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How self-enhancers adapt well to loss: The mediational role of loneliness and social functioning

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Abstract

Objective—The tendency toward unrealistically optimistic self-serving biases, known as trait self-enhancement, has been associated with both adaptive benefits and negative social consequences. This study explored these potential benefits and costs in the context of conjugal bereavement.

Method—The study included 94 individuals who had experienced the death of a spouse 1.5–3.0 years prior. The sample (62 female, 32 male) ranged in age from 37 to 60 ($M = 51.45$, $SD = 6.08$). To examine benefits, we used relatively objective measures of overall adjustment: structured clinical interviews and ratings from participants' close friends and relatives. To examine social adjustment, we examined friends'/relatives' ratings of the quality of social interactions and the possible mediating roles of perceived loneliness and friend/relative ratings.

Results—Trait self-enhancement was uniformly associated with positive adjustment: relatively lower symptom totals, and friend/relative ratings of both overall better adjustment and better social adjustment. Self-enhancers' low loneliness was found to mediate reduced symptoms. Also, friends'/relatives' ratings of social functioning appeared to mediate self-enhancers' reduced loneliness.

Conclusions—These findings provide further empirical data to challenge the longstanding assumption that inaccurate self-perception is inherently maladaptive. Authentic benefits may result from mistaken perceptions of oneself by influencing the experience of loneliness and how one is seen by close friends/relatives. Self-enhancement may be an adaptation that provides clinically relevant advantages.

Keywords

Self-enhancement; Bereavement; Loneliness; Social Adjustment; Symptoms

Positive psychology has been characterized as the study of conditions and processes that allow individuals to flourish (Gable & Haidt, 2005). One area of human strength that has drawn the attention of this field since its formative years is the study of the positive health effects associated with unrealistically optimistic beliefs or positive illusions (Taylor et al., 2000). For example, cancer patients (Taylor, 1983; Taylor et al. 1984) and individuals

infected with HIV/AIDS (Reed, Kemeny, Taylor, Wang, & Visscher, 1994) who held optimistic beliefs about their illnesses demonstrated mental health benefits despite the fact that these beliefs conflicted with objective medical assessments. These findings are incongruent with the view that perceptions anchored in objective reality are essential for mental health and that biased or exaggerated perceptions of oneself are incompatible with normative levels of adjustment.

These conflicting characterizations of unrealistic optimism as either being salubrious or detrimental to mental health may be resolved by moving beyond the idea that optimism produces universally good or bad consequences across all contexts. It may be more informative to view unrealistic optimism as a tool with potential advantages and disadvantages that may vary depending upon the context in which it is employed. For example, although optimism is associated with a variety of mental health benefits, Gibson and Sanbonmatsu (2004) found severe disadvantages for dispositional optimists when faced with gambling situations such as maintaining positive expectations and failing to reduce betting after poor outcomes. Weinstein, Marcus, and Moser (2004) illustrate another problematic use of optimism among smokers who underestimated their risk of developing lung cancer and held false beliefs that the effects of smoking could be reversed through exercise.

Further research is necessary to explore the potentially positive and negative effects associated with the use of positive illusions in a variety of contexts. It is also important to gain a further understanding of these effects by exploring the potential mechanisms by which positive illusions may produce these effects. The current investigation focuses on self-enhancing biases, a particular type of unrealistically optimistic belief. Although research suggests that it may promote mental health and positive adaption to aversive life circumstances, it may also be accompanied with social liabilities. We explore this among a sample of individuals bereaved over the death of a spouse by comparing relations between measures of trait self-enhancement and psychological symptoms. Furthermore, we conduct a preliminary analysis of loneliness as a potential mechanism for these associations.

The benefits of self-enhancement

Traditional conceptions of mental health view accurate self-perception and the realistic acceptance of one's limitations as necessary components of normal well-being and adjustment (Allport, 1937; Erikson, 1950; Jahoda 1958; Maslow, 1950; Vaillant, 1977). By contrast, evolutionary theorists have postulated that self-enhancing distortions may provide adaptive advantages that have been selected over beliefs about the self that more accurately reflect reality (McKay & Dennett, 2009; Trivers, 2000, von Hippel & Trivers, 2011). It is now well established, in fact, that at least some degree of positive bias in self-perception is common among healthy individuals in the general population (Alicke, Klotz, Bretebecher, Yurak, & Vredenburg, 1995; Dunning, Heath & Suls, 2004; Taylor & Brown, 1998).

