Journal of Counseling Psychology
2011, Vol. 58, No. 2, 272–278

0022-0167/11/$12.00 DOI: 10.1037/a0023041

BRIEF REPORT

Attachment and Mental and Physical Health: Self-Compassion and Mattering as Mediators

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Research shows a strong link between adult attachment and mental and physical health, but little is known about the mechanisms that underlie these relationships. The present study examined self-compassion and mattering, two constructs from positive psychology literature, as potential mediators. Using survey data from a sample of 208 college students, relationships among attachment, self-compassion, mattering, and functional health were explored. Correlational analyses indicated that attachment anxiety and avoidance were strongly related to the mental health component of functional health. Mediation analyses indicated that mattering and self-compassion mediated the relationships between attachment orientation (i.e., levels of avoidance and anxiety) and mental health. These findings suggest that individuals' abilities to be kind toward themselves and their sense of belonging and being important to others are pathways through which attachment orientation relates to mental health.

Keywords: attachment, self-compassion, mattering, mental health, physical health

The need for interpersonal attachment is a fundamental human motivation (Baumeister & Leary, 1995), and attachment styles have important implications for mental and physical health (Hunter & Maunder, 2001). Yet, attachment styles are hypothesized to develop early in life and remain relatively stable throughout adulthood (Shaver & Brennan, 1992), making them a difficult target of therapeutic intervention. Understanding how attachment styles affect mental and physical health could help psychologists target those underlying mechanisms in therapy, which may be more amenable to therapeutic change.

Self-compassion and mattering, two newly introduced constructs, have been shown to relate to well-being (Elliott, Kao, & Grant, 2004; Neff, 2003b). Self-compassion is characterized by self-kindness, mindfulness, and a sense of common humanity when experiencing suffering (Neff, 2003b), whereas mattering is characterized by the belief that others are aware of, rely on, and care about one's presence (Elliott et al., 2004). These two variables represent positive construal of self and of others, which is a defining characteristic of attachment security. In addition to conceptual links among self-compassion, mattering, and attachment security, research has shown self-compassion to be a fruitful target of clinical intervention (Gilbert & Irons, 2004). Given the need to understand the mechanisms through which attachment affects mental and physical health, and the clinical utility of studying self-compassion and mattering, this study aimed to explore further these associations.

Attachment as a Predictor of Mental and Physical Health

Attachment theory (Bowlby, 1969, 1973) explains that early life experiences with primary caregivers strongly influence the formation of internal working models that include self-perceptions of one's own value and worthiness of care, and perceptions of others' ability to provide such care in times of need. Internal working models form the basis of adult attachment orientations, which can be conceptualized in terms of two dimensions: anxiety and avoidance (Brennan, Clark, & Shaver, 1998; Shaver & Fraley, 2004). Individuals high in attachment anxiety are preoccupied with relational distress, feelings of unworthiness, and excessive worry about the availability and responsiveness of others. Individuals high in attachment avoidance are uncomfortable with intimacy, are likely to suppress emotional responses, and are compulsively self-reliant during times of distress. Those with low attachment anxiety and avoidance (i.e., secure attachment) have positive self–other perceptions, report higher levels of emotion regulation and adjustment (Cooper, Shaver, & Collins, 1998), and experience greater levels of psychological well-being (Love & Murdock, 2004).

Research also suggests a link between adult attachment style and physical health, including preventative health behaviors such as exercise and a healthy diet (Huntsinger & Luecken, 2004), physiological responses to stress (Maunder & Hunter, 2008), and reports of pain, fatigue, and sickness (Feeney, 2000). Feeney (2000) proposed that attachment likely affects physical health through the influence of internal working models on one's ability to regulate negative emotions, obtain social support during times

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We thank Charles Gelso, Clara Hill, Mary Ann Hoffman, Ryan Duffy, and Meifen Wei for their help in preparing this article.

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of need, and appraise and respond effectively to stressful life events. Feeney further explained that insecure attachment styles are linked to physiological states that negatively affect physical health, including elevated cortisol levels and an increased vagal nerve tone.

