, feeling, and behaving in close relationships with caregivers, romantic partners, and intimate others. An individual's attachment style is thought to develop from childhood experiences with caregivers. Working models of the self and of others are developed in response to these experiences and are thought to influence interpersonal behavior throughout the lifespan (e.g., Bowlby, 1969, 1973, 1980). Recent theory and research (Brennan, Clark, & Shaver, 1998) suggests there are two dimensions of attachment style: *avoidance*, reflecting discomfort with closeness and depending on others and *anxiety*, reflecting fear of rejection and abandonment. Four prototypes of attachment style have been constructed from varying levels of these dimensions (e.g., Bartholomew & Horowitz, 1991): *secure* (low avoidance and anxiety), *preoccupied* (low avoidance and high anxiety), *dismissing* (high avoidance and low anxiety), and *fearful* (high avoidance and anxiety). Attachment style has been shown to influence individual differences in cognitive and personality style including beliefs about self and others, self-esteem, relationship functioning, emotional reactivity, coping styles, and defensiveness (see Pietromonaco & Feldman Barrett, 2000 for review).

Of particular relevance to stress generation, attachment styles appear to influence individuals' thoughts and behaviors during interpersonal interactions, including self-disclosure (Mikulincer & Nachshon, 1991), expression of anger (Mikulincer, 1998), and conflict resolution (Pistole, 1989). As such, it is likely that attachment style guides the interpersonal behavior of depressed individuals. Of note, depressed individuals with insecure attachment may have difficulties in interpersonal domains including romantic relationships (e.g., Carnelley, Pietromonaco, & Jaffe, 1994) and work interactions (e.g., Hardy & Barkham, 1994). For example, depressed individuals who are higher in avoidance (i.e., fearfully or dismissively attached) may have difficulty seeking and giving support with loved ones or co-workers during stressful situations and this inability to solicit love and guidance may result in conflict (e.g., Rholes, Simpson, & Orina, 1999). Alternatively, it may be that those depressed individuals who are high in anxiety (i.e., preoccupied or fearfully attached) may induce interpersonal problems by repeatedly seeking attention and reassurance from their loved ones (e.g., Shaver, Schachner, & Mikulincer, 2005). Hankin, Kassel, and Abela (2005) reported that insecure attachment prospectively predicted self-reported interpersonal-related, but not achievement-related, events in a sample of undergraduates. This investigation provided preliminary evidence that attachment style is one mechanism by which stress generation occurs.

Although Hankin et al. (2005) suggest that attachment security influences the generation of stressful life events, further research is needed to examine this relationship among clinically depressed individuals. It is likely that the impact of attachment style on stress-generation functions differently based on severity of depressive symptomatology. Several investigations (e.g., Hammen, Mayol, deMayo, & Marks, 1986; Monroe, 1982; Roberts & Kassel, 1997) have provided evidence that the impact of life events varies as a function of depression severity. While most investigations of stress generation have utilized mildly depressed individuals, few studies have examined stress generation at higher levels of depression severity. It may be that more severely depressed individuals do not have the opportunity to create or experience stress because they are withdrawn, inactive, and isolated (e.g., they are less likely to create occupational stress because they are unemployed). As such, attachment style may be less strongly related to stress generation among more severely depressed individuals relative to less severely depressed individuals. Alternatively, the relationship between

attachment style and stress generation may be stronger among more severely depressed individuals. Whereas mildly depressed individuals may be able to monitor their behavior to reduce the generation of stress, more severely depressed individuals may be unable to do so.

Past research on stress generation has been limited by its reliance on self-report measures of life events, which have been criticized as being overly subjective and vulnerable to reporting biases (e.g., McQuaid et al., 1992; Monroe & Roberts, 1990). Further, as stress generation implies personal responsibility for the occurrence of the event, it is particularly important to assess whether events occurred as a result of the person's behavior or more independently. Self-report measures cannot adequately make this distinction. Additionally, although previous research has made a priori decisions about content domain (e.g., autonomous versus sociotropic stressors) of checklist events, this approach cannot account for the personal, idiosyncratic meaning of life events (see Blatt & Zuroff, 1992, p. 553). For example, although events such as a "job loss" are typically categorized as "autonomous", some individuals may experience this as a "sociotropic" event, due to the loss of a social network. The Life Events and Difficulties Schedule (LEDS; Brown & Harris, 1978) allows the investigator to gather information necessary to determine the degree to which the person's behavior contributed to the event and to assign content domain based on individual meaning.