Importantly, self-enhancing biases have been empirically associated with at least some adaptive benefits (Taylor & Brown, 1988, 1994). For example, the adaptiveness of self-enhancing biases is supported by physiological data. Trait self-enhancement, the

dispositional tendency towards overly positive self-serving biases, has been associated with lower baseline cortisol, lower cardiovascular response to stress and more rapid cardiovascular recovery in a study employing a laboratory stress-challenge paradigm (Taylor, Lerner, Sherman, Sage, & McDowell 2003). Furthermore, Taylor et al. (2003) found the relationship between trait self-enhancement and lower baseline cortisol to be fully mediated by higher levels of psychological resources such as optimism, mastery and self-esteem, which suggests that self-enhancers enjoy higher overall mental health and that this cluster of positive traits was responsible for their healthier physiological responses. In other studies, trait self-enhancement has been associated with fewer PTSD and depressive symptoms among high-exposure survivors of the September 11th terrorist attack (Bonanno, Rennie & Dekel, 2005), and better clinician-rated adjustment among individuals coping with the death of their spouse and among a group of civilians exposed to urban combat (Bonanno, Kovacevic & Kaltman, 2002). Finally, in a 4-year prospective study, trait self-enhancement measured at the beginning of the study was shown to buffer participants from distress following subsequent exposure to potentially traumatic life events (Gupta & Bonanno, 2010).

In the current study, we sought to further examine the adaptive benefits of trait self-enhancement by using data from structured clinical interviews in a sample of bereaved individuals. Many of the previous studies linking trait self-enhancement with favorable adjustment have relied on self-report measures or on global ratings from untrained observers. By contrast, structured clinical interviews provide relatively objective data generated by trained interviewers. Moreover, these data provide more robust evidence of inter-rater reliability and internal validity. In the current study, we examined trait self-enhancement in relation to structured interview data for symptoms of depression, posttraumatic stress disorder, and complicated grief in a sample of bereaved adults.

The social costs of self-enhancement

In addition to the evidence linking self-enhancement to favorable adjustment following adversity, there is also evidence to suggest that self-enhancement generates serious social costs. Shedler, Mayman and Manis (1993) suggested, for example, that self-enhancement is a form of “illusory mental health” that results from a defensive denial of psychological distress. Consistent with this view, self-enhancing individuals have been described by peers in narcissistic terms (e.g., defensive, hostile, condescending, bragging) (Colvin, Block & Funder, 1995). Paulhus (1998) argued that although there may be short term gains associated with employing self-enhancing biases, such as making one appear more confident and attractive initially, these benefits fade in the long term as people detect the negative attributes of narcissism, self-absorption and self-entitlement.

In some studies both the adaptive benefits and the social costs were apparent. In the study described above, trait self-enhancement was associated with a resilient trajectory of low levels of PTSD and depression symptoms (Bonanno et al., 2005). However, in that same study, self-enhancers' close friends and relatives rated them as less honest than other participants and as having decreased social relations 18 months after the attacks. Curiously, these raters still viewed self-enhancers as having better adjustment than other participants in

all other domains (Bonanno et al., 2005). In the current study, we further explored this through anonymous friend/relative ratings of participants for both social and nonsocial forms of adjustment during a comparable time period, 18–36 months post loss, when close friends and relatives may be able to identify these social costs.

Are there also social benefits to self-enhancement?

How can these seemingly paradoxical findings co-exist? One way that self-enhancers may adjust well despite the social difficulties they appear to generate is to ignore or bias their perception of how their friends respond to them. In other words, self-enhancers may view their friends' through the same rose-colored glasses in which they view other aspects of the self. For example, Bonanno et al. (2005) found that self-enhancers actually perceived their friends/relatives to be more receptive to personal disclosure than did other participants despite their friend/relative/s negative perceptions. Moreover, self-enhancers' perception of fewer social constraints fully mediated the relationship between self-enhancement and low symptoms. Interestingly, in a subsequent study that explicitly asked peer respondents how they viewed personal disclosures, self-enhancers' friends/relatives were found to be no different than other participants on this variable (Goorin & Bonanno, 2009). Thus, self-enhancers appear to perceive their social milieu as more receptive to personal disclosure than it actually is, and this bias appears to create a self-generated social benefit.

There is also more direct evidence of possible social benefits to self-enhancement. In addition to their reduced perception of social constraints, Goorin & Bonanno (2009) found that trait self-enhancers had larger social networks than other people, as well as greater daily contact with friends and relatives. In addition, trait self-enhancers were more likely than other high-exposure survivors to have engaged in social leadership behaviors during the time of the attack (Goorin & Bonanno, 2009). More specifically, trait self-enhancers were more likely to comfort and help organize others, and they scored higher on an overall composite score of leadership behaviors. Of course, since all of these measures were generated by self-report, they may reflect benefits as perceived by the self-enhancer but not corroborated by others. Nonetheless, because perceived social benefits have been shown to mediate positive adjustment, such findings suggest the very real possibility that trait self-enhancement engenders positive as well as negative social consequences.

Loneliness

To further explore the social consequences of self-enhancement in the current study, we examined the phenomenon of loneliness during bereavement. In addition to its obvious relevance to bereavement, loneliness is also a compelling construct to explore when considering the facets of actual and perceived social consequence. Loneliness has been viewed, for example, as a negative subjective experience of perceived social isolation that is independent of objective social support and may or may not be accompanied by actual social isolation (Cacioppo & Hawkley, 2009; Papiou & Perlman, 1982). For instance, individuals can live very solitary lives without feeling lonely and individuals with many social connections may still feel very lonely (Hawkley & Cacioppo, 2010).