Self-Compassion as a Predictor of Mental and Physical Health

Self-compassion is composed of three components: self-kindness (i.e., treating oneself gently in the midst of suffering), common humanity (i.e., the ability to recognize that suffering and failures are shared with others), and mindfulness (i.e., the ability to observe and describe one's thoughts without becoming overly engaged in them). A number of studies have shown that self-compassion positively correlates with markers of psychological well-being, including optimism, happiness (Neff, Rude, & Kirkpatrick, 2007), social connectedness, emotional intelligence, and self-acceptance (Neff, 2003b). Accordingly, self-compassion has been shown to correlate negatively with self-criticism, depression, anxiety (Neff, 2003a), neurotic perfectionism, and negative affect (Neff et al., 2007).

Although self-compassion has yet to be explored in relation to physical health, its component of mindfulness has been linked to improved physical health outcomes. Mindfulness-based stress reduction programs have been implemented with people experiencing physical health problems including chronic pain, fibromyalgia, heart disease, organ transplant, and cancer (Shapiro & Carlson, 2009). A meta-analysis of the benefits of mindfulness-based stress reduction reported a mean effect size of $d = 0.53$ for physical health outcomes (Grossman, Niemann, Schmidt, & Walach, 2004). More research is needed to explore whether self-compassion's components of self-kindness and common humanity are associated with additional health benefits.

Self-compassion has been linked to attachment. Bowlby (1988) asserted that individuals often treat themselves and others as they were treated throughout childhood by their primary caregivers. Accordingly, Neff and McGehee (2010) explained that individuals reared in an environment in which caregivers are consistently available and nurturing develop the ability to relate to themselves in a compassionate manner. In support of this claim, Neff and McGehee found that attachment security predicted higher levels of self-compassion among young adults. Furthermore, self-compassion partially mediated the relationships among perceived maternal support, family functioning, and attachment security as predictors of well-being. Neff and McGehee suggested that a secure attachment orientation contributes to the development of self-worth and connection with others that is embodied in self-compassion.

Mattering as a Predictor of Mental and Physical Health

Mattering involves both the belief that others recognize and acknowledge one's presence (i.e., awareness) and that others care about, are interested in, and depend on her or him (i.e., relationship mattering; Elliott et al., 2004). Previous research has found mattering to be negatively associated with depression (Dixon & Robinson Kurpius, 2008), self-consciousness, and alienation, and to be positively associated with self-esteem and social support (Elliott et al., 2004).

Although we found no prior research that explored the relationship between mattering and physical health, negative associations have been found between loneliness, perhaps the negative inverse of mattering, and aspects of physical health. A lonely individual is unlikely to feel as though others are aware of, rely on, or care about his or her presence, thus lacking in the core components of mattering. Previous research has found loneliness to be associated with accelerated physiological aging (Hawkley & Cacioppo, 2007) and cardiovascular health risk in young adulthood, and to predict morbidity and mortality (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006). These findings on loneliness suggest that mattering might have positive associations with physical health.

The relationship between mattering and attachment style has yet to be investigated empirically, but these constructs share clear theoretical links. A secure adult attachment style typically denotes consistent, internalized experiences of being nurtured by and "mattering to" caregivers who were available and responsive throughout childhood. Adults with a secure attachment style have been shown to engage in effective support-seeking behavior in times of stress (Fraley & Shaver, 2000). The expectation that close others will be available and responsive during times of need implies that one perceives that she or he is both acknowledged and cared for by others, perceptions that are key components of a sense of mattering.

Purpose of the Current Study

The purpose of the current study was to examine the relationships among attachment, self-compassion, mattering, mental health, and physical health. Three main hypotheses were proposed: (1) both attachment avoidance and anxiety ratings would correlate moderately and negatively with ratings of self-compassion, mattering, mental health, and physical health; (2) ratings of self-compassion and mattering would correlate moderately and positively with ratings of mental and physical health; and (3) self-compassion and mattering would mediate the relationships between attachment avoidance and anxiety and mental and physical health.

Method

Participants and Sampling Procedures

Participants were 208 undergraduate students (153 women, 44 men, 11 not reported; 141 European Americans, 23 African Americans, 19 Asians, 13 Latino/as, 8 other, 4 not reported; 38 freshmen, 53 sophomores, 60 juniors, 55 seniors, 2 not reported) enrolled in psychology classes at a large mid-Atlantic university in the United States. The mean age of participants was 20 years ($SD = 1.6$ years; range = 18–33 years).

