

Self-esteem:

A human elaboration of prehuman belongingness motivation

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To appear in C. Sedikides & S. Spencer (Eds.), *The Self in Social Psychology*

Author's Note

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Self-esteem is usually broadly defined as a person's overall evaluation of, or attitude toward, her- or himself (James, 1890; Leary & MacDonald, 2003; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). However, vigorous disagreement exists regarding precisely what self-esteem is and why people experience it in the way that they do. In this chapter, I argue that self-esteem can be best understood as a reflection of an individual's sense of her or his acceptability to important others. I begin by defining the self and describing my view of its evolutionary roots. I then critically examine two theories that argue for an interpersonal role of self-esteem, Sociometer Theory (Leary & Baumeister, 2000) and Terror Management Theory (Pyszczynski et al., 2004). Specifically, I examine these theories in light of evolutionary and cultural considerations. Next, I consider some similarities and differences between the two theories with an eye towards a unified approach. Finally, I critique a third perspective that has been critical of the interpersonal approach to self-esteem, Self-Determination Theory (Deci & Ryan, 1995). I conclude that self-esteem reflects the operation of prehuman safety-promotion mechanisms elaborated through uniquely human systems of meaning.

What is the Self?

In order to convey my understanding of the nature of self-esteem, I must first make clear my view on the evolutionary development of the human self. There is general acceptance that many of the capacities we experience as part of a unified self are features that distinguish us from even our closest evolutionary cousins (Leary & Buttermore, 2003; Sedikides & Skowronski, 2003; Suddendorf & Corballis, 1997). Thus, providing a coherent, evolutionary account of the self would aid in understanding our uniquely human character. However, the first step in providing such an account, agreement on a definition of the self, has proven difficult. There

appears to be more consensus as to the psychological processes that involve the self than the exact nature of the self, per se. There is some agreement that the self is involved in at least three main processes – reflexive capacity (the ability to depict oneself in relation with one’s environment), representational capacity (the ability to mentally represent personal attributes), and executive function (the ability to exert control over one’s thoughts, feelings, and behaviors) (Leary & Tangney, 2003; Sedikides & Skowronski, 2003). Any definition of the self should account for a common thread among these processes.

Mischel and Morf (2003) account for the multiple aspects of the self by defining the self as a cognitive-affective-action system in combination with an interpersonal self-construction system. The first part of this definition is problematic for considering the uniquely human self, given that a wide range of species could be argued to have cognitions, emotions, and behaviors (Panksepp, 2005). However, the ability to cognitively construct features such as identity and personal standards may well represent a uniquely human characteristic. Leary and Tangney (2003) define the self more narrowly, “as the apparatus that allows organisms to think consciously about themselves” (p. 8). Indeed, it would be impossible to construct aspects of the self such as identity without representations of the self being available to awareness. Thus, I define the self as mechanisms that allow for thoughts about one’s own conscious experience and information processing rules for combining the products of self-thought into higher-order cognitive constructions.

Considered in this way, the self can be seen to share important features with other uniquely human characteristics. Corballis (2002) argues that the key capacity differentiating humans from other animals is the ability to use recursive information processing rules that result in generative cognitive abilities. Specifically, recursive

processing involves feeding the output of a given process or function back as the input for a repeated run of the process or function. Recursive rules govern the combination of outputs into larger constructions. Recursive information processing rules allow humans to combine cognitive representations to create an unbounded set of novel ideas. For example, Chomsky (1966) demonstrated how this process underlies language ability, with grammar providing the combinatorial rules for linguistic generativity. As we learn language we learn combinatorial rules: phonemes are combined into words, words into phrases, and phrases into sentences. These combinations allow for emergent properties to arise from combinations of old ideas that result in new ideas. For example, the words green and house, when combined into the word greenhouse, represent a concept not represented by the individual words. The potential for such combinations at the sentence level is infinite. Similarly, recursive rules allow the 10 commonly used numeric symbols to be combined to represent an infinite number of values (Chomsky, 1988). Further, simple tools (e.g., the wheel) are combined with themselves and others to create highly complex machines (e.g., the automobile) (Corballis, 2002).

Chomsky (1966) referred to this capacity to combine cognitive representations as generativity, although it might also be useful to consider it as a story-telling or meaning-making ability. Humans are able to combine mental representations that would remain isolated for other animals to construct a meaningful, integrative narrative.¹ Such recursive information processing can be used to explain the three self-processes described earlier. First, recursive information processing provides for self-awareness by feeding the output of awareness back as input to awareness, thus producing an awareness of awareness. Second, recursive rules permit a *meta-representation* of the awareness of self (Suddendorf & Corballis, 1997). Human

beings are able to represent the representation of self as a representation; we understand that thoughts about the self are symbols that can be manipulated. Third, this meta-representation of self can then be combined with other cognitive representations, resulting in cognitive constructions that allow us to imagine ourselves in different states than our current state.² These constructions based on meta-representation allow us to imagine previous and possible selves (Suddendorf & Corballis, 1997) that serve as standards for self-comparison and self-regulation (e.g., Higgins, 1989).

Thus, the evolution of fundamental capacities underlying the uniquely human self can be explained by one evolutionary development – recursive information processing rules (Corballis, 2002). This analysis suggests that self-related abilities developed not just because the self provided evolutionary advantage, but because recursive rules augmented a variety of prehuman capabilities (e.g., communication, tool use). One satisfying aspect of this explanation of the evolution of the self is that it is highly parsimonious. Any explanation of uniquely human characteristics must account for the fact that there is very little genetic difference between modern humans and chimpanzees, our closest genetic relatives (Corballis, 2002). There are a number of non-psychological distinctions between humans and our closest ancestors, such as upright posture and lack of body hair, that must be accounted for by genetic differences. The very slight, remaining difference in genetic composition between humans and chimpanzees argues in favor of parsimonious evolutionary theories of the development of uniquely human psychological capacities.

