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Narrative Meaning-Making, Attachment, and Health Outcome

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M.Ed., Vanderbilt University, 2013

B.A., University of Dayton, 2011

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## Abstract

Understanding how people turn episodes in time into subjectively meaningful experiences can shed light on adaptive meaning-making processes. Bridging attachment theory and narrative meaning-making may elucidate how individuals distinctively narrate traumatic memories and whether such expression matters for health. Single trauma narratives from 224 college participants were coded along dimensions of attachment theory, exploration and support seeking. Attachment style, personality traits, posttraumatic growth, and posttraumatic stress were also measured. Narrative exploration and support seeking were predictors for posttraumatic growth and stress, respectively, after controlling for personality traits and attachment. Importantly, we showed attachment moderates the relationship between narrative meaning-making and health outcome. The relation between higher narrative exploration and increased growth levels was weaker for more avoidantly attached individuals, while the relation between lower narrative support seeking and increased stress levels was stronger for more anxiously attached individuals. Our findings indicate narrative processes matter for health and may be utilized to different degrees depending on the narrator's attachment style.

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## Narrative Meaning-Making, Attachment, and Health Outcome

Attachment theory delineates how emotional bonds with others influence our feelings of security and exploratory behavior in the world from, as Bowlby said, “Cradle to grave” (Bowlby, 1979). Attachment begins with the strong emotional bond felt between an infant and caregiver. The interaction the infant has with the caregiver(s) critically informs environmental exploration in safe times and proximity-seeking strategies in distressing times (Ainsworth, Blehar, Waters, & Wall, 1978). Early developing attachment-related feelings of security or insecurity have broad reaching effects throughout adulthood, including on emotion-regulation strategies, clinical symptomology, and self-esteem, amongst others (see Mikulincer & Shaver, 2007, for review). Few studies, however, explore the underlying cognitive processes that link attachment to health outcome. Because attachment status appears to moderate clinical improvements in therapeutic settings (Mallinckrodt, Porter, & Kivlighan Jr., 2005), attachment-related expressions of self in therapeutic narratives may be an underlying process for health outcome. In general, narrative expression of stressful events is associated with physical and psychological improvements (Frattaroli, 2006). Making meaning through narration may be both an indicator and facilitator of health outcome. Bridging attachment theory and the narrative expression of personal experience together can provide a developmental framework for how one comes to perceive distressing situations, respond to them, and later reflect on them (Fivush & Waters, in press). In particular, expressing themes of exploration and support seeking in narratives of stressful experiences may be an underlying process for linking attachment to health outcome.

Thus the major objective of this study is to examine relations among attachment status, narrative exploration and support seeking, and health outcomes of distress and growth.

### **Attachment Theory**

Bowlby (1979) contended attachment style begins in infancy and is maintained into adulthood. He proposed that one internalizes early experience to form the “Internal Working Model” (IWM), which is a generalized event representation that allows individuals to anticipate and plan the future. Bowlby further contended the IWM is generalized to new relationships that organize thoughts, emotions, behaviors, and distress responses. The IWM works in a script-like manner, specifying an expected secure base sequence of actions for how events should unfold (Waters & Waters, 2006). Using self-report methodology, broad reaching consequences of attachment in adulthood have been well documented. Relatively secure individuals are more likely to report higher marital satisfaction than insecurely attached individuals, less relational conflicts, and higher self-esteem (see Mikulincer & Shaver, 2007, for review). Moreover, relatively securely attached individuals, compared to insecurely attached, report less depressive (Hankin, Kessel, & Abela, 2005) and PTSD symptomology (O’Connor & Elkit, 2008), and tend to use more effective coping strategies (Caldwell & Shaver, 2012). It appears that current attachment status significantly influences how individuals perceive others, their selves, and the environment around them throughout development. Two interdependent attachment-related behavioral systems are theorized to work with each other to achieve physical and psychological security, the attachment behavior system (hereafter, the support seeking system) and the exploration system. The exploratory system leads to experiencing novel stimuli in the environment, in order to promote curiosity and growth.



The support seeking system is proximity seeking, in order to promote survival, safety, and emotional and psychological regulation. As such, the attachment system is typically activated when threats are perceived and the exploration system is activated when threats are down-regulated to allow the individual to be sociable, uninhibited, and learn about the environment. The two systems complement each other to help form the IWM (Bowlby, 1979). Importantly, the systems are activated in ways that may help or hinder individuals from regulating their emotion depending on their attachment related regulation strategies.

In adulthood, the interdependent systems of exploration and support seeking are largely investigated through overt behaviors and reports. For example, Elliot and Reis (2003) found more securely attached college students engaged in more exploratory styles during learning than insecurely attached students. They concluded secure attachment in adulthood fosters unobstructed inclinations for exploration in achievement settings, and that insecure attachment in adulthood interferes with exploration by evoking avoidance motivations. Additionally, securely attached individuals appear to better utilize strategies to down regulate threats, including seeking the support of others. For instance, securely attached individuals have been shown to seek out others as a way to cope from a stressful event, compared to insecurely attached individuals (Ognibene & Collins, 1998), and support seeking mediates post-traumatic stress (PTSD) symptomology, such that PTSD symptomology decreased to the extent individuals sought support (Besser & Neria, 2012). Secure attachment likely sustains a sense of trust in others and confidence that others can aid in distressing times.