Measures

Attachment. The Experiences in Close Relationships–Revised (ECR-R; Fraley, Waller, & Brennan, 2000) was used to assess adult attachment. The ECR-R consists of 36 items across two subscales: Anxiety (fear of abandonment and rejection) and

Avoidance (fear of closeness and discomfort with dependence on others). Participants rate how accurately each of the 36 items describes their close relationships on a 7-point Likert scale (1 = *disagree strongly*, and 7 = *agree strongly*). A sample item for the Anxiety subscale includes "I worry that romantic partners won't care about me as much as I care about them," and a sample item for the Avoidance subscale includes "I prefer not to be too close to romantic partners." Sibley, Fischer, and Liu (2005) provided evidence for the ECR-R's short-term temporal stability over a 6-week time period, its two-factor structure, and convergent and discriminant validity for its use as a measure of romantic relationships compared with interactions with family and friends. Test–retest reliability has been reported as .93 and .94 for scores on the Anxiety subscale and as .95 and .95 for scores on the Avoidance subscale (Fraley et al., 2000). In the present study, Cronbach's alpha was .92 and .94 for the Avoidance and Anxiety subscales, respectively.

Self-compassion. The 26-item Self-Compassion Scale (SCS; Neff, 2003a) uses six subscales: Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Over-Identification to obtain a global self-compassion score. Participants use 5-point Likert scales to indicate how often they acted in the manner described in each item (1 = *almost never*, and 5 = *almost always*). Sample items include "I'm kind to myself when I'm experiencing suffering" (Self-Kindness), "I'm disapproving and judgmental about my own flaws and inadequacies" (Self-Judgment), "When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am" (Common Humanity), "When I fail at something that's important to me I tend to feel alone in my failure" (Isolation), "When I fail at something important to me I try to keep things in perspective" (Mindfulness), and "When I'm feeling down I tend to obsess and fixate on everything that's wrong" (Over-Identification). Neff (2003a) reported satisfactory convergent and discriminant validity for the SCS. Test–retest reliability for the SCS has been reported as .93 over 3 weeks (Neff, 2003a). Internal consistency for the SCS has ranged from .92 to .94 (Neff, 2003a; Neff, Hsieh, & Dejitterat, 2005) and was .92 for the current study.

Mattering. The 24-item Mattering Scale (Elliott et al., 2004) assesses sense of belonging and the belief that others are aware of and care about one's presence. The Mattering Scale includes three subscales: Awareness, Importance, and Reliance. Sample items include "Sometimes when I am with others, I feel almost as if I were invisible" (Awareness), "If the truth be known, no one really needs me" (Importance), and "People count on me to be there in times of need" (Reliance). Participants indicate their level of agreement with each item using a 5-point Likert scale (1 = *strongly disagree*, and 5 = *strongly agree*). Elliott et al. (2004) demonstrated the scale's construct, content, and internal and external discriminant validity through the use of expert feedback, confirmatory factor analysis, and pilot testing. Cronbach's alpha for Awareness ranged from .82 to .87, for Importance from .79 to .86, and for Reliance from .83 to .87 (Elliott et al., 2004). In the present study, Cronbach's alpha was .87 for Awareness, .84 for Importance, and .75 for Reliance, with an overall alpha of .93.

Mental and physical health. The Medical Outcomes Short Form Version 2 Health Survey (SF-12v2; Ware, Kosinski, & Keller, 1996) assesses functional health. The SF-12v2 is a well-validated 12-item measure of quality-of-life widely used in health research. It is modeled after the Medical Outcomes Short Form (SF-36; Ware, Kosinski, & Keller, 1994), which has been included in more than 4,000 publications (Turner-Bowker, Bartley, & Ware, 2002). The SF-12v2 includes eight subscales partitioned into two summary scores, Physical Health (PCS) and Mental Health Summary (MCS), both of which were used in the current study. Internal consistency coefficients for the PCS and MCS scores, respectively, were .89 and .86 (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). In the present study, Cronbach's alpha was .72 for PCS and .87 for MCS scores. The validity of the SF-12v2 has been reported as satisfactory and comparable with that of the SF-36 (Ware et al., 2002).