The argument that the self arises from recursive information processing has important implications for the notion of self-related motives. This argument suggests that the self represents uniquely human cognitive abilities, but not uniquely human

motivational drives. For example, Corballis (2002) suggests that recursive processing is associated with larger human frontal lobes relative to nonhuman primates, rather than some change in midbrain structures that are more closely associated with base motivational drives. Thus, rather than creating new motivations, the self should be considered to provide complex elaborations of those motives we share with nonhuman primates (e.g., survival, energy intake, reproduction). As Leary and Tangney (2003) note, "...it may be more parsimonious to conclude that emotional and motivational systems are intimately linked to the self but are not an inherent part of it" (p. 11). In this sense, the self is a cognitive-affective-action system (Mischel & Morf, 2003) only insofar as it moderates drives shared with nonhuman animals through its capacity for reflection and construction. Aspects of self-regulation such as personal standards should be seen as cognitive constructions that ultimately serve to satisfy these base motivations. This point is particularly important in understanding the nature of self-esteem.

Sociometer Theory

The above analysis of the nature of the self suggests that self-esteem, to the extent that it reflects affectively-laden self-evaluations (Leary & Baumeister, 2000), should represent some combination of the uniquely human self and more ancient motivational mechanisms. Relatedly, Harter (2003) argued that a sense of global self-worth develops in humans between ages 8 to 11. Before this age, children exhibit behavioral profiles that can be reliably coded as patterns of what Harter describes as self-esteem, suggesting that self-esteem mechanisms are operational before age 8 even though the full complement of self-abilities is not yet on-line. This supports the notion that there is some element of self-esteem that is not directly dependent on the existence of a self.

The question then becomes which nonhuman motivational mechanism(s) formed the basis of a sense of self-esteem. Sociometer Theory (ST) argues that self-esteem ultimately aids in servicing the need to belong (Baumeister & Leary, 1995). Leary (2004a) suggested the *sociometer* is an evolutionarily derived, prehuman module that aids an organism in monitoring its relational value. In nonhuman animals, Leary (2004a) suggested that this mechanism would have been responsive to concrete social cues in the immediate environment. That is, social animals require some estimation of their social value to conspecifics in order to promote effective social approach and avoidance behavior. A variety of social animals are known to have inclusion regulation systems (Gilbert & Trower, 1990). For example, feelings of social pain may provide an important signal across species to warn individuals of low social value to others (MacDonald & Leary, 2005). Thus, computational systems for evaluating a sense of an individual's social value, or a sociometer, were well in place before the evolution of humans.

According to ST, then, state self-esteem represents perceptions of one's current relational value in the immediate situation (Leary & Baumeister, 2000). In this sense, state self-esteem only draws upon the reflexive capacity of the self; it is the ability to recognize one's current sense of relational value. As a result, state self-esteem fluctuates depending on the salient social context. For example, Kirkpatrick and Ellis (2001) argued that there may be multiple sociometers that have evolved to monitor inclusion in various types of relationships that were important for survival over evolutionary history, such as instrumental coalitions, mating relationships, and family relationships. However, individuals are also able to report levels of global, or trait, self-esteem that can demonstrate consistency across time (Kernis & Waschull, 1995). ST argues that factors such as personal history of social rejection and

anticipation of future acceptance factor into evaluations of global self-esteem. Thus, global self-esteem involves the generative aspect of the self, with constructions of past and future selves allowing the evaluation not just of current relational value, but expected value in future interactions (Leary & MacDonald, 2003).

It is important to note that the concept of relational value does not refer simply to dominance rank. Some theorists have suggested that self-esteem represents an individual's sense of her or his rank in a dominance hierarchy (e.g., Barkow, 1980). However, more recent theory and research has suggested that dominance alone cannot account for self-esteem (Leary, Cottrell, & Phillips, 2001; Pyszczynski et al., 2004). First, social acceptance is a better predictor of self-esteem than dominance (Leary et al., 2001). Second, across species, dominance hierarchies tend to be more important for males' social functioning than for females, yet self-esteem appears to be important to both women and men (Leary & Baumeister, 2000). Third, humans often develop systems to limit the influence of dominant individuals such that excessive dominance can decrease rather than increase social value (Boehm, 1999). Importantly, social ties have been shown to promote survival independent of dominance. For example, infants of highly socially integrated female baboons have been shown to be more likely to survive to 1 year of age than infants of less socially integrated mothers, even controlling for the mothers' dominance rank (Silk, Alberts, & Altmann, 2003). Thus, ST considers self-esteem to be responsive to overall relational value, including dominance and social integration.

The main prediction of ST, that self-esteem should be strongly tied to feeling acceptable to important others, has been strongly supported. In a recent review, higher global self-esteem was shown to be related to higher perceived relational value across a variety of domains (Leary & MacDonald, 2003). For example, research has

shown that the relation between evaluation of one's attributes and self-esteem is moderated by the degree to which people believe that an attribute is important for social acceptance. MacDonald, Saltzman, and Leary (2003) asked participants to evaluate themselves in each of five domains (i.e., competence, physical attractiveness, wealth and possessions, sociability, and morals) and to indicate the extent to which each domain was important for social acceptance and rejection. Results showed that the more participants thought that a domain was relevant to interpersonal acceptance or rejection, the more strongly their self-appraisals in that domain predicted their global self-esteem.

Culture and the Sociometer

One limitation to previous evaluations of ST is that little consideration has been given to cross-cultural research, with the majority of literature supporting the theory coming from Western cultures. Evidence supporting the hypothesized relations between self-esteem and theoretically related constructs across cultures (Kwan, Bond, & Singelis, 1997) would support the notion that self-esteem is an evolved monitor of relational value. Specifically, evidence that self-esteem is tied to acceptability universally would strongly support the theory.

Although only a small number of studies have tested the link between self-esteem and feelings of acceptability across cultures, the existing studies are strongly supportive. For example, Lansford, Antonucci, Akiyama, and Takahashi (2005) showed that perceiving more positive characteristics in relationships with one's parents, friends, and children, including feeling supported and encouraged, was positively related to self-esteem for both Japanese and American participants. Farruggia, Chen, Greenberger, Dmitrieva, and Macek (2004) showed that adolescents who perceived warmth and acceptance from their parents reported higher self-esteem

across the United States, the Czech Republic, Korea, and China. Schmitt et al. (2004) showed that self-esteem was negatively related to anxious attachment, or concerns about rejection from close others, across 50 of 54 countries with available data. Zhang and Norvilitis (2002) showed perceived social support to be positively correlated with self-esteem in both China and the United States. Goodwin and Plaza (2000) found a positive correlation between self-esteem and perceived support from friends following stressful events across the U.K. and Spain. Abe (2004) not only demonstrated a strong link between self-esteem and feeling supported by friends across both Japan and the United States, but also found that self-esteem mediated the negative relation between support from friends and anxiety in both countries. MacDonald & Jessica (in press) demonstrated that self-esteem was positively related to reflected appraisals from romantic relationship partners, or the belief that individuals would be evaluated positively by their partners, across Indonesia and Australia. This study also showed that the link between self-esteem and valuation of one's relationship was mediated by reflected appraisals in both countries, suggesting that individuals allowed themselves to value the relationship only when they were confident in being valued by their partner.³ These data suggest that self-esteem was used to regulate emotional dependence in both countries in a manner consistent with ST. Overall, the data from multiple cultures provide strong evidence for a universal link between self-esteem and feelings of relational value.⁴