Delving deeper into how attachment beliefs relate to cognitive processing, Ein-Dor, Mikulincer, and Shaver (2011) found that individuals utilized distinct, well-

developed attachment-related schemas that facilitated more, quicker, and deeper processing to attachment related stimuli. In particular, highly anxious individuals are more likely to use hyperactive strategies to energetically seek proximity and support. These strategies include hypervigilance to possible threats, especially in ambiguous situations, reacting quickly to threats, alerting others, and seeking proximity to others. Highly avoidant individuals are more likely to use deactivating strategies that inhibit proximity seeking. These strategies include hyper-sensitivity to minimizing the importance of threatening stimuli, taking flight more quickly from them, and not seeking proximity to others. In narratives coded for these strategies, they found that more anxiously attached people created more anxious narratives, and more avoidantly attached people created more avoidant narratives, than secure individuals. Thus, attachment-related schemas appear to be enacted in characteristic ways during threatening times; the stimuli people attend to, and then process appears to depend on their attachment style in a scripted manner. However, although suggestive, the research to date has not provided clear cognitive mechanisms that relate attachment to health outcome.

One clue to possible cognitive mechanism is that attachment status has been found to have a moderating effect on therapeutic outcome. Depth of in-session exploration has been associated with attachment style (Mallinckrodt et al., 2005), suggesting there may be differing narrative expression depending on attachment style. Importantly, attachment to the therapist played a crucial role in the session exploration and smoothness. In other words, clients could delve deeper into their clinical problems and use their therapists as support with increased effectiveness to the extent to which they were securely attached. In general, the concurrent expression of both positive and

negative emotions or aspects of self in therapy sessions predicted new insights in the following therapy sessions (Adler & Hershfield, 2012), as well as peak levels of processing (i.e. reframing experience or making new meaning) (Hayes, Beevers, Feldman, Laurenceau, & Perlman 2005). These findings suggest that cognitive flexibility and tolerance for ambiguity are likely necessary to explore and then grow since exploration is a conflict engendering process. How people express their experience in narratives may be a process through which attachment status stability is maintained, and thereby associated with outcome. A closer look at how attachment status influences personal narratives is needed. Individuals may narrate personal experiences differently depending on attachment style, and these narrative differences likely matter for health.

### **Narrative Processing**

Narratives are the way in which individuals linguistically express their personal memories. Remembering the personal past is not a simple recollection of facts and observations. Rather, persons turn episodes in time into subjective, meaningful experiences. These memories shape self-identity, guide future behavior, and connect individuals to others (Fivush, 2011; McAdams & Pals, 2006; McLean, Pasupathi & Pals, 2007). We call forth and reconstruct autobiographical memories to help serve these functional purposes (Bluck, 2003). Expressing past events linguistically, notably within a narrative framework, may be both an indicator and facilitator for organizing and understanding events and ourselves.

Decades of research have shown that expressing negative experiences changes emotional states. The most convincing evidence, perhaps, is shown in expressive writing interventions, in which individuals write about stressful experiences over a period of

multiple days and their physical and psychological health is assessed both before and after intervention. Frattaroli's (2006) meta-analysis of 146 studies supports robust positive effects on both psychological and physical health as a result of engaging in expressive writing. A general explanation is that taking time to reflect on emotions, and create a coherent and explanatory narrative, enables one to make sense of negative events. However, simply listing, or expressing, negative emotions about distressing experiences is not as effective as writing narratives (Smyth, True, & Souto, 2001). Narratives move beyond simple listings of events to construct an agent with thoughts, feelings, and goals in an event. This narrative framework facilitates thematic, causal, and temporal connections between the experience and the self (Habermas & Bluck, 2000) which fosters self-regulation, relations, and understanding (Fivush, 2011). Indeed, Greenhoot, Sun, Bunnell, and Lindboe (2013) found that thematic narrative meaning-making measures, such as narrative coherence and resolutions were better predictors of psychological adjustment in individuals diagnosed with PTSD than more local lexical markers of processing (e.g. cognitive processing words such as "understand" and "realize"). In other words, the holistic aspects of the narrative can be more predictive of psychological adjustment than tracking the use of specific cognitive words.

To date, however, we have little information about why there are individual differences in this process. Moreover, some research has observed deleterious effects of narrative meaning-making on certain populations (Greenhoot & McLean, 2013), thus calling for an increased understanding of the phenomenon (Sales, Merrill, & Fivush, 2013). Integrating narrative meaning-making with attachment theory suggests the possibility that more securely attached individuals are able to benefit more from narrative

meaning-making because they are better able to make use of exploration and support seeking attachment behaviors. In other words, a secure attachment system may provide the stage for individuals to be able to explore challenging events in the context of seeking support from their attachment figures, and that this narrative meaning-making is what facilitates better outcome. This is the major question addressed in the present study.