Procedure

Participants completed the confidential online survey, which included the above measures. The survey took approximately 30 minutes to complete, and students were given extra credit toward their course grade in exchange for their participation. Prior to data collection and analysis, we referred to Baron and Kenny's (1986) causal-steps procedure as well as a percentile bootstrapping procedure to determine the necessary sample size. We examined effect sizes from previous literature on the variables of interest and referred to Fritz and MacKinnon's (2007) guidelines for detecting a mediated effect. According to these guidelines, 224 participants were needed to detect mediation using Baron and Kenny's causal-steps procedure, and 168 participants were needed to detect mediation using a percentile bootstrap procedure.

Results

Means, standard deviations, and correlations among the variables are presented in Table 1. In tests of normality, we found that none of the variables exhibited significant skewness or kurtosis. Further, bivariate and residual plots revealed no outliers. Findings indicated that age and gender were significantly correlated to one or more of the study variables. The relationships of attachment with self-compassion and mattering remained significant after controlling for age and gender, indicating that attachment offered additional explanatory power beyond these demographic variables. Because of the small number of participants who self-identified as members of some of the racial/ethnic groups, we did not control for race/ethnicity when performing regression analyses.

Correlational Analyses

Table 1 shows that attachment anxiety was significantly, negatively associated with self-compassion and mattering (both large effect size; Cohen, 1988). Attachment avoidance was significantly, negatively associated with self-compassion (small effect size; Cohen, 1988) and was significantly, negatively correlated with mattering (large effect size; Cohen, 1988). The Fisher Z test for differences in correlation revealed a significant difference in the correlations between avoidance with self-compassion and with mattering ($z = 1.98$, $p < .05$), showing that mattering was more strongly correlated with attachment avoidance than was self-compassion. Although both attachment anxiety and avoidance were significantly and negatively related to mental health (large effect and small effect, respectively; Cohen, 1988), neither vari-

Table 1
Means, Standard Deviations, and Bivariate Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Anxiety	3.12	1.14	1							
2. Avoidance	2.96	1.14	.488**	1						
3. Self-compassion	2.94	0.60	−.434**	−.188**	1					
4. Mattering	93.93	12.95	−.411**	−.370**	.340**	1				
5. Physical health	55.17	6.80	−.067	−.071	−.176*	.207**	1			
6. Mental health	42.13	11.04	−.381**	−.210**	.547**	.366***	−.231**	1		
7. Age	19.96	1.63	−.022	−.013	−.036	.003	.068	−.216**	1	
8. Gender			.002	−.010	.000	.151*	.108	−.139	.058	1

Note. Spearman rho values were used for "gender," with 1 = male, and 2 = female. Pearson *r* values were used for all other variables.
* $p < .05$. ** $p < .01$.

able significantly correlated with physical health. Self-compassion and mattering related significantly and positively to mental health (both large effect sizes; Cohen, 1988), yet only mattering significantly and positively related (small effect size; Cohen, 1988) to physical health. A significant, negative correlation was found between self-compassion and physical health (small effect; Cohen, 1988).

Mediation Analyses

Initial regression analyses (see Table 2) showed that after controlling for age and gender, attachment anxiety accounted for a significant amount of variance in self-compassion and mattering. Likewise, attachment avoidance accounted for a significant amount of variance in self-compassion and mattering.

The traditional, causal-steps approach to assessing mediation (Baron & Kenny, 1986) requires that each pair of the three variables to be investigated in the mediational model be significantly correlated. In keeping with these requirements, we tested for the mediation of the relationship between attachment and mental health, because neither attachment anxiety nor attachment avoidance significantly correlated with physical health. To establish greater confidence in the directionality assumed in our specified model, we used mediational analyses to rule out reverse causal effects (Baron & Kenny, 1986).