Further, self-esteem has been shown to be related to a similar constellation of personality factors across American, Chinese, and Hong Kong samples (Kwan et al., 1997; Leary & MacDonald, 2003; Luk & Bond, 1992). In particular, self-esteem appears to be strongly related to extraversion and emotional stability, moderately related to conscientiousness, weakly related to openness to experience, and unrelated

to agreeableness (Kwan et al., 1997). Leary and MacDonald (2003) argue that this constellation of personality traits is particularly likely to promote perceptions of high relational value.⁵

Despite the evidence offered here, some researchers have suggested that self-esteem does not have a universal function, and is instead culture-specific. For example, evidence has consistently shown that average self-esteem scores in Western nations such as the United States are higher than those in Eastern nations such as Japan (Heine, Lehman, Markus, & Kitayama, 1999; Smith & Bond, 1999). Markus and Kitayama (1991) suggested that self-esteem may be a primarily Western concept. Heine et al. (1999) argued that there cannot be a universal need for high self-esteem, as Japanese individuals focus more on self-criticism than self-enhancement, suggesting little drive for positive self-evaluation in Japan. For example, these authors argue that self-criticism is encouraged early in life for Japanese through socializing agents such as teachers, whereas it is a moral obligation for individuals in individualist cultures to demonstrate autonomy and control.⁶

It is my position that neither average differences in self-esteem across cultures nor the cultural focus on abasement versus enhancement precludes the notion that self-esteem is related to inclusion regulation across cultures. Individuals in more interdependent cultures may not strive to maximize self-esteem, but may still use self-esteem to inform judgments of relational value in service of their social goals. That is, I view self-esteem as a tool that is used for regulating belonging, but the manner in which individuals are socialized to use that tool appears to vary across cultures. Easterners appear to focus more on humility in the service of adjusting their behavior to make themselves more acceptable to others (Cross & Gore, 2003; Heine et al., 1999). In essence, Easterners are taught to attend to limits on their social value,

which may be reflected in relatively low self-esteem reports. On the other hand, Westerners appear to focus more on evidence of their value to others (Cross & Gore, 2003; Heine et al., 1999), leading to overestimations of relational value. Thus, the various cultures' mean levels of, or "setpoints" for, self-esteem are adjusted according to how individuals within each culture have been taught to construct perceptions of their worth. However, whatever baseline level of self-esteem is settled on in each culture, it will be changes from this baseline, or variability in self-esteem, that should serve as signals of increased or decreased social value. The evidence to date consistently demonstrates that variability in self-esteem can be accounted for by feelings of acceptability panculturally. Overall, the sociometer account of self-esteem appears to not only explain the body of Western self-esteem research well (Leary & MacDonald, 2003) but is also highly consistent with considerations from evolutionary and cross-cultural psychology.

Terror Management Theory

Terror Management Theory (TMT) offers a different account of the function of self-esteem that focuses on its role in managing existential concerns. TMT proposes that self-esteem functions to shelter individuals from the anxiety that arises due to the awareness that they will die (for a review, see Pyszczynski et al., 2004). The theory begins from the premise that, as humans developed sophisticated cognitive abilities, the ability to project the self into the future led to the realization that death was inevitable. TMT proposes that this realization would have led to an omnipresent potential for paralyzing terror. The theory suggests that such terror presented an important survival challenge by creating overwhelming anxiety and chronic inaction. TMT argues that this problem was solved by the construction of cultural worldviews that offered relief from the terror by providing a route to immortality. Culture can

offer literal (e.g., life after death) or symbolic (e.g., being remembered for great works) immortality to members who live up to its value systems. In this view, fear of death is said to have provided the motivation to create community structures that supersede the individual (e.g., religion), as well as the motivation to adhere to the value systems that permit entry into those community structures. Relief from anxiety comes from being a valuable member of a meaningful cultural system. Self-esteem is defined as feeling that one is living up to the standards of one's culture, as this provides protection from death via literal or symbolic immortality. Importantly, in this view, the need for self-esteem was an evolved adaptation in response to death awareness. High self-esteem quells the paralyzing terror that led to chronic inaction and thus was selected for through evolutionary processes.

Research testing some of the key propositions of TMT has been supportive. Considerable evidence supports a link between higher levels of self-esteem and lower levels of anxiety (Greenberg, Solomon, Pyszczynski, Rosenblatt, et al., 1992; Greenberg, Pyszczynski, Solomon, Pinel, et al., 1993; Solomon, Greenberg, & Pyszczynski, 1991), including cross-cultural evidence (Abe, 2004). Further, the theory suggests that if self-esteem serves to buffer death anxiety, then individuals with high trait self-esteem, or with experimentally induced feelings of self-worth, should feel less threatened by reminders of death. Thus, individuals with higher self-esteem should feel less need to defend their cultural system or worldview in the face of mortality salience, as self-esteem reduces their anxiety about death. Research has supported these predictions. American participants who wrote about their own death derogated an anti-American author less if they had higher levels of global self-esteem (Study 1) or higher state self-esteem induced by false positive feedback (Study 2) (Harmon-Jones, Simon, Greenberg, Pyszczynski, et al., 1997). No effect for self-

esteem was found when participants had written about watching television. Further, the experimental induction of higher state self-esteem (Study 3) was also related to lower availability of death-related thoughts following the mortality salience induction. Certainly, then, the data support a link between reminders of death and self-esteem.

Despite this evidence, there are a number of reasons to question the TMT interpretation of the nature and function of self-esteem. First, as noted elsewhere (Leary, 2004b), it is unlikely that self-esteem evolved to reduce the fear of death, as this fear is highly functional. Genes that minimized response to cues related to the threat of death seem likely to have been selected out, as individuals carrying these genes are not likely to have responded optimally in the face of mortal threat. Conceivably, a supporter of TMT could argue that self-esteem evolved to buffer against imagined death only, but such an argument seems difficult to support from an evolutionary perspective.