Loneliness has been associated with a variety of negative physical and mental health consequences. In two longitudinal studies, loneliness has been associated with significantly higher mortality rates (Patterson & Veenstra, 2010), and was seen to be a unique predictor of depression (Cacioppo, Hughes, Waite, Hawkley & Thisted, 2006). Loneliness was also found to be positively associated with higher cortisol levels measured 30 minutes after waking (Stephens et al, 2004). In the current study we explored the subjective experience of loneliness as a perception of social environment that may mediate trait self-enhancers' adjustment during bereavement. In addition, we examined how participants' self-perceptions of loneliness related to the ratings of their social adjustment provided by friends/relatives.

Method

Participants

The study included 94 conjugally bereaved individuals recruited through advertisements, referrals, and mailings. Inclusion criteria specified the death of a spouse 1.5–3.0 years previously and the absence of Axis I psychopathology prior to the death event. Previous have found both social costs and adaptive benefits associated with self-enhancement 18 months after exposure to potentially traumatic exposure (Bonanno et al., 2005). Although the full sample included 119 bereaved individuals, we excluded individuals who were below the age of 35 and above the age of 60 in order to control for the potentially different experiences of grief in late and early life. The final sample (62 female, 32 male) ranged in age from 37 to 60 ($M = 51.45$, $SD = 6.08$) and was comprised of 3 Asian Americans, 7 Hispanics, 25 African Americans, 58 Caucasians and 1 other ethnic category. Participants signed consent forms approved by respective institutional review boards. Additional details about recruitment and sampling procedures are available elsewhere (Gupta & Bonanno, 2011). Not surprisingly participants displayed loneliness scores that were slightly higher ($M = 42.49$, $SD = 12.3$, see measure below), but within a standard deviation when compared to adults in a general health survey (see Knight, Chisholm, March & Godfrey, 1988).

Measures

Structured Clinical Interview for DSM-IV-TR (SCID-IV)—All participants were questioned regarding symptoms of Major Depressive Disorder (MDD) and Posttraumatic Stress Disorder (PTSD) and complicated grief (Bonanno et al., 2007; Horowitz et al., 1997; Prigerson et al., 1999; Prigerson et al., 2009): strong yearning for the deceased; recurrent and intrusive recollections of the death event; intense distress over symbolic reminders of the loss; preoccupation with thoughts about the loss; recurrent regrets or self-blame about behavior toward the deceased; difficulty accepting the finality of the loss; marked loneliness; pervasive sense that life is meaningless; unusual difficulty developing new relationships; efforts to avoid thoughts, feelings, or conversations associated with the loss; and efforts to avoid activities, places, or people that arouse recollections of the loss. Symptom criteria specified frequency and intensity (e.g. “*significant difficulties more days than not*”). These structured interview questions assessed current symptoms over the past month. One-on-one interviews were conducted by individual raters who were part of a team of clinical psychologists and advanced doctoral candidates in clinical psychology. The team of interviewers met weekly for reliability training. Each rater integrated frequency and

intensity criteria to determine if participants qualified for each individual symptom criteria. For example, if someone endorsed feeling “a lot less interested in most things or unable to enjoy the things [they] used to enjoy,” they would also need to feel this way “nearly every day for as long as two weeks” in order to reach criteria for this symptom. The sum of all symptoms was used in analysis to capture greater variance in the experience of symptoms than would be possible using three binary diagnostic categories. Interrater reliability for the symptom items was very high (average $K = .91$). The range of possible scores was 0 to 31. Symptom totals ranged from 0 to 28 ($M = 9.43$, $SD = 7.45$).

Trait Self-Enhancement—Trait self-enhancement was measured using a 20-item subscale of the Balanced Inventory of Desirable Responding (Paulhus, 1991a, 1991b). This scale is thought to measure self-deceptive enhancement related to “egoistic bias” or the tendency to report enhanced traits related to social status, as opposed to a self-deceptive denial related to “moralistic bias” or the tendency deny socially inappropriate impulses (Paulhus, 1998). Egoistic bias has also been expressed as Alpha factor, or an exaggerated self worth for the sake of gaining agency, as opposed to Gamma factor/”moralistic bias” which is thought to be motivated by a need for approval (Paulhus, 1998). Sample items are “*my first impressions about people are always right*,” and “*I always know why I do things*.” Responses to each item are rated on a 1 (*not true*) to 7 (*very true*) Likert scale. Only extreme scores (i.e., 6 s or 7s) were scored as self-enhancing. High scores are thought to reflect rigid over confidence (Paulhus, 1998). The independence of trait self-enhancement from the general tendency to deliberately present the self in a favorable or socially desirable light (i.e., impression management) has been confirmed by factor analysis (Paulhus & Reid, 1991). Internal consistency (Cronbach’s α) for these items in the current study was .73.