### **Narrative Exploration and Support Seeking**

Sparse research has examined exploratory narrative processing, and none from an attachment perspective. A few studies have examined accommodative processing, defined as the active effort to explore, reflect, or analyze difficult experiences, which is conceptually related to attachment exploration. Pals (2006) found that this kind of exploratory narrative processing mediated the relation between self-reported coping style at age 21 and emotional maturity at the age of 61. Similarly, King, Scollon, Ramsey and Williams (2000) found that evidence of actively experiencing paradigmatic shift and foreshadowing in how parents narrated about their children's diagnosis of Down syndrome predicted later stress related growth and ego development. These findings suggest that accommodative processing allows one to be more flexible in the meaning-making process to grow in cases where the current meaning may only be considered contaminated to more rigid viewers. Joseph and Linley (2005) contend that only accommodation can lead to posttraumatic growth. Examples of posttraumatic growth include strengthened sense of self or relationships, shift in life priorities or outlook, benefit finding and new insights (Tedeschi & Calhoun, 1996). In the present study, we examine whether narrative exploration may be a facilitator for such growth.

In addition, seeking support is a core feature to the secure base script in

attachment (Waters & Waters, 2006), and social support has been shown to mediate PTSD symptomology (Besser & Neria, 2012). Perceiving a lack of social support, however, is a distinct process from actually expressing social support in narrative form. Although few have studied narrative meaning-making from an attachment perspective, it is the case that including others in narration has been linked to positive outcomes. For example, incorporating others when narrating life goals (i.e. communal growth goals) is related to higher sense of well-being, compared to those who did not have communal growth goals (Bauer & McAdams, 2010). Conversely, high trait neuroticism has been related to more contaminated, or highly negative, expression when narrating the loss of a loved one. In turn, narrative raters were less comfortable with and accepting of the highly neurotic narratives (Baddeley & Singer, 2008). It appears mentioning significant others in a regulated manner is beneficial for health, while doing so in a dysregulated way may exacerbate poor outcome. The present study is the first to explicitly examine themes of support seeking in narratives in relation to both attachment and distress.

### **The Present Study**

Research has shown relations between attachment and health, attachment and narrative, and narrative and health, but no study has examined all three. Bridging attachment style and narrating meaning-making provides a more comprehensive developmental framework for how we experience and respond to stressful events. Here, we examine attachment status, exploratory and support seeking themes in narratives of highly stressful experiences using newly developed coding schemes, and health outcome indicators of distress (PTS) and growth (PTG). Because there is some research linking the “Big 5” personality traits to both attachment (Nofle & Shaver, 2006) and to narratives

(Lodi-Smith, Roberts & Robins, 2009; McAdams et al., 2004; Pals, 2006), we include a measure of personality traits as a control.

*Hypothesis 1: Attachment status will be related to health outcomes, such that more insecurely attached individuals will show higher levels of distress and lower levels of growth.*

*Hypothesis 2: Narrative themes will contribute to predicting health outcome over and above attachment status, such that individuals who narrate more exploratory themes will show higher levels of growth and individuals who narrate more support seeking themes will show lower levels of distress*

*Hypothesis 3: Attachment status will be related to the different forms of narrative meaning-making, with more insecurely attached individuals showing less effective use of narrative exploration and support seeking, compared to securely attached individuals.*

We note that insecure attachment consists of two dimensions, anxious and avoidant attachment. However, as this is the first study to explore attachment, narratives and health, we make no specific predictions along these attachment dimensions.

## **Method**

### **Participants**

Undergraduate psychology students participated for course credit in a larger study from which these data were drawn. 224 subjects completed the study ( $M_{\text{age}} = 19.2$  years,  $SD = 2.1$ , 114 males and 110 females); 67.6% were self-identified as Caucasian, 12% as East Asian, 7.6% as African-American, 4% as South Asian, 2.2% as Hispanic, and 6.7% as mixed or Other origin. All procedures were approved by the University IRB.

### **Procedure**

Groups of six to 12 participants were seated in classrooms at least two seats apart, and asked to complete a workbook. Each workbook included a consent form, demographics page, writing prompts for multiple narratives, and a battery of measures and questionnaires. Narratives and questionnaires were counterbalanced, but the measures of PTSD and PTG described below were always completed immediately upon completion of the narrative used in this study. Participants were untimed, and took 90 to 120 minutes, on average, to complete the packet. The narrative writing prompt asked:

I would like for you to write about your most traumatic experience of your life. This should be an extremely emotional event that has affected you and your life. You may include the facts of the event, as well as your deepest thoughts and feelings. All of your writing will be kept confidential. Do not worry about spelling, sentence structure, or grammar. There is no time limit on your writing; you may write about this event for as long as needed.

After completing this narrative, participants were asked to complete self-report measures of distress, operationalized as PTSD, and growth, operationalized as PTG (described below), specific to the event. Self-report measures of attachment status and personality were also included in this study.

Attachment status was assessed using the *Experiences in Close Relationships-Revised* (ECR-R), consisting of 32 items regarding experiences in a close relationships rated on a 7 point Likert scale (1-7). Sixteen items measure attachment anxiety (E.g. “I worry about being abandoned”), and 16 items measure avoidance (e.g., “I prefer not to show my partner how I feel deep down”). Low scores on each denote attachment security. The reliability and validity of these scales have been repeatedly demonstrated (see Mikulincer & Shaver, 2007, for review).

Growth was assessed using the *Post-traumatic Growth Inventory*, a 21-item



questionnaire measuring positive outcomes following a traumatic event, on five subscales: Appreciation of Life (three items), New Possibilities (five items), Personal Strength (four items), Relating to Others (seven items), and Spiritual Change (two items). Participants respond to each item on a 6-point scale indicating positive change followed the traumatic event (e.g. new opportunities are available which wouldn't have been otherwise", "appreciating each day", "a sense of closeness with others). Participants' scores were summed. High internal consistency ( $\alpha = .90$ ), and test-retest reliability ( $r = .71$ ) and validity has been observed (Tedeschi & Calhoun, 1996).