Second, TMT's account of the evolution of self-esteem is less parsimonious than that provided by ST. In the TMT version, the need for self-esteem must have evolved some time after the dawn of a sophisticated form of self-awareness (as it is posited to be a response to this development). Thus, the evolution of a need for self-esteem must have involved separate selection pressures and psychological processes from those that gave rise to self-awareness and the construction of past and future selves. The notion of a need for self-esteem evolving separately from the development of recursive information processing rules is less parsimonious than considering self-esteem as one of a number of prehuman mechanisms simultaneously augmented by this development. As noted, given the small degree of genetic difference between human beings and our closest primate cousins (Corballis, 2002), parsimony is an important consideration in theorizing about the evolution of the

uniquely human self. Further, there was very little evolutionary time following the development of a form of self-awareness sophisticated enough to allow the conception of death for other new adaptations to appear (Corballis, 2002; Leary & Buttermore, 2003; Sedikides & Skowronski, 2003).

Culture and Terror Management Theory

A third criticism of the TMT perspective on self-esteem comes from research examining self-esteem cross-culturally. At the heart of TMT lies the notion that individuals who feel they are living up to their culture's values should feel protected, and thus experience high levels of self-esteem. One of the most studied variables used to distinguish the world's cultures is individualism-collectivism (Smith & Bond, 1999). Western cultures such as the United States tend to value individualism or independence (Markus & Kitayama, 1991). These cultures have been characterized as placing more importance on internal thoughts, feelings, needs, and actions and less importance on prioritizing others. On the other hand, Eastern cultures such as Japan tend to value collectivism or interdependence (Markus & Kitayama, 1991). These cultures are more likely to value connection with others, maintaining harmonious interpersonal relationships, and living up to social norms, roles, and obligations. Thus, TMT predicts that self-esteem should be related to individualism in Western cultures and interdependence in Eastern cultures as endorsement of these values should reflect concordance with the values of each respective culture.

The data do not bear out this prediction. Self-esteem has been found to be consistently related to higher levels of independence across various regions including the United States, Japan, Hong Kong, and Australia (Heine et al., 1999; Kwan, Bond, & Singelis, 1997; Singelis, Bond, Sharkey, & Kriss, 1999; MacDonald & Jessica, in press). However, one study found no significant relation between independence and

self-esteem in an Indonesian sample, despite a trend towards a positive relation (MacDonald & Jessica, in press). Research on the relation between interdependence and self-esteem has produced less consistent results. A negative relation between these variables has been demonstrated in the United States and Hong Kong in one study (Singelis et al., 1999), the United States but not Hong Kong in another study (Kwan et al., 1997), and in neither Indonesia nor Australia in a third study (MacDonald & Jessica, in press). Heine et al. (1999) report on a meta-analysis showing a small negative relation between self-esteem and interdependence across North America and Japan. Despite the inconsistency of these findings, it is clear that the TMT prediction that interdependence should be positively related to self-esteem in collectivist regions such as Japan, Hong Kong, and Indonesia is not supported. These results challenge the TMT notion that living up to a culture's values is related to higher self-esteem.⁷

Surprisingly, some theorists have used evidence of the relatively consistent relation between self-esteem and independence across cultures to argue against the sociometer notion that self-esteem has an evolutionary, universal function (Heine et al., 1999). As noted earlier, consistent relations between variables across cultures are often taken to provide support for the universality of a psychological process (Kwan et al., 1997). In fact, the relation between independence and self-esteem appears easily explainable in ST's terms of perceived acceptability to others. The pursuit of self-esteem involves both approach (i.e., winning approval) and avoidance (i.e., avoiding rejection) goals (Blaine & Crocker, 1993). Research suggests that individuals with higher levels of self-esteem tend to be motivated by approach goals such as dominance and competence, whereas those with lower levels of self-esteem tend to be motivated by avoidance goals such as reassurance seeking (Crocker &

Park, 2004). For example, low self-esteem has been linked with protective self-presentation strategies that function to aid in the avoidance of losses in approval and acceptance, whereas high self-esteem has been linked with acquisitive self-presentation strategies that function to aid in the enhancement of approval and acceptance (Baumeister, Tice, & Hutton, 1991; Tice, 1991; Wolfe, Lennox, & Cutler, 1986). Further, individuals from non-Western nations, where average levels of self-esteem are relatively low, pursue avoidance goals across a variety of domains more so than individuals from Western nations (Elliot, Chirkov, Kim, & Sheldon, 2001).

Allen and Badcock (2003), in their social risk hypothesis of depressed affect, examined how relational value constrains approach-avoidance tendencies. In their review, they argued that relational value, or *social investment potential* in their terms, is calculated as an individual's social value to others relative to their social burden on others. They suggested that the output of this calculation is experienced phenomenologically as self-esteem. Their review argued that when the social investment potential algorithm computes an individual's relational value as low, a depression mechanism motivates the reduction of social risk by increasing perceptions of social threat and restricting appetitive motivation via reduced experience of pleasure. This analysis is consistent with the notion that the social risks necessary to stand out or display independence will be constrained by perceptions of social value. Only when relational value, or self-esteem, is relatively high will individuals endorse and pursue individualist strategies.

This interpretation of the relation between self-esteem and independence is consistent with evidence suggesting that Western cultures promote self-enhancement whereas Eastern cultures promote self-criticism, leading to higher average self-esteem reports in the West compared to the East (Cross & Gore, 2003; Heine et al., 1999;

Smith & Bond, 1999). Specifically, Western cultures promote a focus on an individual's value to others, which should lead to relatively high perceptions of relational value, higher self-esteem, and motivation to pursue independence. On the other hand, Eastern cultures promote a focus on an individual's burden on others, which should lead to relatively low perceptions of relational value, lower self-esteem, and motivation to not pursue independence. Thus, ST's focus on self-esteem as a social value mechanism neatly explains cross-cultural self-esteem research in a fashion that TMT's focus on self-esteem as adherence to cultural worldview cannot.

Can Sociometer Theory and Terror Management Theory Be Reconciled?