Loneliness—The revised UCLA-Loneliness Scale (Russell, Peplau & Cutrona, 1980) was used to assess loneliness. Analyses by Russell et al. (1980) showed high reliability and supported discriminant validity against measures of personality, social desirability, and depression. This scale has been validated among adults (for further reliability and normative information, see Knight, Chisholm, March & Godfrey, 1988). The scale consists of 20 items (e.g. “*I feel isolated from others*,” and “*there is no one I can turn to*”), and participants were asked to rate how often they felt this way on a scale from 1 (“*never*”) to 4 (“*often*”). The scale has a possible range of scores from 20 to 80 points, with no cut off to define loneliness. Analyses employed mean loneliness scores. Cronbach’s α for these items in the current study was .94.

Measures of Social Functioning—Participants were provided with three packets containing consent materials and ratings forms and asked to distribute these materials to three close friends and relatives whom they felt knew them well and with whom they had relatively consistent contact. To ensure confidentiality, friends and relatives returned these ratings directly to us in preaddressed stamped envelopes. These forms asked for basic relationship information with the participant, which included: (a) number of years that respondents have known the participant, (b) how often respondents had contact with the participant employing a scale from 1 (*less than once a month*) to 5 (*almost daily*) scale and (c) the quality of knowledge about the participant using a 1 (*very close: I know him/her as*

well as anybody, and I have a very good idea how s/he is doing) to 5 (not very close: I know very little about my friend and can only guess how s/he is doing) scale. Friends and relatives were asked to rate participants on a five-item measure of their usual level of health and general capacity to function in life compared with “most other people” on a 7-point scale (1 = much worse than most people, 4 = about the same as most people, 7 = much better than most people) for 5 dimensions (mental health, physical health, quality of social interactions, ability to accomplish goals, and coping ability; $\alpha = .87$). Finally, friends and relatives were asked to rate participants on another five-item measure of their current level of health and general function in comparison with “his/her usual levels” on the same 7-point scale for the same 5 dimensions.

At least one friend/relative rating was available for 59 participants (60%). For our analysis, we used the mean of participants’ friend/relative ratings if more than one rater responded. On average, raters knew the participants for 21.52 years ($SD = 11.06$). Raters’ assessment of closeness based on the 5-point scale was on average 1.54 ($SD = .53$). All three friend/relative ratings were available for 25 participants, two friends/relative ratings were available for 18 participants and one friend/relative rating was available for 16 participants. At least one rating made by a relative was available for 17 individuals, whereas friends rated the remaining 42 participants. Compared with individuals who had at least one friend rating, those for whom we did not receive any ratings did not show significant differences in age, years of education, family income, loneliness, total symptoms, or self-enhancement.

Results

Self-enhancement and personal and social adjustment

We first explored the relationships between self-enhancement, loneliness and symptom levels. Total symptom counts were calculated by summing all depression, grief and trauma symptoms for each individual. Self-enhancement was negatively correlated with total symptoms ($r(92) = -.24, n = 94, p = 0.02$) and loneliness ($r(92) = -.33, n = 94, p = 0.001$) (See Table 1).

We then explored the relationship between friend/relative ratings of the participants’ health and self-enhancement and loneliness. Self-enhancement was positively correlated with friends/family mean ratings of both usual mental health ($r(57) = .34, n = 59, p = 0.009$) and current mental health ($r(57) = .34, n = 59, p < 0.01$). Interestingly, and in contrast to Bonanno et al. (2005), higher self-enhancement was found to be positively associated with higher friends/relative ratings of the both usual quality of social interactions ($r(57) = .31, n = 59, p < 0.05$) and current quality of social interactions ($r(57) = .37, n = 59, p < 0.01$) (See Table 2). Self-enhancement was not significantly correlated with raters’ reports of the duration of the relationship, the frequency of contact with the participant or the closeness of the friendship. Thus, the assumed social costs of self-enhancement were not observed.

We found loneliness to be negatively correlated with a variety of health measures, including usual quality of social interactions ($r(57) = -.33, n = 59, p < 0.05$) and current quality of social interactions ($r(57) = -.44, n = 59, p < 0.01$). Loneliness was also positively correlated with total symptoms ($r(92) = 0.49, n = 94, p < 0.001$) (See Table 2).

Mediation analysis: self-enhancement, loneliness, and symptom levels

To examine the relationship between self-enhancers' experience of loneliness and its consequences on symptoms, we conducted mediation analyses using bootstrapping techniques suited for relatively small samples (Preacher & Hayes, 2008; Hayes, 2012). Although the data are cross-sectional in nature, we have reason to believe that the trait measure of self-enhancement were relatively stable prior to our measurement while loneliness and symptoms are the state measures. Nevertheless, these mediational analyses should be read as exploratory. We tested the significance of the mediation at the 95% confidence interval, examining the bias corrected intervals (Hayes, 2012) after generating a bootstrap sample of 50,000 by randomly sampling observations with replacement. We then compared this model with an alternative model by examining the ratio of indirect relationship to total relationship and completely standardized index of mediation (Preacher & Kelley, 2011).