The present study prospectively examined the role of attachment style in stress generation using a clinically depressed sample and an interview-based assessment of life events. First, consistent with the stress generation model (Hammen, 1991), we hypothesized that insecure attachment style, specifically being high in either avoidance or anxiety, would prospectively predict dependent, rather than independent, events. Second, in line with Hankin et al.'s (2005) investigation, we hypothesized that insecure attachment, specifically being high in either avoidance or anxiety, would predict interpersonally related, but not achievement-related events. Finally, on an exploratory basis, we tested severity of depression as a potential moderator of the association between attachment style and future life events.

Method

Participants

Participants were 68 adults (48 female) from a larger study on the treatment of depression conducted by the Depression Research and Treatment Program at the University at Buffalo. The majority of our sample had current Major Depressive Disorder ($n = 45$) with the remainder experiencing Major Depressive Disorder, in Partial Remission ($n = 11$), Dysthymic Disorder ($n = 8$), and Minor Depression ($n = 4$). Participants' Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) scores ranged from 15 to 51 (mean = 30.7, $SD = 8.9$). The mean age of participants was 40.1 years ($SD = 11.3$) and the majority were Caucasian (91.2%). Approximately half of the participants were single, one third were married, and the remainder were divorced. Participants completed a 10-week group treatment program based on the coping with depression course (Lewinsohn, Antonuccio, Steinmetz, & Teri, 1984). This psychoeducational program focused on pleasant activities, relaxation, social skills, and cognitive modification.

Measures

Depressive symptomatology

There were two measures of depressive symptomatology. The Beck Depression Inventory-II (BDI-II; Beck et al., 1996) is a 21-item measure examining self-reported depressive severity. Internal consistency of the items is quite high ($\alpha = .92$; Beck et al., 1996) and was acceptable ($\alpha = .81$) in the current sample.

The Structured Clinical Interview for DSM-IV (SCID-I; First, Spitzer, Gibbon, & Williams, 1997) is a semi-structured clinician-administered interview used to diagnose DSM-IV Axis I disorders (American Psychiatric Association, 1994). Reliability has been shown to be moderately high in patient populations ($\kappa = .60$ for major depression, $\kappa = .40$ for dysthymic disorder; Williams et al., 1992), and comparable reliabilities were found with the present data (MDD: $\kappa = .69$, Dys: $\kappa = .64$).

Life events

Participants initially completed a self-report life events checklist that was a modified version of Paykel's Interview for Recent Life Events (IRLE; Paykel, 1997). Following completion, participants were interviewed by a clinician using the LEDS (Brown & Harris, 1978). Participants were asked questions about the details of the events reported on the IRLE to gather information about the context of the event. For example, information was gathered about behavioral changes resulting from the events, e.g., changes in ability to pay bills or reductions in social contact. Following completion of the interview, the interviewer presented the information gathered about the events to a panel of between two and five trained raters. Their presentation included clarifying details of the context surrounding the event but did not include information on the participant's subjective response to the event. Consensus threat ratings were based on a standardized manual of over 5000 examples of events (Bifulco et al., 1989), discrepancies were resolved through discussion, and final ratings were decided by consensus. Threat scores ranged from 1 "little threat" to 5 "marked threat", with 5 representing the most severe threat. The result is an index of threat based on the impact an event would have on the average person independent of the participant's subjective report.