Distress was assessed using *The impact of Event Scale-Revised* (IES-R), a 22-item scale comprised of a global PTSD score, as well as scores for three subscales (not reported here): Avoidance (eight items), Hyperarousal (eight items), and Intrusion (eight items). Participants identify the intensity of distress on a 5-point scale (0-4). High internal consistency ( $\alpha = .96$ ) (Creamer, Bell, & Failla, 2003), and high test-retest reliability has also been demonstrated ( $r = .89-.94$ ) (Weiss & Marmar, 1997).

Personality traits were assessed using the *NEO Five Factor Inventory*, which consists of 60 items discerning stable dispositions along five dimensions: extroversion, neuroticism, agreeableness, conscientiousness, and openness. Participants rate each item on 5-point scale (*strongly disagree to strongly agree*). Test-retest reliability is high ( $r = .86$  to  $.90$ ) (Robins, Fraley, Roberts, & Trzesniewski, 2001), as well as internal consistency ( $r = .68$  to  $.86$ ) (Costa & McCrae, 1992).

### **Narrative Coding**

All narratives were transcribed verbatim and checked for accuracy of transcription. Two new coding schemes were developed to assess themes of exploration

and support seeking in the narratives. Using a grounded theory approach (Charmaz, 2008), schemes were developed from both theory and from a subset of the narratives. Two developers (the authors) worked together to define and refine each dimension along a 5-point scale from low to high, and to define each point along the scale. After development, a previously unexamined subset of narratives was used for reliability.

*Narrative Exploration:* The coding scheme measures the extent individuals acknowledge distressing situations, evidence active processing or wondering about it, and go on to establish multiple viewpoints regarding the experience. Viewpoints can consist of ways of understanding thoughts, feelings, and beliefs about one's experience in a meaningful manner. Individuals can express a high level of exploration even when finding negative conclusions (see Table 1 for complete definitions).

*Narrative Support Seeking:* The coding scheme measures the extent to which one adaptively utilizes an attachment system network (i.e. family, friends, or spiritual figures). Low scores in the coding scheme capture high preoccupation with threats, which inhibit the successful utilization on of an attachment network. High scores in the coding scheme capture a more instrumental, adaptive, secure strategy to utilize others in times of stress or threat (see Table 1 for complete definitions).

*Reliability:* After coding development was complete, reliability was established on a previously unexamined set of narratives. Two coders independently coded 50 randomly selected narratives from the larger dataset of unexamined narratives for the exploration scheme and 61 narratives for the support seeking scheme. Intraclass correlations were excellent (Exploration,  $\alpha = .94$ ; Support seeking,  $\alpha = .83$ ). One coder scored the remainder of the narratives.

## Results

The results are presented in order of hypotheses. Initial correlations were run among all measures (see Table 2). Specifically for personality traits, which were a control variable, there were few significant relations with measures of interest other than for neuroticism. All significant correlations between personality traits and health outcome were controlled for in subsequent regression and moderation analyses.

The first hypothesis that attachment style would relate to health outcome was confirmed. On average, PTGI scores were 68.51 ( $SD = 21.46$ ) and IES-R scores were 5.48 ( $SD = 2.31$ ). See table 2 for more descriptive statistics. As shown in the top left panel of table 2, individuals who expressed more anxious attachment displayed higher levels of growth and higher levels of stress. Individuals who expressed more avoidant attachment displayed lower levels of growth.

The second hypothesis regarding narrative meaning-making and health was also confirmed. Narrative exploration showed a positive relation to PTG,  $r = .26, p < .001$ , and a non-significant relation to PTS,  $r = .09, p > .05$ . Narrative support seeking showed a negative relation to PTS,  $r = .28, p < .001$ , and a non-significant relation to PTG,  $r = .03, p > .05$ . Thus, as exploration in the narrative increased, PTG increased while as support seeking in the narrative increased, PTS scores decreased. Of note, narrative exploration ( $M = 1.74, SD = 1.26$ ) was unrelated to support seeking ( $M = 1.57, SD = 1.27$ ),  $r = .01, p > .05$ , suggesting these two coding dimensions are tapping into different underlying narrative meaning-making processes. To more fully evaluate the hypothesis, we used stepwise regressions to assess the additive value of narrative meaning-making in explaining the variance of PTG and PTS, respectively. For each stepwise regression, we

included significantly related BIG 5 variables as the first step, attachment variables as the next step, and the narrative factor as the final step. In total, the model of extraversion, anxious attachment, and narrative exploration explained 10.6% of the adjusted variance in PTG. Importantly, as shown at the top of table 3, narrative exploration explained a significant amount of the variance in PTG when controlling for both personality traits and attachment,  $\Delta R^2 = .065$ ,  $\Delta F(1, 199) = 14.74$ ,  $p < .001$ . For the model predicting PTS, in total, the model of neuroticism, openness, anxious attachment, and narrative support seeking explained 18.8% of the adjusted variance in PTS. As shown on the bottom table 3, narrative support seeking had a significant contribution to the PTS model,  $\Delta R^2 = .037$ ,  $\Delta F(1, 199) = 9.66$   $p < .01$ . Importantly, narrative support seeking explained a significant amount of the variance in PTS when controlling for both personality traits and attachment. It should be noted that running all variables simultaneously for both models showed virtually identical beta and variance levels. Thus, narrative meaning-making relates to health, even when controlling for personality traits and attachment styles.