In Model 1, we tested if self-enhancing individuals may be less prone to perceiving social isolation which influence symptoms. Self-enhancement was the predictor variable, symptoms the outcome variable, and loneliness the mediator. The full model was significant, $F(2,92): 13.58, p < 0.0001, n = 94$. The direct relationship of self-enhancement with symptoms was significant, $b = -9.07, p = .022$. The direct relationship of loneliness (the mediator between self-enhancement and symptoms) with symptoms was significant $b = 5.21, p < .001$. The indirect relationship of self-enhancement with symptoms (mediated through loneliness) was significant, $\hat{ab} = -5.56, 95\% \text{ CI (BC)} [-10.32, -2.34]$. When accounting for the indirect relationship mediated through loneliness, the direct relationship between self-enhancement and symptoms was no longer significant, $b = -3.51, p = 0.35, 95\% \text{ CI} [-10.32, 3.91]$, which suggests full mediation. Loneliness reduced 61.3% of the total relationship between self-enhancement and symptoms. The completely standardized index of mediation for the indirect relationship between self-enhancement and symptoms (through loneliness) was $ab_{cs} = -0.15, 95\% \text{ CI} [-.26, -.063]$.

In Model 2, we explored whether symptoms may serve as a mediator between the relationship between self-enhancement and loneliness. The mediator (loneliness) was replaced with the outcome variable (symptoms), and self-enhancement remained as the predictor variable. The full model was significant, $F(92,2): 11.12, p = .001, n = 94$. The direct relationship of self-enhancement with loneliness was significant, $b = -1.07, p = .001$. The direct relationship of symptoms (the mediator between self-enhancement and loneliness) with loneliness was significant, $b = 0.04, p < .001$. The indirect relationship of self-enhancement with loneliness (mediated through symptoms) was significant, $\hat{ab} = -0.32, 95\% \text{ CI (BC)} [-0.66, -0.08]$. When accounting for the indirect relationship mediated through symptoms, the direct relationship between self-enhancement and loneliness remained significant, $b = -0.75, p = 0.01, 95\% \text{ CI} [-1.34, -0.15]$, which suggests partial mediation. Symptoms reduced 30% of the total relationship between self-enhancement and loneliness. The completely standardized index of mediation for the indirect relationship between self-enhancement and loneliness (through symptoms) was $ab_{cs} = -0.1, 95\% \text{ CI} [-.19, -.03]$.

Mediation analysis: self-enhancement, loneliness, and friend/relative ratings

To further examine the relationship between self-enhancement and friend/relative ratings of the quality of participants' current social functioning. We again conducted mediation analyses using bootstrapping techniques as in previous analyses (Preacher & Hayes, 2008; Hayes, 2012). We then compared this model with alternative models by examining the ratio of indirect relationship to total relationship and completely standardized mediation index (Preacher & Kelley, 2011).

Current Social Functioning

In Model 3, we explore loneliness as a potential mechanism that explains the association between self-enhancement and higher friends'/relatives' ratings of current social functioning. Self-enhancement was the predictor variable, friend/relative ratings of current social functioning the outcome, and loneliness the mediator. The full model was significant, $F(2,57): 9.63, p = .0003, n = 59$. The direct relationship of self-enhancement with friends'/relatives' ratings of social functioning was significant, $b = 2.17, p = .004$. The direct relationship of loneliness (the mediator between self-enhancement and friends'/relatives' ratings) with friend/relative ratings of current social functioning was significant, $b = -.65, p = .003$. The indirect relationship of self-enhancement with friends'/relatives' ratings of social functioning (mediated through loneliness) was significant, $\hat{ab} = 0.64, 95\% \text{ CI } [0.12, 1.56]$. When accounting for the indirect relationship mediated through loneliness, the direct relationship between self-enhancement and friends'/relatives' ratings of current social functioning remained significant, $b = 1.53, p = 0.04$, which suggests partial mediation. Loneliness reduced 29.6% of the total relationship between self-enhancement and friends'/relatives' ratings of current social functioning. The completely standardized index of mediation for the indirect relationship between self-enhancement and friends'/relatives' ratings of current social functioning (through loneliness) was $ab_{cs} = 0.11, 95\% \text{ CI } [.02, .25]$.

In Model 4, we explored the possibility that friends'/relatives' ratings of current social functioning may serve as the mediator in the relationship between self-enhancement and loneliness. Self-enhancement was the predictor variable, friend'/relatives' ratings of current social functioning was the mediator, and loneliness the outcome variable. The full model was significant, $F(2,57): 7.72, p = .001, n = 59$. The direct relationship of self-enhancement with loneliness was significant, $b = -0.99, p = 0.02$. The direct relationship of friend/relative ratings of current social functioning (the mediator between self-enhancement and loneliness) with loneliness was significant, $b = -0.22, p = .004$. The indirect relationship of self-enhancement with loneliness (mediated through friends'/relatives' ratings of social functioning) was significant, $\hat{ab} = -0.47, 95\% \text{ CI } [-0.93, -0.15]$. When accounting for the indirect relationship mediated through friends'/relatives' ratings of social functioning, the direct relationship between self-enhancement and loneliness was no longer significant, $b = -0.52, p = 0.23, 95\% \text{ CI } [-1.37, 0.33]$, which suggests full mediation. Friends'/relatives' ratings of current social functioning reduced 47.6% of the total relationship between self-enhancement and loneliness. The completely standardized index of mediation for the indirect relationship between self-enhancement and loneliness (through friends'/relatives' ratings of current social functioning) was $ab_{cs} = -0.14, 95\%, \text{ CI } [-0.26, -.04]$.