In addition to long-term threat, independence ratings were given to quantify the likelihood that an event has been influenced by the individual's behavior or their psychological disorder. Using guidelines from the LEDS manual (Bifulco et al., 1989), ratings of independence were given and events were dichotomized into events that are "independent of one's behavior" and are "at least partially dependent on participant's behavior". "Independent" events are viewed as externally caused while those rated as "dependent" events are thought to occur, in part, because of an individual's behavior. Events that were directly related to depression (e.g., "started treatment") were excluded. Finally, the consensus team rated degree of "sociotropic" threat, i.e., interpersonal loss, rejection, or experience of abandonment and "autonomous" threat, i.e., failure to meet internal standards or those of others, thwarted goals, or disapproval and criticism from others. Events were rated on a four-point scale with "1" signifying the highest level of sociotropic or autonomous content and "4" signifying no sociotropic or autonomous content. Subsequently, events with scores of 1, 2, or 3 were coded as "sociotropic" or "autonomous" events. Based on Light's κ (Conger, 1980), we had good reliability in our ratings of event severity ($\kappa = .85$) and acceptable reliability with content and dependence ratings: sociotropic ($\kappa = .67$), autonomous ($\kappa = .62$), and independent versus dependent ($\kappa = .60$).

Attachment style

The Experience of Close Relationships (ECL; Brennan et al., 1998) is a 36-item self-report measure designed to measure adult attachment. There are two subscales to measure the two dimensions of attachment: avoidance ($\alpha = .94$) and anxiety ($\alpha = .91$). Examples of items include "I prefer not to show a partner how I feel" and "I worry about being alone." Participants responded to the items on a 7-point scale from 1 = *disagree strongly* to 7 = *agree strongly*. Scores from both subscales were examined as continuous measures and internal consistency in the current sample was good (avoidance, $\alpha = .88$ and anxiety, .93). The two subscales, avoidance ($M = 57.97$, $SD = 19.68$) and anxiety ($M = 76.84$, $SD = 23.28$), were not correlated with one another, $r = .02$.

Procedure

Diagnostic interviews were conducted by advanced clinical psychology doctoral students under the supervision of the second author. Eligible participants had to receive a diagnosis of clinical depression, could not meet criteria for manic episodes or schizophrenia, and had to score 15 or greater on the BDI. Participants were asked to complete several questionnaires including the ECL and the BDI during the pre-treatment assessment. Subsequently, they participated in a 3-month group treatment program. Upon completion, participants were interviewed regarding their experience of life events throughout treatment.

Results

Life events

The sample as a whole experienced 114 LEDS events over the course of the study. Approximately 68 percent of the participants ($n = 46$) experienced at least 1 LEDS event (range: 0–7). In terms of content domain, 12 participants experienced “sociotropic” events (20 events total) and 22 participants experienced “autonomous” events (32 events total). Moreover, 41 participants experienced events that were at least somewhat dependent on their behavior (93 events total), whereas only 12 participants experienced events that were independent of their behavior (15 events total). As the range of experienced life events was restricted, we created cumulative threat scores for each category of LEDS event (sociotropic, autonomous, dependent, and independent) by summing the threat associated with each type of LEDS event for each participant. These cumulative scores were used as dependent variables.¹

Predictors of threat associated with experience of acute life events

Multiple regression was used to test the hypotheses. These analyses examined whether attachment style alone, or in combination with depression severity, prospectively predicted threat associated with experiencing a life event. Four analyses were conducted to examine each class of life event (sociotropic, autonomous, dependent, and independent) separately. For each of these analyses, depression severity and attachment style were entered simultaneously at Step 1. At Step 2, the two-way interaction terms between depression severity, avoidance and anxiety were entered, and finally, the depression severity \times avoidance \times anxiety triple interaction was entered at Step 3. The forms of significant interactions were explored graphically using the Effects package (Fox, 2003) and with simple slopes analyses (Aiken & West, 1991). Standardized β 's are reported.