To address limitations of Baron and Kenny's (1986) causal-steps approach to mediation analysis (for a discussion of these limitations, see MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) and to test the significance of indirect effects, we used the bootstrap resampling method. The bootstrap method allowed us to gain statistical power without assuming multivariate normality when testing the statistical significance of our mediation effects (Mallinckrodt, Abraham, Wei, & Russell, 2006; Shrout & Bolger, 2002). The bootstrap procedure involves the creation of 10,000 bootstrap samples (each sample with $n = 197$) from the original data set by random sampling with replacement. The output from these 10,000 samples yielded 10,000 estimates of each path coefficient. Finally, the output from these 10,000 estimates of each path coefficient was used to calculate estimates of indirect effects for each of our hypotheses (i.e., attachment anxiety and avoidance → self-compassion/mattering → mental health). The indirect effects were calculated by multiplying the 10,000 pairs of path coefficients (a) from attachment to the mediator variable and (b) from the mediator variable to the dependent variable. Using Shrout and Bolger's (2002) criteria, results indicated that indirect effects for all four of our hypotheses were statistically significant, as the 95% confidence interval for the four indirect effects (based on the 10,000 indirect effects estimates) did not include zero. As hypothesized, self-compassion and mattering both mediated the relationship between self-reported levels of attachment avoidance and anxiety and mental health (see Table 3).

Table 2
Regression of Attachment on Self-Compassion and Mattering Controlling for Age and Gender

Predictor	R^2	*B*	*SE*	*t*	*p*
Anxiety as predictor					
Self-compassion	.19	−0.44	0.03	−6.85	.000
Mattering	.19	−0.40	0.72	−6.31	.000
Avoidance as predictor					
Self-compassion	.04	−0.19	0.04	−0.268	.008
Mattering	.17	−0.37	0.72	−5.75	.000

Discussion

In the present study, self-compassion and mattering partially mediated the relationship between attachment and mental health. Our findings build on previous research in counseling psychology that has found that psychological needs satisfaction (Wei, Shaffer, Young, & Zakalik, 2005), perceived coping (Wei, Heppner, & Mallinckrodt, 2003), the need for reassurance from others, and the capacity for self-reinforcement (Wei, Mallinckrodt, Larson, & Zakalik, 2005) all partially mediate the relationship between attachment and various aspects of mental health. Further, the current study extends this line of research, as self-compassion and mattering represent two additional positive mechanisms through which attachment may influence mental health. As noted in previous research (Wei, Shaffer, et al., 2005), exploring positive mediators may elicit less resistance in therapeutic interventions and provide more proximally achievable goals than attempts to changing one's attachment orientation. Attending to these constructs may thus be particularly helpful for clinicians working in a time-limited counseling setting.

Correlational analyses revealed that those with higher degrees of attachment anxiety and avoidance exhibited lower levels of self-

Table 3
Bootstrap Analysis of Magnitude and Statistical Significance of Indirect Effects

Independent variable	Mediator variable	Dependent variable	β (standardized path coefficient and product)	Mean indirect effect (*b*)[a]	*SE* of mean[a]	95% CI for mean indirect effect[a] [lower, upper]
Attachment anxiety →	Self-compassion →	Mental health	−.434 × .470 = −.20	−1.9328	0.3647	[−2.7078, −1.2633]
Attachment avoidance →	Self-compassion →	Mental health	−.188 × .526 = −.10	−0.9589	0.3948	[−1.7528, −.1941]
Attachment anxiety →	Mattering →	Mental health	−.411 × .250 = −.10	−1.0113	0.3188	[−1.7077, −.4566]
Attachment avoidance →	Mattering →	Mental health	−.370 × .335 = −.12	−1.2481	0.3382	[−1.9721, −.6625]

Note. *b* = unstandardized beta.
[a] Denotes values based on the unstandardized path coefficients.

compassion. Consistent with these findings, Neff and McGehee (2010) found that, compared with those with a secure attachment style, individuals with an anxious attachment style tend to have more difficulties being kind to themselves and mindfully approaching distressing issues. They suggested that self-compassion may represent an internalization of the parent–child relationship. Future research is needed to establish the causal links between these variables; however, the findings from our correlational and mediational analyses lend additional support for this conclusion.

Results indicate that attachment avoidance accounted for a smaller amount of the variance in self-compassion than attachment anxiety. This may be due to differences in the nature of working models associated with attachment avoidance and anxiety, such that attachment avoidance can involve a negative model of others and a positive model of one's self, whereas attachment anxiety is often associated with a negative model of both self and others (Hazan & Shaver, 1987). Thus, those high in avoidance may be more likely to deem themselves worthy of self-compassion than those who are high in anxiety. This is consistent with research that has found that high attachment anxiety is linked to both low and unstable self-esteem, whereas a combination of high avoidance and low anxiety is not associated with self-esteem (Foster, Kernis, & Goldman, 2007). Attachment avoidance, though related to ineffective interpersonal strategies, appears to have a markedly less substantial impact than attachment anxiety on an individual's perceptions of self.