The third hypothesis concerns the extent attachment style relates to narrative exploration and support seeking, given their respective relations to health outcome. Pearson correlations are shown in the top right section of table 2 for these variables. In order to further assess this hypothesis, hierarchical multiple regressions analyses were conducted to first test the extent to which posttraumatic growth is a function of multiple attachment-related factors, narrative exploration and attachment avoidance/anxiety. In the first model, narrative exploration and attachment avoidance were analyzed. The first step included these two variables, which accounted for a significant amount of the variance,  $R^2 = .088$ ,  $F(2, 206) = 9.90$ ,  $p < .001$ . Next, the interaction term between narrative

exploration and attachment avoidance was added to the regression model, which accounted for a significant proportion of the variance in PTG,  $\Delta R^2 = .018$ ,  $\Delta F(1, 205) = 4.21$ ,  $p < .05$ . At a low narrative exploration level, posttraumatic growth was similar for low, average, and high levels of attachment avoidance. Participants with the lower scores on attachment avoidance who explored more in their narratives had the highest growth scores. See figure 1 for an illustration.

These steps were followed for attachment anxiety and extraversion separately for each moderating effect on the narrative exploration and growth relationship. The interaction term of narrative exploration by attachment anxiety was not statistically significant when added to its model,  $\Delta R^2 = .001$ ,  $\Delta F(1, 205) = .13$ ,  $p > .05$ . Similarly, the interaction term of narrative exploration and extraversion was not statistically significant,  $\Delta R^2 = .000$ ,  $\Delta F(1, 203) = .02$ ,  $p > .05$ . Thus, the relations between narrative exploration and PTG was moderated by attachment avoidance but not by attachment anxiety or extraversion.

To test the hypothesis that posttraumatic stress is a function of multiple attachment-related factors, narrative support seeking and attachment avoidance/anxiety, hierarchal multiple regression analyses were conducted. First, narrative support seeking and attachment anxiety were analyzed. The first step included these two variables, which accounted for a significant amount of the variance,  $R^2 = .132$ ,  $F(2, 201) = 15.24$ ,  $p < .001$ . Next, the interaction term between narrative support seeking and attachment anxiety was added to the regression model, which accounted for a significant proportion of the variance in PTS,  $\Delta R^2 = .018$ ,  $\Delta F(1, 200) = 3.93$ ,  $p < .05$ . At the highest narrative support seeking level, PTS was similar for low, average, and high levels of attachment anxiety.

Participants with higher scores on attachment anxiety who did not express support seeking in their narratives had the highest PTS scores. See figure 2 for an illustration.

These steps were followed for attachment avoidance, neuroticism, and openness separately for moderating the narrative exploration and growth relationship. The interaction term of for narrative support seeking by attachment avoidance was not statistically significant when added its model,  $\Delta R^2 = .008$ ,  $\Delta F(1, 200) = 1.69$ ,  $p > .05$ . Similarly, interaction of narrative support seeking by neuroticism was not statistically significant when added its model,  $\Delta R^2 = .006$ ,  $\Delta F(1, 200) = 1.42$ ,  $p > .05$ , as well as openness  $\Delta R^2 = .003$ ,  $\Delta F(1, 198) = .56$ ,  $p > .05$ . Thus, the relations between narrative support seeking and PTS was moderated by anxious attachment but not by avoidant attachment, neuroticism, or openness.

### **Discussion**

Understanding how and when narrative meaning-making relates to positive health benefits is a critical question. In this study, we bridged narrative meaning-making and attachment in order to examine whether attachment styles and narrative meaning-making both independently and interdependently contribute to health benefits. We confirmed that adult attachment relates to the health outcomes of posttraumatic growth and stress. Additionally, narrative exploration and support seeking significantly contributed to health outcome over and above attachment style. Perhaps most intriguing, we extend both attachment and narrative theory by demonstrating how attachment and narrative meaning-making interact in health outcome. Also important, both attachment and narrative meaning-making relate to health outcome after controlling for the significant relations between personality traits and health.

In support of previous literature, attachment insecurities are related to health outcome. In particular, higher levels of attachment anxiety were related to higher levels of growth and stress. Thus, it seems that attachment related anxiety raises distress levels but may also provide a platform for growth. In contrast, higher levels of attachment avoidance were related to lower levels of growth, confirming theoretical predictions that avoiding distress precludes growth-related processing (Schuettler & Boals, 2011), perhaps because a facilitator for growth is being able to express positive and negative emotional aspects of events (Adler & Hershfield, 2012). We extended previous literature by examining one possible cognitive mechanism by which attachment may lead to health outcome, narrative meaning-making. By looking at individuals' narratives, we were able to elucidate how attachment related themes are expressed in narrating specific stressful events, and how this relates to health. To examine this, we developed new theoretically motivated coding schemes, narrative exploration and narrative support seeking.