Although I have largely focused on distinctions between the sociometer and TMT perspectives in this chapter, ultimately I believe that the two theories are largely exploring the same phenomenon. For example, both TMT and ST argue that self-esteem provides a buffer against anxiety, and that self-esteem is strongly related to one's sense of value to important others (Leary, 2004b).⁸ More fundamentally, there is an inextricable link between threats to survival and social connection in social animals. The development of complex social structures resulted because of the advantage such structures conferred for an individual's survival (Baumeister & Leary, 1995). Over evolutionary history, cues that were reliably associated with death came to provoke perceptions of threat that are experienced as fear and anxiety (Gray & McNaughton, 2000). In response to such fear and anxiety, social animals seek the company and comfort of conspecifics (Baumeister & Leary, 1995). At the affective level, such proximity-seeking behavior reduces fear but ultimately this grouping strategy wards off death. Because this relation between death, fear, and proximity-seeking likely dates to some of the earliest mammalian species (dating at least to the

first eutherian, or placental, mammals), it represents a deep and ancient instinct (MacDonald & Leary, 2005).

TMT is extremely valuable in understanding how the survival instinct is elaborated with story-telling and meaning-making tools available only to human beings. Our ability for cognitive construction allows us to project a future in which the survival instinct is ultimately thwarted. TMT's account of self-esteem provides a coherent picture of how humans understand that survival is impossible and, in order to deter this fact from entering consciousness, use emotion-focused coping to alter the self-concept in order to experience high levels of self-esteem. However, the problematic aspect of the TMT approach to self-esteem is its contention that self-esteem arose because of death awareness rather than alongside death awareness. It seems logical that if the survival instinct became cognitively elaborated by humans then motivations tied to survival should also become similarly elaborated. Just as we construct future scenarios to test the long-term viability of our survival, we also construct future scenarios to test the long-term viability of our being included by important others. Social connection has dampened fear and anxiety in social animals for millions of years (MacDonald & Leary, 2005). In this light, it should come as no surprise that symbols of the potential for future social connection (e.g., global self-esteem) should dampen the fear produced by symbols of the certainty of future survival threat (e.g., imagined death). ST is a particularly useful account of how global self-esteem is a construction that reflects these deep concerns about social connection, concerns that are rooted in the simple equation that there has long been safety in numbers.

The human elaboration of these safety-related belongingness concerns can be seen in the cognitive construction of standards by which individuals evaluate their

self-worth. Most theorists agree that an individual constructs personal standards by incorporating the expectations, standards, and opinions of valued others as internalized guides for behavior, especially during childhood (Bowlby, 1973; Deci & Ryan, 2000; Greenberg, Solomon, & Pyszczynski, 1997; Harter, 2003). Harter (2003) argued that this internalization of others' values takes place between the ages of 8 and 11, the same period in which children become able to report a sense of global self-esteem. Thus, the standard set for a positive evaluation of self is the standard for being acceptable to those one would mostly likely turn to in response to threats to safety. In this context, then, the quest for self-esteem in the face of mortality salience may be seen as a human elaboration of ancient motivations for proximity-seeking in response to the fear provoked by death-related cues. That is, individuals may alter the self-concept in the face of mortality salience in anticipation of the standards for acceptance by their internalized secure base.

In support of these ideas, evidence suggests that the threat of death primes a grouping strategy that motivates individuals to conceive of themselves as acceptable to others. Florian, Mikulincer, and Hirschberger (2002) showed that individuals in romantic relationships who wrote about their own death reported higher commitment to their partners than those in a control condition. In addition, reminders of death have been shown to promote a greater desire for intimacy (Mikulincer & Florian, 2000) as well as higher appraisals of interpersonal competence and less concern about rejection (Taubman Ben-Ari, Findler, & Mikulincer, 2002) relative to control conditions. These findings are especially true of those who are securely attached, and thus most likely to expect an appeal to intimacy to be successful. As with other social animals, death-related cues appear to motivate approach toward others who are considered allies.

These data are consistent with the notion that, in the face of death cues, individuals are willing to compromise in order to make themselves more acceptable to others. That is, participants in these studies may have been less concerned about rejection because they were more willing to change themselves in order to be acceptable. Individuals who have considered their own death have been shown to be more willing to compromise their ideals in selecting a mate (Hirschberger, Florian, & Mikulincer, 2002). This was especially true of those high in self-esteem who, according to TMT, shouldn't need validation in the face of mortality salience. However, those with high self-esteem should most expect the pursuit of intimacy to be successful, and thus may be most likely to pursue intimacy when death is salient. Furthermore, mortality salience increases individuals' willingness to pursue intimacy even with a partner who criticizes them (Hirschberger, Florian, & Mikulincer, 2003). Thus, motivation for closeness when reminded of death is so strong that individuals appear willing to sacrifice integrity for connection. This point is buttressed by the work of Wisman and Koole (2003) who found that, relative to controls, individuals randomly assigned to consider their own death were more likely to sit close to others than sit alone even if those others opposed their personal worldviews. This effect remained significant even when sitting close to others required the participant to derogate their own worldview.

Mikulincer, Florian, and Hirschberger (2003) argued that close relationships, in addition to providing actual defense against death, are used as a distal defense against conscious fears of death or a form of symbolic immortality. That is, relationships are seen as a route to symbolic immortality that is separate from, and possibly prioritized over, self-esteem and worldview defense (see also Wisman & Koole, 2002). This notion is consistent with the argument that symbols of death

promote fear, and thus an instinctual motivation for closeness that can be satisfied in real or symbolic terms. The fear resulting from symbols of death may be quelled, perhaps in decreasing order of effectiveness, through actual closeness (e.g., cuddling a loved one), symbols of closeness (e.g., a wedding ring), or symbols of the potential for closeness (e.g., high relational value or self-esteem). These strategies vary in the degree to which they directly satisfy the motive for closeness. As such, they should be construed as varying only in the degree of elaboration of basic safety motives (i.e., proximity-seeking) rather than as varying in the underlying motives themselves.

This argument suggests that self-esteem has the potential to buffer fear and anxiety from any source, not just imagined death. However, Pyszczynski et al. (2004) argued that the existence of self-esteem can be explained only by conscious fears of death. In support of this argument, they reviewed research comparing mortality salience against other imagined threats (such as physical pain and academic failure) that appeared to show that self-esteem defenses are effective in buffering anxiety in response to mortality salience, but not other anxiety-provoking stimuli. However, the experiments these authors reviewed were confounded in a manner that advantaged the death condition. In imagining death, an individual is asked to imagine a negative event that will inevitably happen and is out of her or his control. In imagining pain or failure, an individual is asked to imagine a negative event that is not inevitable and is in her or his control (see also Ryan & Deci, 2004). Research examining the anxiety-buffering effect of self-esteem in response to anticipated electric shock, an unavoidable negative event that does not involve mortality salience, demonstrated that higher levels of self-esteem buffered this anxiety (Greenberg et al., 1992).