Usual Social Functioning

In Model 5, we evaluated whether loneliness mediated the relationship between self-enhancement and friends'/relatives' ratings of usual social functioning. Self-enhancement was the predictor variable, friend/relative ratings of usual social functioning the outcome, and loneliness the mediator. The full model was significant, $F(2,57): 5.24, p = .008, n = 59$. The direct relationship of self-enhancement on friends'/relatives' ratings of usual social functioning was significant, $b = 1.94, p = .01$. The direct relationship of loneliness (the mediator between self-enhancement and friends'/relatives' ratings) with friend/relative ratings of usual social functioning was significant, $b = -.48, p = 0.05$. The indirect relationship of self-enhancement with friends'/relatives' ratings of social functioning (mediated through loneliness) was significant, $\hat{ab} = 0.47, 95\% \text{ CI } [0.03, 1.29]$. When accounting for the indirect relationship through loneliness, the direct relationship between self-enhancement and friends'/relatives' ratings of current social functioning was no longer significant, $b = 1.47, p = 0.07, 95\% \text{ CI } [-0.13, 3.06]$, which suggests full mediation. Loneliness reduced 24.4% of the total relationship between self-enhancement and friend'/relatives' ratings of usual social functioning. The completely standardized index of mediation for the indirect relationship between self-enhancement and friends'/relatives' ratings of usual social functioning (through loneliness) was $ab_{cs} = 0.08, 95\% [.003, .21]$.

In Model 6, we explored the possibility that friends'/relatives' ratings of usual social functioning may instead serve as the mediator as opposed to loneliness. Self-enhancement was the predictor variable, loneliness the outcome, and friend/relative ratings of usual social functioning the mediator. The full model was significant, $F(2,57): 4.88, p = .01, n = 59$. The direct relationship of self-enhancement with loneliness was significant, $b = -0.99, p = 0.02$. The direct relationship of friend/relative ratings of usual social functioning (the mediator between self-enhancement and loneliness) with loneliness was significant, $b = -0.14, p = .05$. The indirect relationship of self-enhancement with loneliness (mediated through friends'/relatives' ratings of social functioning) was significant, $\hat{ab} = -0.27, 95\% \text{ CI } [-0.82, -0.004]$. When accounting for the indirect relationship mediated through friends'/relatives' ratings of social functioning, the direct relationship between self-enhancement and loneliness was no longer significant, $b = -.72, p = 0.1, 95\% \text{ CI } [-1.58, 0.15]$, which suggests full mediation. Friends'/relatives' ratings of current social functioning reduced 27.4% of the total relationship between self-enhancement and loneliness. The completely standardized index of mediation for the indirect relationship between self-enhancement and loneliness (through friends'/relatives' ratings of current social functioning) was $ab_{cs} = -0.08, 95\% \text{ CI } [-.24, -.001]$.

Discussion

We used structured clinical interviews conducted by trained interviewers and ratings of adjustment from close friends and relatives to examine the relationship of trait self-enhancement with adjustment in the aftermath of conjugal bereavement. As predicted and extending previous research, trait self-enhancement was clearly associated with reduced clinical symptoms in the structured interviews. It is important to note that in contrast to relying on self-report measures or on global ratings from untrained observers, we employed

the “gold standard” structured clinical interviewer by trained clinicians to mitigate the concern that our findings were simply due to distorted reporting by self-enhancing individuals overestimating their levels of health. Although it is certainly possible that self-enhancers presented themselves in a way that masked dysfunctions that were undetected by trained interviewers relying on a widely used structured diagnostic instrument, we believe that it is more parsimonious to interpret these findings as an indication of positive adjustment that strengthens the argument that self-enhancement may indeed promote adaptation. Nevertheless, we cannot entirely discount the perspective that self-enhancers may simply conceal pathology, and similar conclusions could be made toward individuals who may only appear to reap the benefits of unrealistic optimism in the face of medical diagnoses.