Sociotropic events

At Step 1, there were no statistically significant main effects of depression severity, avoidance, or anxiety in predicting threat associated with sociotropic events (all t 's < 1.65 and all p 's $> .10$). Likewise, at Step 2, none of the two-way interactions were statistically significant (all t 's < 1.83 and all p 's $> .07$). However, at Step 3, the depression severity \times avoidance \times anxiety triple interaction was statistically significant ($\beta = .33$, $t = 2.18$, $p < .05$). Follow-up analyses were conducted to further explore this interaction. Simple slope analyses indicated that the avoidance \times anxiety interaction was significant when depression severity was conditioned at 1 standard deviation (SD) below its mean, ($\beta = -.69$, $t = -2.86$, $p < .01$), but was not statistically significant when conditioned at 1 SD above its mean, ($\beta = -.03$, $t = -.16$, $p = .87$). Fig. 1 graphically displays the avoidance \times anxiety interaction conditioned at low depression severity. In order to further examine this interaction, simple slopes were conducted 1 SD above and below the mean level of anxiety with each also conditioned at mild severity of depression. The simple slopes were significant for both lower levels of anxiety ($\beta = .74$, $t = 2.50$, $p < .05$) and for higher levels of anxiety ($\beta = -.64$, $t = -2.07$, $p < .05$). Those individuals who reported a combination of high avoidance and low anxiety (dismissing style) or a combination of low avoidance and high anxiety (preoccupied style) experienced greater threat over the course of the investigation. In contrast, those individuals with a combination of low avoidance and anxiety (secure style) or a combination of high avoidance and anxiety (e.g., fearful style) experienced less threat.

Autonomous events

None of the main effects or interactions of depression severity, anxiety or avoidance were statistically significant predictors of threat related to autonomous events (all t 's < 1.63 and all p 's $> .11$).

¹Results were virtually identical in regression analyses that used the raw number of life events in the different categories as dependent variables. We also note that the results of these regression analyses were not driven by unduly influential data points (all Cook's values < 1).

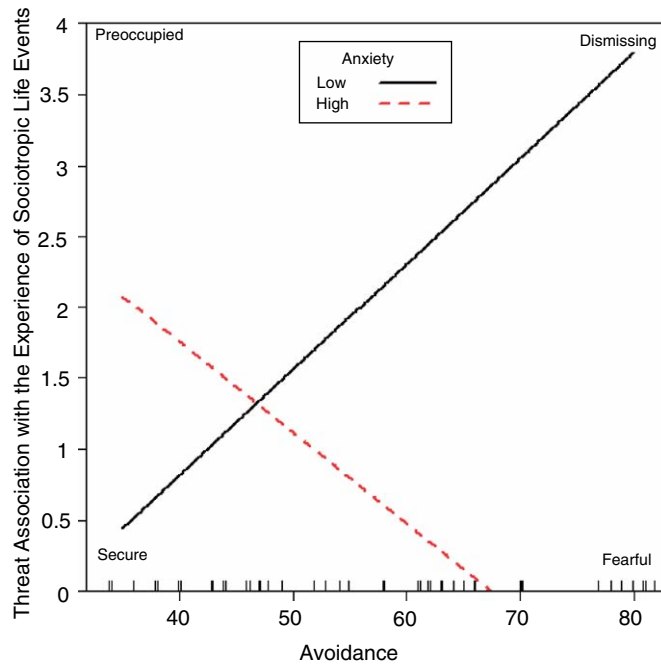


Fig. 1. Threat related to the experience of sociotropic events as a function of the interaction between avoidant and anxious attachment conditioned at low depression severity. The four attachment styles are graphically displayed as a combination of level of avoidant and anxious attachment. The x-axis represents the level of avoidant attachment while anxious attachment is reflected by the simple slopes with both low anxiety (1 SD below mean) and high anxiety (1 SD above mean) represented. Secure styles are represented in the bottom left quadrant (low avoidance and low anxiety), preoccupied styles in the top left quadrant (low avoidance and high anxiety), dismissing styles in the top right quadrant (high avoidance and low anxiety), and fearful styles in the bottom right quadrant (high avoidance and high anxiety). A rug plot has been provided for the x-axis, reflecting the distribution of data points among our participants.