In addition to being uncontrollable, mortality presents the ultimate threat to connection with others. A meta-analysis of physiological response to psychological

stressors found that individuals responded with uniquely high cortisol levels, a marker of stress, to stressors that involve negative interpersonal consequences and lack of control (Dickerson & Kemeny, 2004). Stressors that combine these elements lead to especially high levels of cortisol release. Thus, mortality salience manipulations may lead to especially strong defensive responses not because there is anything unique about response to imagined death per se, but rather because any situation that involves separation and lack of control activates defensiveness. The available data from mortality salience research support the conclusion that self-esteem defenses may be more strongly activated in response to uncontrollable separation threats, but without research comparing imagined death to other uncontrollable separation threats, this data cannot speak to the uniqueness of death as a threat.

The conceptualization of self-esteem as an extension of basic physical threat defenses outlined in this chapter is consistent with Hart, Shaver, and Goldenberg's (2005) suggestion that attachment security, self-esteem, and worldview defense provide a system of interchangeable psychological security mechanisms. Considering culture and worldview in these authors' terms of "a caregiver by proxy," (p. 1001) suggests that all three security mechanisms reflect human elaboration of the ancient strategy of seeking proximity to conspecifics in the face of danger. As such, the "psychological" security system described by Hart et al. (2005) might best be reframed as a reflection of ancient motivations for physical safety. In particular, the present analysis suggests that these defenses represent attempts to satisfy motivation for access to valued conspecifics, motivation that is elaborated by extremely complex cognitive construction abilities.

In regard to the Terror Management and Sociometer theories of self-esteem outlined above, it is my position that research data and evolutionary considerations

suggest that the sociometer model provides a better and more parsimonious account of self-esteem than does TMT. Ultimately, both theories converge on the idea that global self-esteem represents a symbol of the potential for social connection constructed through uniquely human cognitive elaboration. However, by positing self-esteem as an evolved response to death awareness, rather than as a product of the same evolutionary development that produced death awareness, TMT introduces an extra theoretical step that seems neither necessary nor justified.

Self-Determination Theory

Another perspective on self-esteem comes from Self-Determination Theory (SDT; Deci & Ryan, 2000). I wish to address SDT's perspective on self-esteem because authors from this perspective have been critical of the interpersonal approach taken by both ST and TMT (Ryan & Deci, 2004). A fundamental postulate of SDT is that humans have three innate psychological needs – competence, autonomy, and relatedness (Deci & Ryan, 2000). Competence refers to feeling effective in interacting with one's environment. Autonomy refers to feeling that one's behavior is freely chosen. This concept is often confused with individualism, or behaving separately from others. However, in the SDT framework, behaving in line with others can be autonomous so long as the individual feels that behavior is chosen freely (e.g., Chirkov, Ryan, Kim, & Kaplan, 2003). Finally, relatedness refers to the desire to be connected to others. SDT argues that conditions that are supportive of these three needs will foster behavior that is *self-determined*, or motivated by personal choice rather than external control. Such self-determined behavior is related to higher levels of well-being (Ryan, Deci, & Grolnick, 1995).

SDT's perspective on self-esteem suggests that it is important to distinguish between two types of self-esteem: contingent and true (Deci & Ryan, 1995). This

perspective argues that contingent self-esteem is self-worth that fluctuates based on success in meeting certain standards of excellence. Contingent self-esteem is described as unstable and fragile, and results from conditions that are unsupportive of some or all of the three posited psychological needs. Under these conditions, individuals defensively pursue self-worth by attempting to match themselves to standards that reflect external control or only partial internalization. In contrast, true, stable self-esteem reflects self-worth that does not fluctuate as a function of one's accomplishments. Under conditions supportive of the three posited needs, the individual does not feel the need to prove her or his self-worth and behavioral regulation emanates from the individual's authentic self. These authors argue that when the three needs are woven into self-regulation self-esteem is not a salient priority. Only when these needs are not being met is the pursuit of self-worth posited to be a salient goal. Thus, Ryan and Deci (2004) argue that any interpersonal theory of self-esteem is incomplete because such a theory suggests that the pursuit of self-worth reflects only the satisfaction of relatedness needs. These authors also suggest that any theory that frames self-esteem exclusively as an anxiety buffer ignores human tendencies for growth. From the SDT perspective, ST and TMT describe partial need satisfaction and thus can only explain contingent, but not true, self-esteem.

To understand the nature of the differences between the interpersonal perspectives (ST and TMT) and SDT, it is important to be clear on their different foci. SDT is explicitly a theory about conditions that promote growth, integrity, and psychological well-being. Thus, SDT's interest in self-esteem is not centered on why humans have self-esteem or what the motivation underlying self-esteem reflects beyond its value as an indicator of well-being. From the perspective of self-esteem as

a prehuman motivation elaborated by a self-construction process, SDT focuses on how the process of constructing the self influences the functioning of the motivational mechanisms underlying self-esteem. On the other hand, the interpersonal perspectives are explicitly theories about the evolved nature of the motivational mechanisms underlying self-esteem. In the sociometer framework, process-oriented terms like contingent self-esteem are not the focus; instead, the focus is on the nature of self-esteem motivation. ST predicts that regardless of how the self is constructed, perceptions of high relational value will lead to (stable or unstable) high self-esteem.

Given these considerations, I prefer not to frame contingent and true self-esteem as different types of self-esteem, but rather as outcomes of different self-construction processes. Deci and Ryan (1995) argue convincingly that autonomy supports facilitate the construction of a coherent sense of self that leads to stable self-esteem. However, it is ST that provides the most compelling account of the evolution of the motivation underlying self-esteem. Of course, a consistent sense of self should lead to stable evaluations of relational value over time. In this way, it is the role of autonomy in self-construction, rather than self-esteem as autonomy motivation, that best explains the relation between these two variables.