We also examined friends’/relatives’ ratings of participants’ health in order to explore the question of whether the perceived social consequences of self-enhancement corresponded with actual social consequences as assessed by members of their social network. We examined individuals during a period of time after the loss that was comparable to the period when Bonanno et al. (2005) found some friend/relative rated social deficits among self-enhancers 18 months after potentially traumatic exposure. Interestingly, trait self-enhancement was positively associated with friends/relative ratings of social interactions and higher overall mental health. This association was found for ratings of both usual health in comparison to other people (retrospectively recalled before the loss) as well as current health in comparison to the individuals’ baseline health (1.5– 3 years after the loss). It is important to mention the fact that these friends’/relatives’ ratings of usual and current social functioning are both based on single item measures, which increases the possibility of error. Although Bonanno et al. (2005), had previously found social deficits among self-enhancers with this same single item measure, it will be important for future research to employ more comprehensive measures of social adjustment.

Another possible explanation is that the raters selected by self-enhancers did not know these participants as well and were not able to detect negative consequences of self-enhancement. We attempted to further explore this by examining whether the raters selected by self-enhancing participants had more superficial relationships to those participants than the raters of those who employed less self-enhancing biases, and we found no evidence to suggest that the friend/relative raters of self-enhancers differed in either the length of the relationship with the participant, the level of contact with the participant, or the length of time that they knew the participant. These findings may suggest that there are real social benefits associated with self-enhancement beyond self-generated perceptions of social benefits. If indeed self-enhancement provides some actual social benefit, it is possible that there is something particular about the specific situation of coping with bereavement that allows this effect to manifest, and further research is necessary to explore the effects of self-enhancement in other contexts.

We conducted a preliminary mediational analysis in order to explore loneliness as a potential mechanism that explains the association between self-enhancement and decreased symptoms. Given the cross-sectional nature of the data analyzed, it is impossible to establish causality, but our findings may point towards an interesting avenue for further investigation.

Because of the subjective nature of loneliness, it is possible that self-enhancing individuals may be less prone to perceiving social isolation. Our findings corresponded with this idea and we found self-enhancement to be associated with lower subjective loneliness. Although self-enhancers may simply be underreporting feelings of loneliness, we also found self-enhancement to be positively associated with friends'/relatives' ratings of social functioning. Together, these findings bolster the argument that self-enhancers may experience less loneliness, at least within the context of coping with bereavement. Although this appears to provide further evidence towards that the positive association between self-enhancement and adaptive coping, it is unclear whether these gains are the result of the distorted perception of self-enhancers, or whether it is possibly actual enhanced social functioning which garners these gains.

We further analyzed the influence of loneliness on the association between self-enhancement and reduced symptoms with bias corrected bootstrapping techniques. We found that loneliness fully mediated the association and accounted for 61.3% of total effect of the relationship between self-enhancement and symptoms. Consistent with Bonanno et al. (2005), we found that people who relied on more self-enhancing biases appeared to be more resistant to negative subjective experiences of social isolation, which may in turn have promoted adaptive responses to an adverse event. Our findings provide some additional evidence that self-enhancement may be associated with adaptive coping in bereavement by influencing subjective experiences of social connectivity. It is important to note that the cross-sectional nature of our data makes it impossible to infer causality, and further prospective longitudinal data is necessary to confirm this potential relationship.

It may also be the case that self-enhancement actually influenced symptoms which in turn influenced feelings of loneliness. We conducted another mediation using bias corrected bootstrapping techniques to explore this scenario. In Model 2, symptom total was replaced as the mediator between the relationship between self-enhancement and loneliness. We found that symptoms accounted for much less of the total relationship between self-enhancement and loneliness (30%). Loneliness appears to display a better fit as the mediator between self-enhancement and symptoms in comparison to symptoms as a mediator between self-enhancement and loneliness. It appears unlikely that the relationship between higher self-enhancement and lower loneliness can be explained through the mediating effects of reduced symptoms.

We conducted another preliminary mediational analysis (Model 3) in order to explore loneliness as a potential mechanism that explains the association between self-enhancement and higher friends'/relatives' ratings of social functioning. Again, the cross-sectional nature of the data analyzed limits any causal inferences in these results. We found that loneliness partially mediated the effects between self-enhancement and friends'/relatives' ratings of current social functioning and accounted for 29.6% of the total relationship.

We compared these results with an alternative model (Model 4) in which we replaced loneliness with friends'/relatives' ratings of current social functioning as the potential mediator in Model 4. We found that friends'/relatives' ratings as the mediator explained a greater percentage (47.6%) of the total relationship between self-enhancement and

loneliness (when compared to Model 3) and produced a total mediation (compared to the partial mediation in Model 3). Although this is captivating, recent research (Hayes, 2009; Rucker, Preacher, Tormala & Petty, 2011) has emphasized the importance of evaluating mediation effects by focusing on the magnitude and significance of indirect effects as opposed to amount of total effect explained by indirect effect. Evaluated in this manner, it is less clear whether Model 4 is the better fit. The fact that Model 4 displays a full mediation is very interesting because the association between two self-report measures (self-enhancement and loneliness) appear to be mediated by the friends'/relatives assessments of their current social functioning. Regardless of the extent to which self-enhancers may be inflating their perception of themselves and under reporting loneliness, it may be the extent to which these appearances are convincing to their friends and relatives that is most important. Of course, because of the cross-sectional design of this study we cannot discern causal relationships, but this appears to add evidence that self-enhancement may be associated with enhanced as opposed to impaired social functioning, and may also explain why self-enhancers report less loneliness.