We developed the exploration coding scheme based on both attachment theory and previous studies (King et al., 2000; Pals, 2006). Against predictions, narrative exploration was not directly related to attachment style. However, narrative exploration was related to growth, such that individuals who engaged in more narrative exploration reported higher levels of growth. The finding suggests that our coding scheme is tapping into a broader concept of exploration than articulated by attachment theory. As described by Joseph and Linley (2005), the broader construct may be accommodative processing defined as modifying existing cognitive schemas of self and world in response to discrepant new information. Narrative exploration and accommodative processing may be broad ways of capturing individual's tendencies to express growth related themes in

their narratives. Even when controlling for attachment and related personality traits, our findings confirm that narrative exploration matters for growth. The extent narrators expressed their traumatic events from multiple perspectives was a significant predictor of growing from the experience. Our critical finding, however, is that everyone does not utilize such narrative exploration in the same way. Avoidantly attached people, in particular, may be less likely to benefit from exploration.

More specifically, individuals with high avoidant attachment did not grow as much from narrative exploration, compared to those lower in avoidance. Participants with lower scores on attachment avoidance who engaged in high narrative exploration had the highest growth scores. Taken together, avoidantly attached individuals are less likely to grow from their traumatic experience perhaps because they do not benefit from processing their narratives in an exploratory way. Such findings suggest that avoidantly attached individuals' exploration systems' may be inhibiting them from adaptively growing from distressing situations. Possibly, the increased lack of clarity in thoughts about emotions for avoidantly attached people (Caldwell & Shaver, 2012) inhibits them from engaging in growth-related exploration about the experience.

Our narrative support seeking coding scheme was developed more directly from the attachment literature, and measured how adaptively or maladaptively people expressed seeking support. Narrative support seeking was a significant predictor of stress levels following a trauma, extending the literature on narrative processes that relate to health. In particular, individuals who engaged in more narrative support seeking had lower stress levels, likely because such narration aids in the function of self-regulation through relations (Fivush, 2011). The finding is especially compelling considering that



support seeking still relates to outcome when controlling for attachment style and personality traits. How narrators incorporated others into their narrative significantly predicted their level of stress, over and beyond the person they rated themselves to be.

Importantly, however, highly anxiously attached individuals who engaged in high levels of narrative support seeking saw the greatest reduction in stress levels. Such findings are consistent with previous research showing associations between anxious attachment and increased PTSD symptomology (O'Connor & Elkit, 2008), and support seeking as an integral factor for coping with stress (Besser & Neria, 2012). Our findings offer an intriguing window to examine how support seeking may be related to reduced stress differently for securely and anxiously attached individuals. Although anxiously attached individuals are less likely to express support seeking system as adaptively as securely attached individuals, they can display a significant decrease in stress as adaptive narrative support seeking increases. Thus, we extend previous findings by showing that attachment-related behaviors are being captured in narrative meaning-making, and these processes, although equally adaptive, may be different depending on attachment status.

Further explanation of our statistical models for health helps highlight the multiple layers and pathways of self-expression. Importantly, narrative exploration was only related to its hypothesized outcome of growth, while narrative support seeking was only related to its hypothesized outcome of stress, which further suggests we are tapping into distinctive constructs. The inclusion strategy for each model was carried out in a manner to scrutinize narrative meaning-making's relation to health outcome, including all personality and attachment variables that showed significant relations to health. Thus, the models for stress and for growth were different. Not surprisingly, several personality

traits showed significant correlations to attachment, narrative meaning-making and to health, especially neuroticism. Therefore, a compelling aspect of each model presented here is that narrative meaning-making explains unique variance in health outcome, in addition to attachment and personality components, which supports the multi-level function of dispositions and narratives (McAdams & Pals, 2006).

These patterns have intriguing implications for the role of narrative processing in mental health maintenance and transformation. Less avoidantly attached participants were more likely to grow from their traumatic experience, while more avoidantly attached participants were less effective in using narrative exploration as a process to grow. Less anxiously attached participants also felt less stress about their traumatic memory, while more anxiously attached people were less likely to utilize narrative support seeking as a process to regulate their stress. Such findings support the “Broaden and build” cycle of secure attachment that results from the cascading positive effects secure attachment brings (Mikulincer & Shaver, 2007). Secure mental representations foster emotional equanimity, leading to adjustment, allowing for more growth. Insecure mental representations, shaped by previous unrequited attachment disruptions, can skew ambiguous information to be threatening as a function of protection. Thus, the findings may elucidate cognitive mechanisms of individual differences in emotion regulation. Narrative processes, as a cognitive mechanism, may be especially important to consider over the discourse of therapy. Narrative exploration is one avenue by which people grow from their experiences. Narrative support seeking is one way in which people decrease their PTSD symptomology following a trauma. Attending to how individuals are narrating their experiences in these ways in the context of their attachment style can help

elucidate effective narrative meaning-making.

These findings are based on a novel integration of attachment and narrative theory using newly developed coding schemes. Future research should examine this observed phenomena more closely. More specifically, additional measures of attachment, such as the adult attachment interview or the attachment script assessment can be used to bolster assessment of attachment style. Other avenues for future research are to investigate the role of time duration since the traumatic event occurred and how serious the trauma was subjectively perceived to be, as both have been shown to be significantly related to outcomes (see Sotgiu & Mormont, 2008, for review).

Perhaps the greatest limitation is that all measures were collected at one time point, thus limiting inferences on the causal directionality between variables.