The findings of the current study are also consistent with our hypotheses that high attachment anxiety and avoidance relate negatively to the belief that one matters to other people. It is likely that individuals high in attachment anxiety negatively evaluate their sense of mattering due to dissatisfaction and worry regarding their relationships with others. Individuals high in attachment avoidance likely negatively evaluate their sense of mattering due to discomfort with intimacy and a devaluation of being important to and cared for by significant others. Given that research on mattering is in a nascent stage, our identification of mattering as a significant mediator shows that this construct likely plays an important role in explaining how attachment relates to mental health.

As hypothesized, results also suggest strong positive correlations among self-compassion, mattering, and mental health. These results provide support for earlier findings that self-compassion was associated with higher levels of mental health indicators (Neff et al., 2007) and that mattering was a strong predictor of greater wellness in adolescents (Rayle & Myers, 2004) and lower levels of depression in stress among college students (Dixon & Robinson Kurpius, 2008). The research on these recently developed constructs suggests that self-compassion and mattering are important contributors to mental health.

Mattering was also found to be positively associated with physical health. This finding supports our hypothesis and fits with earlier research that found associations between loneliness and lower levels of physical health (Hawkley & Cacioppo, 2007) and between social isolation and lower levels of self-rated physical health (Cornwell & Waite, 2009). Contrary to our predictions, a negative correlation was found between self-compassion and physical health. One possible explanation is that those who have poorer physical heath respond by exhibiting higher levels of self-compassion. More research is needed to replicate and extend these findings, and future research that employs a longitudinal design could help clarify the direction of this effect.

Implications for Clinical Practice

Our results suggest that self-compassion and mattering are promising targets of therapeutic intervention. In line with previous studies that identified self-compassion training as effective in improving well-being (Chan, Ng, Chan, Ho, & Chan, 2006; Shapiro, Astin, Bishop, & Cardova, 2005), the present study found that self-compassion is strongly, positively related to mental health and partially mediates the relationship between attachment and mental health. Therefore, practitioners will likely benefit from exploring the way that clients treat themselves and how patterns in self-treatment relate to past experiences in close relationships. Practitioners can aid clients in identifying and addressing their self-kindness, mindfulness, and sense of common humanity as a present-focused means of acknowledging and dismantling problematic interpersonal patterns.

Amundson (1993) and Rosenberg and McCullough (1981) proposed that individuals have a universal need to perceive that they matter to others. Practitioners may benefit from addressing client perceptions of mattering in the psychotherapy relationship and in other close relationships. In line with this reasoning, Rayle (2006) proposed that clients who believe that they matter to their counselors develop greater trust in the therapeutic relationship, are more productive and invested in the therapeutic work, and experience improved therapy outcomes. Attending to client perceptions of mattering in the therapy relationship can aid clients in addressing their sense of belonging and importance in other close relationships.

Limitations and Conclusions

Several limitations of this study should be noted. The largely White and female demographic composition of the participants does not allow for generalizations of the findings to a more diverse population. More research is needed with a larger and more varied sample before any conclusions can be drawn about whether the relationships found in the current study are representative for both men and women. Further, a cross-sectional design and correlational analyses do not allow for conclusions about causality. Lastly, it is important to note that our findings may have been influenced by inconsistencies between the PCS and MCS summary scales of the SF-12v2. Windsor, Rodgers, Butterworth, Anstey, and Jorm (2006) suggested that these summary scales are structurally problematic because of the fact that responses that load negatively on certain subscales from the mental health domain load positively on subscales from the physical health domain. It is important for our procedures to be replicated to determine whether inconsistencies are due to measurement error and, if not, to develop a theoretical explanation of these results. Despite our identified limitations, this study contributes to the field of counseling psychology by demonstrating the importance of attachment as a predictor of health and self-compassion and mattering as mediators of the relationship between attachment and mental health.

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Received August 30, 2010
Revision received December 29, 2010
Accepted January 28, 2011 ■