Further, the three needs proposed in SDT are not functionally independent (see also Buunk & Nauta, 2000); autonomy and competence have direct implications for relatedness. In the case of autonomy, feeling that one's behavior is controlled by external standards (i.e., low autonomy) is inherently linked to concern over the evaluations of others. Low autonomy, by definition, reflects the salience of the potential for negative evaluation by others that ST suggests can invoke the warning signal of lowered self-esteem. In the case of competence, low levels of competence also signal a potential relational threat. MacDonald et al. (2003) showed that the vast

majority (95%) of their participants believed that being competent was important for being accepted by others. Thus, competence may be related to self-esteem insofar as incompetence leads to reductions in perceived relational value. In the aforementioned study, highly competent individuals who strongly believed that competence was related to acceptance reported higher levels of global self-esteem than competent individuals who perceived a weaker tie between competence and acceptance (MacDonald et al., 2003). Thus, competence appeared to promote higher self-esteem largely due to its social value. Both competence and autonomy, then, have implications for perceptions of relational value that can explain their relation to self-esteem.

The criticism that interpersonal theories of self-esteem focus exclusively on anxiety reduction and do not account for growth motivation highlights an interesting quirk in the self-esteem literature. Self-esteem theorists typically consider the role of self-esteem in terms of its relation to anxiety. That is, feeling more positively about oneself is considered to provide a buffer against negative affect such as fear and worry. Surprisingly, however, fewer theorists have considered the notion that self-esteem may also provide a buffer against depression. Depression is correlated strongly with both self-esteem and anxiety (Allen & Badcock, 2003). Whereas the key affective feature of anxiety is increased negative emotion, the distinguishing feature of depression is decreased positive emotion (Clark & Watson, 1991). Thus, increasingly negative feelings towards the self appear to be associated with both increasing avoidance motivation (e.g., social phobia) and decreasing approach motivation (e.g., anhedonia).

SDT argues that individuals, aside from avoiding anxiety, seek challenges, connections, meaning, and significance through self-determined approach behavior

(Ryan & Deci, 2004). However, the suggestion that individuals have some overall orientation towards growth does not imply that the role of self-esteem in growth processes must be a direct one. Ryan and Deci (2004) acknowledged that safety motivation provides an indirect foundation for growth motivation by noting that self-determined behavior is likely to flourish when anxiety is contained. The satisfaction of safety concerns precedes exploratory behavior. Further, these authors noted that their three needs do not have equal relation to natural exploratory approach behavior, or intrinsic motivation (Deci & Ryan, 2000). Specifically, they suggested that relatedness plays a more distal role in such motivation than competence or autonomy. For example, exploratory behavior in children is more likely when they have a caregiver who provides a secure base (Ainsworth, Blehar, Waters, & Wall, 1978). Thus, relatedness satisfies safety or avoidance concerns whereas autonomy and competence promote exploration or approach behavior.

From this perspective, interpersonal theories suggest that self-esteem largely reflects safety motivation. Deci and Ryan (2000) suggested that highly functioning individuals do not attend to their level of self-esteem, whereas self-esteem is a salient concern for those with low self-esteem. This is consistent with self-esteem as a safety motive; attention is captured only when a problem-state needs to be brought into attention. In this sense, self-esteem is primarily a defensive mechanism like physical pain (MacDonald & Leary, 2005); we notice when we are hurt, not when we are unhurt. Research suggests that self-esteem is lowered by rejection more strongly than it is raised by acceptance (Leary, Tambor, Terdal, & Downs, 1995), consistent with the notion that self-esteem is related to perceptions of belongingness deficiencies.

However, a theory of self-esteem as safety motivation does not necessarily ignore the growth aspect of human behavior. Allen and Badcock (2003) argue that

low perceived social value diminishes positive affect and hence approach motivation. This analysis suggests that self-esteem, by serving as an internalized secure base, promotes growth indirectly by relieving important safety concerns. Thus, theories of self-esteem as primarily belongingness-related safety motivation reflect the constraints that threats to this important aspect of safety place on the pursuit of growth. Although competence, autonomy, and relatedness may be vital contributors to well-being, self-esteem as only one facet of well-being need not reflect all three aspects. I hold that self-esteem contributes to growth indirectly through its role as an indicator of relational value.

Overall, then, I agree with Ryan and Deci (2004) that the interpersonal approaches and SDT are complimentary rather than competing explanations of the nature of self-esteem. However, in my view, differences arise because their foci are at different levels of analysis; ST and TMT are more concerned with the motivational imperative underlying self-esteem, whereas SDT is concerned with the self-construction processes that promote consistent satisfaction of this motivation. SDT, then, provides a valuable explanation of healthy processes for the uniquely human task of harnessing our generative cognitive abilities, but it is the interpersonal perspective that recognizes that, in the case of self-esteem, value placed on the self ultimately reflects feelings of relational value.

Summary

This review suggests that self-esteem reflects the operation of prehuman belongingness regulation mechanisms elaborated by uniquely human cognitive capacities. The presence of conspecifics has promoted survival in social animals for millions of years, and thus selection pressures led to the ability to account for acceptability to others. Recursive information processing allows humans to reflect

consciously on mental states, and thus experience state self-esteem that corresponds with perceptions of current acceptability. Rules for combining cognitive representations allow us to construct internalized standards and imagine future social conditions, providing for an assessment of future acceptability or global self-esteem. Low levels of self-esteem are associated with a sense of threatened safety, leading to motivation for increasing acceptability to those who can provide such safety. High levels of self-esteem provide a sense of safety from threat, and permit the exploration of opportunities for growth. In sum, despite the uniquely human character of cognitive elaborations of belongingness needs in self-esteem, this construct ultimately reflects the fear of isolation we share with all social animals.

Footnotes

¹ This point assumes that nonhuman animals are capable of mental representation.

Research suggests that some nonhuman primates have the capacity for such representation. For example, nonhuman primates have been shown to be able to understand and use numeric symbols (Hauser & Spelke, 2004).

² Meta-representation and the ability to imagine oneself in different states appear to be uniquely human. For example, Suddendorf and Corballis (1997) provided evidence that, when satiated, nonhuman animals do not understand that they might be hungry in the future. In fact, even children up to approximately the age of 4 appear to believe their current state is an eternal one; for instance, up until this age a child who learns a new fact will often claim they have always known this fact (Taylor, Esbensen, & Bennett, 1994).

³ In Indonesia, but not in Australia, relationship valuation was also constrained by perceptions of family approval of the relationship. That is, the link between self-esteem and relationship value was mediated by both reflected appraisals and perceptions of family approval in Indonesia.