Longitudinal future research can be done to help support a more mechanistic inference for narrative processes. Indeed, longitudinal research on narrative processes has been fruitful thus far (Adler & Hershfield, 2012; Tavernier & Willoughby, 2012). Another limitation is that the study's sample was college students, thereby limiting its generalizability. Future research can be done with a more heterogeneous population.

This is one of the few studies examining attachment, narratives, and health outcomes simultaneously, and our results provide important new information on how attachment and narrative meaning-making independently and interdependently relates to health outcomes. *How* one discusses their self-selected most traumatic experience appeared to matter just as much as *what* type of person they are. Narrative expression shapes how we make meaning about events. Our findings indicate narrative processes may be utilized to different degrees depending on the narrator's attachment style.

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Table 1

*Narrative Meaning-making Scoring Schemes*

<i>Global Code</i>	<i>Score</i>	<i>Description</i>
Exploration	0	Flat, objective account of event of provided
	1	Evidence of passive reflection on connections between thoughts, feelings, and/or psychological reasons for behavior
	2	Evidence of active processing, questioning, or effortful drawing of conclusions
	3	Expressing multiple viewpoints; different ways to think or feel after processing the event
	4	Evidence the newer viewpoint is being utilized, valued, acted on, or somehow significant is expressed
Support Seeking	0	Severe emotional dysregulation, hypervigilance to threat with no evidence others can help
	1	Mild to moderate hypervigilance to threat with no evidence others can help
	2	Adequate emotion regulation with no evidence others can help
	3	Expressing the significant of others in an emotionally regulated manner
	4	Expression of the utilizing of those in the attachment behavior system in an emotionally regulated manner

Table 2

*Pearson Correlations between Attachment, Health, Narratives, and Traits.*

	Health Outcomes		Narrative Meaning-Making		Attachment	
	PTG	PTSD	Exploration	Support Seeking	Anxious	Avoidant
Anxious Attachment ( $M = 67.95, SD = 20.04$ )	<b>.16*</b>	<b>.29**</b>	.03	<b>-.21**</b>	-	-
Avoidant Attachment ( $M = 54.31, SD = 19.74$ )	<b>-.14*</b>	.02	-.04	-.04	-	-
Neuroticism ( $M = 21.59, SD = 8.82$ )	-.00	<b>.32**</b>	-.03	<b>-.17*</b>	<b>.19**</b>	<b>.39**</b>
Extraversion ( $M = 29.88, SD = 6.22$ )	<b>.18*</b>	.01	.00	.03	<b>-.34**</b>	-.02
Openness ( $M = 28.76, SD = 6.30$ )	.12	<b>.18*</b>	.10	-.01	-.07	.09
Agreeableness ( $M = 30.57, SD = 7.24$ )	.10	-.02	<b>.15*</b>	.02	<b>-.31**</b>	-.02
Conscientiousness ( $M = 28.95, SD = 8.25$ )	.05	-.12	.02	.05	<b>-.18**</b>	-.12

*Note: \*  $p < .05$ , \*\*  $p < .01$ .*

Table 3

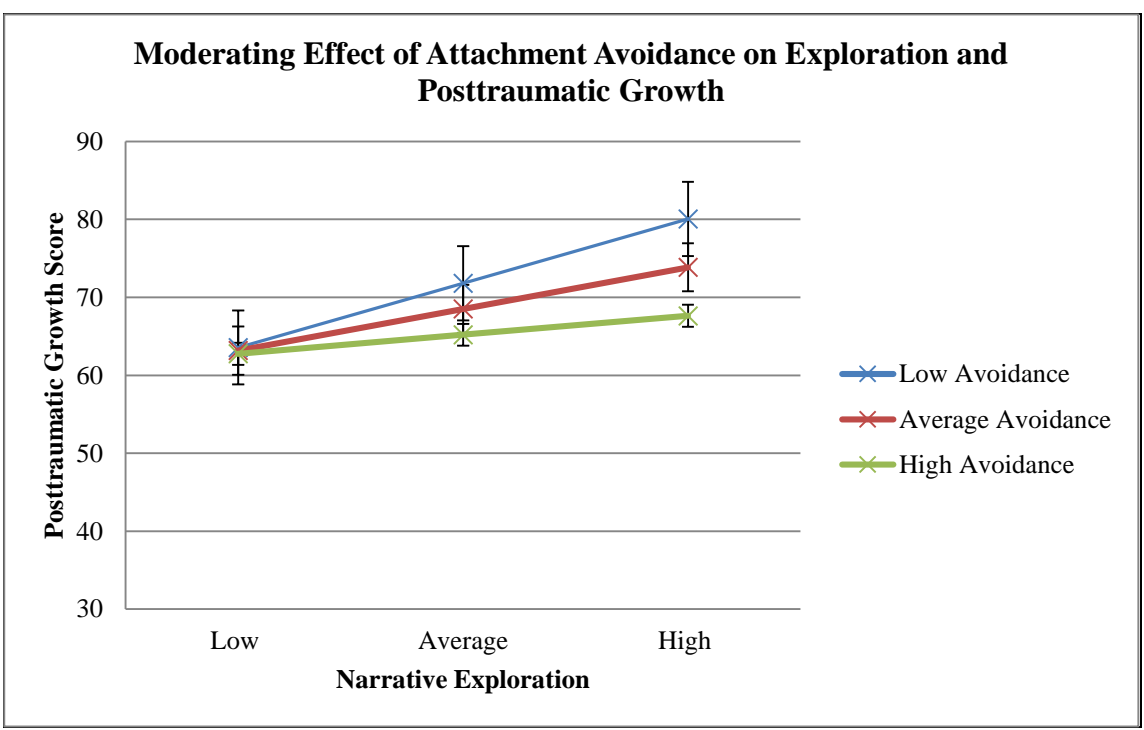
*Stepwise Multiple Regressions for Health Outcomes*