We also evaluated the extent to which the relationship between self-enhancement and friends'/relatives' ratings of usual (as opposed to current) social functioning was mediated by loneliness (Model 5). We also compared this model with Model 6, wherein ratings of participants' usual social functioning was evaluated as the mediator between self-enhancement and loneliness. We found that friends'/relatives' ratings as the mediator explained a slightly greater percentage (27.4%) of the total relationship between self-enhancement and loneliness (when compared to Model 5). Both Model 5 and Model 6 suggest total mediation. Again, similar to the mediations exploring current social functioning it is unclear which model is superior when comparing magnitude and significance of indirect effects. Nevertheless, this finding is interesting in that the friends' rating of usual social functioning fully mediates the relationship between self-enhancement and loneliness. Again, although self-enhancement is associated with positive adjustment through inflated perceptions of themselves, these models emphasize the extent to which outside perceptions may also play a role in their adjustment.

Limitations

Given the cross-sectional nature of our design, there are many questions that remain unanswered. The correlational nature of our study prevents determination of causality and our findings are exploratory. The association between self-enhancement and positive coping must be extended by the use of prospective designs in a variety of different contexts, in order to more fully explore the potential social benefits and social costs that may be consequences of self-enhancement. There also exist other plausible explanations to the meditational effects that we found. For example, self-enhancement may also be highly associated with other forms of optimism that may be responsible for producing adaptive benefits. As previously cited, Taylor et al. (2003) found the relationship between trait self-enhancement and lower baseline cortisol to be fully mediated by higher levels of psychological resources such as optimism, mastery and self-esteem. Nevertheless, we find it interesting that self-enhancement may be strongly associated with optimism (and its

benefits) and this warrants further investigation. Further research is necessary to compare the effects of self-enhancement with other forms of optimism.

Although we made attempts to overcome the inherent difficulties in collecting friends'/relatives' ratings, we were only able to collect ratings for 60% of our participants. This response rate may explain why our findings diverge from Bonanno et al. (2005). Although we were able to receive enough responses to have adequate power for our analyses, and compared the group of participants who had raters with those who did not on all major variables and found no significant differences, it opens the possibility for selection bias.

Further research is also necessary to explore our findings in other populations. We focus on the bereavement experience among mid-life individuals between the ages of 35 to 60. We selected these ages in order to control for some of the age differences found among individuals coping with stress and bereavement (Aldwin, Sutton, Chiara, & Spiro, 1996; Martikainen & Valkonen, 1996; Schaefer, Quesenberry, & Wi, 1995). Further research is necessary to extend our results to older and younger populations. Also, the ethnic diversity of our sample may have introduced noise as a result of the various ways that this may influence the experiences of grief and it would be interesting to explore our findings among other samples.

Also, the extent to which self-enhancers' subjective perceptions of social consequences correspond with actual social consequences warrants further investigation. Because we found self-enhancers to be rated by friends as displaying better social interactions, it is difficult to tease apart the question of whether these individuals' adaptive coping was due to either subjective perception of their social environment or actual social benefits. Although there appears to be evidence for both processes occurring, further research is needed to test the extent to which both of these factors may contribute to their favorable outcomes.

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Mediation Model 1: Loneliness as a Mediator of the Relationship between Self-enhancement and Symptoms

Mediation Model 2: Symptoms as a Mediator of the Relationship between Self-enhancement and Loneliness

Figure 1.

Figure 2.

Mediation Model 5: Loneliness as a Mediator of the Relationship between Self-enhancement and Usual Social Functioning as Reported by Friends/Relatives

Mediation Model 6: Friends/Relatives ratings of Usual Social Functioning as a Mediator of the Relationship between Self-Enhancement and Loneliness

Figure 3.

Table 1

Zero-order Correlations of Self-enhancement, Loneliness and Symptom Total

	Self-enhancement	Loneliness	Symptom total
Self-enhancement	-		
Loneliness	-.33**	-	
Symptom total	-.24*	.49**	-

*
p .05**
p .01

Table 2

Zero-order Correlations of Friend/Relative Ratings, Self-enhancement and Loneliness

Friend/relative rating variable	<i>M</i>	<i>SD</i>	Self-enhancement	Loneliness
Usual health				
Mental health	4.87	1.27	.34**	-.34**
Physical health	4.76	1.32	.05	-.32*
Social interactions	5.22	1.17	.31*	-.33*
Goal accomplishment	5.48	1.16	.09	.03
Coping	4.91	1.43	.17	-.32*
Current health				
Mental health	4.23	1.32	.34**	-.36**
Physical health	4.53	1.24	.23	-.33*
Social interactions	4.71	1.12	.37**	-.44**
Goal accomplishment	4.82	1.21	.21	-.16
Coping	4.44	1.36	.20	-.34**

*
p .05**
p .01