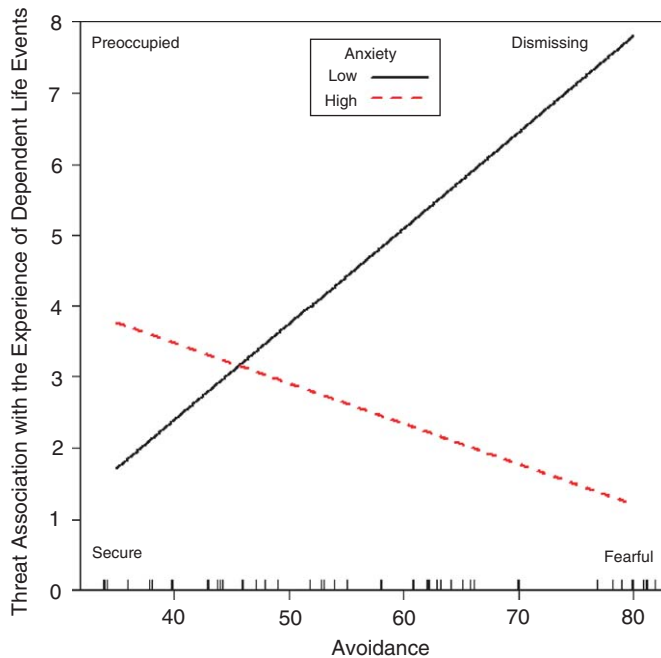


Fig. 2. Threat related to the experience of dependent events as a function of the interaction between avoidant and anxious attachment conditioned at low depression severity. The orientation of this figure is similar to Fig. 1—see Fig. 1 caption for details.

Dependent events

At Step 1, there were no statistically significant main effects of depression severity, avoidance, or anxiety in predicting threat associated with dependent events (all t 's < .81 and all p 's > .42). Likewise, at Step 2, none of the two-way interactions were statistically significant (all t 's < 1.26 and all p 's > .21). However, at Step 3, there was a significant depression severity \times avoidance \times anxiety triple interaction ($\beta = .32$, $t = 2.04$, $p < .05$). Simple slope analyses indicated that the avoidance \times anxiety interaction was significant when depression severity was conditioned at 1 SD below its mean ($\beta = -.51$, $t = -2.03$, $p < .05$), but not when it was conditioned at 1 SD above its mean ($\beta = .14$, $t = .80$, $p = .43$). Fig. 2 graphically displays the avoidance \times anxiety interaction conditioned at low depression severity. In order to further examine this interaction, simple slopes were conducted at 1 SD above and below the mean with each also conditioned at low depression severity. The effect of avoidance was statistically significant when conditioned at low anxiety ($\beta = .72$, $t = 2.32$, $p < .05$) but not when conditioned at high anxiety ($\beta = -.30$, $t = -.94$, $p = .35$). Those individuals who reported a combination of high levels of avoidance and low levels of anxiety (dismissing attachment style) experienced greater threat from dependent life events over the course of the investigation.

Independent events

None of the main effects or interactions of depression severity, anxiety or avoidance were statistically significant predictors of threat related to independent events (all t 's < 1.45 and all p 's > .15).

Discussion

A number of previous studies have found that depression-prone individuals are at risk for future stressful life events. Moreover, Hankin et al. (2005) have demonstrated that attachment style plays a role in the stress generation process. The present study built on this previous research by using an interview-based method of measuring stressful life events and a clinically depressed, treatment-seeking sample. Our results illustrate that attachment style and depressive severity interacted to prospectively predict threat associated with the generation of sociotropic and dependent life events, but not autonomous or independent life events.

Insecure attachment style, specifically preoccupied and dismissing attachment styles, were associated with future sociotropic and dependent life events. However, these effects were limited to patients who were less severely depressed at pre-treatment. These results are consistent with Daley et al. (1997) who reported that the majority of the stress experienced by their participants occurred in periods of time absent of significant depressive symptomatology. It is possible that severely depressed individuals are prone to chronic, ongoing stress, as opposed to acute events, or that other factors such as depressive symptomatology (e.g., withdrawal, lack of energy, suicidal ideation) override the impact of attachment style on stress generation.