<b>Posttraumatic Growth</b>				
Predictor		Step 1	Step 2	Step 3
Extraversion		<b>.187**</b>	<b>.189**</b>	<b>.19**</b>
	Adjusted $\Delta R^2$	<b>.03**</b>		
Anxious Attachment	-		<b>.15*</b>	<b>.135*</b>
Avoidant Attachment	-		-.123	-.128
	Adjusted $\Delta R^2$		<b>.018*</b>	
Narrative Exploration	-	-		<b>.255***</b>
	Adjusted $\Delta R^2$			<b>.065***</b>
Total $R^2$				.109
<i>n</i>				203
<b>Posttraumatic Stress</b>				
Predictor		Step 1	Step 2	Step 3
Neuroticism		<b>.32***</b>	<b>.253***</b>	<b>.234**</b>
Openness		<b>.18**</b>	<b>.166*</b>	<b>.17**</b>
	Adjusted $\Delta R^2$	<b>.129***</b>		
Anxious Attachment	-		<b>.177*</b>	<b>.145*</b>
	Adjusted $\Delta R^2$		<b>.022*</b>	
Narrative Support Seeking	-	-		<b>-.205**</b>
	Adjusted $\Delta R^2$			<b>.037**</b>
Total $R^2$				.188
<i>n</i>				196

Note: Standardized  $\beta$  levels are reported at each step. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Figure 1

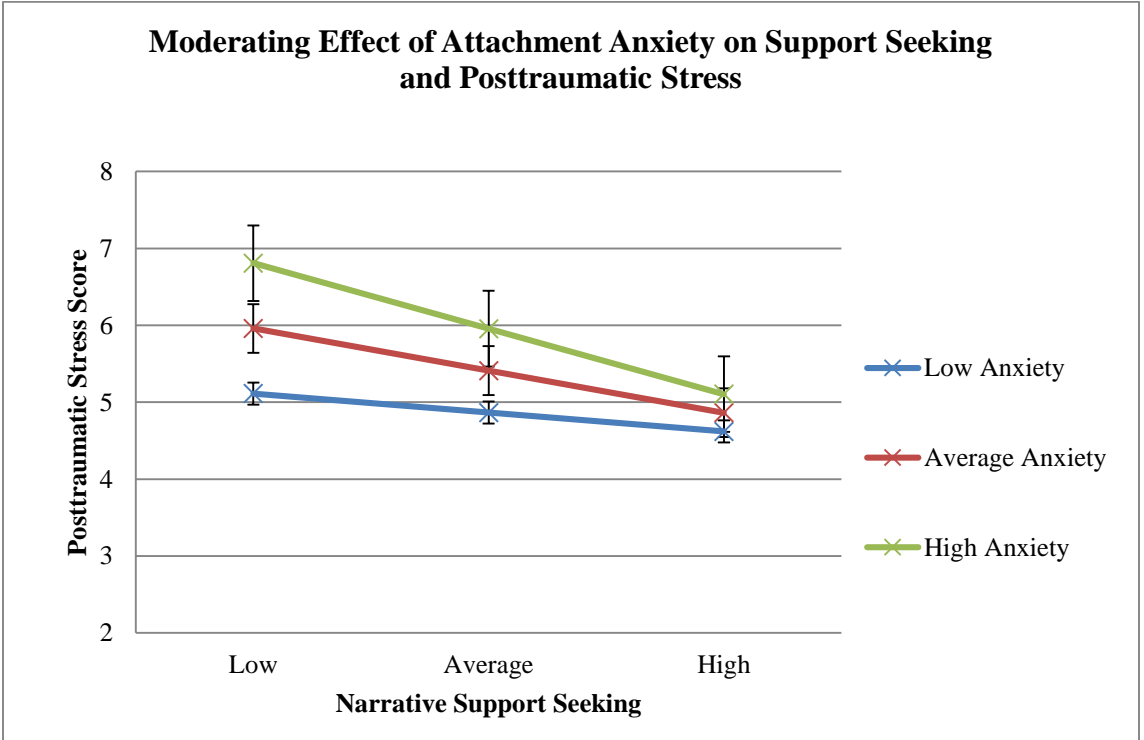
*Moderation Analysis of Attachment on Relation between Narrative Exploration and PTG*



*Note:* Participants at all levels of avoidance who had lower narrative exploration scores had the lowest PTG scores. Participants with the lower scores on attachment avoidance who explored more in their narratives had the highest growth scores. Standard errors are represented by the error bars attached to each point on each slope.

Figure 2

*Moderation Analysis of Attachment on Relation between Narrative Support Seeking and PTS*



*Note:* Participants with high narrative support seeking had the lowest PTS scores. Participants with higher scores on attachment anxiety who did not express support seeking in their narratives had the highest PTS scores. Standard errors are represented by the error bars attached to each point on each slope.