Among less severely depressed patients, insecure attachment predicted threat associated with future sociotropic and dependent life stress. More specifically, those individuals reporting either dismissing or preoccupied attachment styles experienced greater threat from sociotropic events. Likewise, dismissing individuals also experienced greater threat from dependent events. It is likely that dismissing individuals generate their own stress, particularly interpersonal stress, because their interpersonal behavior is tainted by fear of and difficulty with getting close to others (e.g., Feeney, 1999). Bartholomew and Horowitz (1991) reported low levels of emotional expression and warmth and excessive coldness among dismissive individuals, suggesting that their aloof behavior may induce interpersonal problems for these individuals among friends, family, and co-workers. Preoccupied individuals may be prone to stress generation for other reasons. For example, Pietromonaco and Feldman Barrett (1997) have reported that preoccupied individuals report high satisfaction and emotionality following high conflict situations. They suggest that the preoccupied individuals interpret their partner's response, whether positive or negative, as a sign of interpersonal engagement and thus, may find benefit in conflict as it fulfills personal needs for intimacy. Furthermore, they may perceive higher levels of conflict than do their romantic partners (e.g., Campbell, Simpson, Boldry, & Kashy, 2005), ultimately leading to interpersonal stress in the lives of the preoccupied individuals. Thus, it appears that

incongruent working models of the self and others may lead to interpersonal problems as the individual is unable to simultaneously manage their behavior to appease themselves and others.

Interestingly, patients with either low (secure style) or high (fearful style) levels of both anxiety and avoidance experienced less threat from these types of life events. While it makes theoretical sense that the secure individuals would be less likely to generate stressors, it is surprising that the fearful individuals appear to be “protected” from stress generation. These individuals tend to believe that they will be rejected by others and therefore, avoid interpersonal interactions (e.g., Bartholomew & Horowitz, 1991). Unlike dismissing individuals, who strive towards independence to maintain their positive sense of self or preoccupied individuals who strive to please others, fearful individuals have a poor sense of self and may restrict themselves from opportunities in which they could even generate events. Such behavior could result from their extremely negative evaluation of potential social support in their lives (e.g., Collins & Feeney, 2004). Alternatively, it may be that the lives of these individuals may be rather sparse and unfulfilling. For example, Bookwala (2003) recently reported that fearful attachment predicted experience of being single and unattached among a cohort of young adults. While our results did not vary as a function of relationship status (i.e., single or partnered) or employment status (employed or unemployed), the methodology of this study did not allow us to examine the potential impact of the relative quality of their lives (e.g., relationship satisfaction or satisfaction with their occupational status). It is possible that these participants did not have the same opportunity to generate stressful life events as others within the study.

The present study makes important contributions to the literature by using the LEDS to measure life events. This approach provides a more objective and potentially more accurate measurement of life events compared to self-report checklists (e.g., McQuaid et al., 1992) and allowed us to assign ratings of event threat, content (e.g., sociotropic and autonomous), and the role of a person’s behavior in the occurrence of events. This level of precision in ratings was particularly important as our results varied as a function of class of event. Use of a life events checklist would not have yielded such specific information. Second, the present study may represent the first prospective investigation of the impact of attachment style on stress generation among clinically depressed individuals. This is important as there are likely different mechanisms involved in the generation of stressful life events among individuals experiencing subclinical dysphoria versus clinical depression (e.g., Coyne, 1994).

Although the present study yielded several theoretically interesting findings concerning the roles of attachment style and depression severity on stress generation, it is likely that our effects were somewhat attenuated as the result of the relative infrequency of LEDS-defined life events and the demographics of the present sample. In order to sample a higher frequency of life events, future studies might investigate the impact of attachment style over longer time periods. Furthermore, the relationship status of the participants varied widely, which may have influenced the type of events experienced. Finally, the participants were undergoing group behavioral treatment that may have decreased their risk for life stressors as one of the goals of this treatment is to teach participants new ways to cope with life stress. It may be that the treatment was effective in reducing maladaptive behavior associated with life stress. Nonetheless, attachment style prospectively predicted stress associated with sociotropic and dependent events among the more mildly depressed individuals during the course of behavioral treatment. It remains for future research to elucidate the interplay between other specific psychological interventions, attachment style, and depressive severity on stress generation.

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