⁴ One possible exception to these findings comes from the work of Kang, Shaver, Sue, Min and Jing (2003) who found evidence that self-esteem was more strongly tied to relationship quality for Koreans and Chinese than for Americans. However, their measure of relationship quality consisted of items tapping the participant's behavior toward others rather than reports of feeling valued in or satisfied with the relationship. Thus, it is unclear how directly applicable these findings are to the sociometer hypothesis.

⁵ It may seem contradictory to the sociometer hypothesis that agreeableness, which is associated with friendliness, cooperativeness, and helpfulness (Jensen-Campbell,

Graziano, & West, 1995), is not associated with self-esteem. Although higher levels of agreeableness are associated with being liked more by others, this trait is not associated with being perceived as having more socially desirable characteristics by others (Graziano, Jensen-Campbell, & Hair, 1996). As a result, agreeableness may not increase perceived relational value, and thus self-esteem, in the absence of other valued characteristics such as extraversion and emotional stability (Leary & MacDonald, 2003).

⁶ Some research has suggested that individuals in Eastern cultures may self-enhance by embellishing their perceptions of their collectivism-related traits such as self-sacrifice and compromise (Sedikides, Gaertner, & Toguchi, 2003; in press), although this evidence has been disputed (Heine, in press). In either case, the focus in Eastern cultures appears to be on limits to the individual self in service of the larger group, even if this takes the form of exaggerating those limitations.

⁷ Experimental work has produced some support for TMT predictions cross-culturally. For example, Kashima, Halloran, Yuki, & Kashima (2004) demonstrated that, following mortality salience, Australians endorsed a more autonomous view of self while Japanese endorsed a less autonomous view of self relative to controls. Nevertheless, an autonomous view of self was related to higher self-esteem in both cultures, again failing to support TMT's predictions in regard to self-esteem.

⁸ Some critiques of ST have suggested that the theory predicts self-esteem should be related to perceived acceptability even to unimportant others (Pyszczynski et al., 2004), but Leary (2004b) has argued that this is a misinterpretation of the theory.

References

- Abe, J. A. (2004). Self-esteem, perception of relationships, and emotional distress: A cross-cultural study. *Personal Relationships, 11*, 231 – 247.
- Ainsworth, M. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Oxford: Lawrence Erlbaum.
- Allen, N. B. & Badcock, P. B. T. (2003). The social risk hypothesis of depressed mood: Evolutionary, psychosocial, and neurobiological perspectives. *Psychological Bulletin, 129*, 887 – 913.
- Barkow, J. (1980). Prestige and self-esteem: A biosocial interpretation. In D. Omark et al. (Eds.), *Dominance relations* (pp. 319 – 332). New York: Garland.
- Baumeister, R. F. & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Baumeister, R. F., Tice, D. M. & Hutton, D. G. (1989). Self-presentational motivations and personality differences in self-esteem. *Journal of Personality, 57*, 547 – 579.
- Blaine, B. & Crocker, J. (1993). Self-esteem and self-serving biases in reactions to positive and negative events: An integrative review. In R. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 55 – 85). New York: Plenum Press.
- Boehm, C. (1999). *Hierarchy in the forest*. Cambridge, MA: Harvard University Press.
- Bowlby, J. (1973). *Attachment and loss* (Vol. 2). New York: Basic Books.
- Buunk, B. P. & Nauta, A. (2000). Why intraindividual needs are not enough: Human

- motivation is primarily social. *Psychological Inquiry*, 11, 279 – 283.
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, 84, 97 -109.
- Chomsky, N. (1966). *Cartesian linguistics: A chapter in the history of rationalist thought*. New York: Harper & Row.
- Chomsky, N. (1988). *Language and problems of knowledge: The Managua lectures*. Cambridge, MA: Cambridge University Press.
- Clark, L. A. & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, 100, 316 – 336.
- Corballis, M. C. (2002). Evolution of the generative mind. In R. Sternberg & J. Kaufman (Eds.), *The evolution of intelligence* (pp. 117 – 144). Mahwah, NJ: Lawrence Erlbaum Associates.
- Crocker, J. & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, 130, 392 – 414.
- Cross, S. E. & Gore, J. S. (2003). Cultural models of the self. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 536 – 564). New York: Guildford Publications.
- Deci, E. L. & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31 – 49). New York: Plenum Press.
- Deci, E. L. & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human

- needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227 – 268.
- Dickerson, S. S. & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin*, *130*, 355 – 391.
- Elliot, A. J., Chirkov, V. I., Kim, Y., & Sheldon, K. M. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science*, *12*, 505-510.
- Farruggia, S. P., Chen, C., Greenberger, E., Dmitrieva, J., & Macek, P. (2004). Adolescent self-esteem in cross-cultural perspective: Testing measurement equivalence and a mediation model. *Journal of Cross-Cultural Psychology*, *35*, 719 – 733.
- Florian, V., Mikulincer, M., & Hirschberger, G. (2002). The anxiety-buffering function of close relationships: Evidence that relationship commitment acts as a terror management mechanism. *Journal of Personality and Social Psychology*, *82*, 527 – 542.
- Gilbert, P. & Trower, P. (1990). The evolution and manifestation of social anxiety. In R. Crozier (Ed.), *Shyness and embarrassment: Perspectives from social psychology* (pp. 144 – 177). New York: Cambridge University Press.
- Goodwin, R. & Plaza, S. H. (2000). Perceived and received social support in two cultures: Collectivism and support among British and Spanish students. *Journal of Social and Personal Relationships*, *17*, 282 – 291.
- Gray, J. A. & McNaughton, N. (2000). *The neuropsychology of anxiety*. New York: Oxford University Press.
- Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. L. (1996). Perceiving

interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology*, 70, 820-835.

Greenberg, J., Solomon, S., & Pyszczynski, T. (1997). Terror Management Theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 61 – 139). San Diego: Academic Press.

Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., et al. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves an anxiety-buffering function. *Journal of Personality and Social Psychology*, 63, 913 – 922.

Greenberg, J., Pyszczynski, T., Solomon, S., Pinel, E., et al. (1993). Effects of self-esteem on vulnerability-denying defensive distortions: Further evidence of an anxiety-buffering function of self-esteem. *Journal of Experimental Social Psychology*, 29, 229 – 251.

Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., et al. (1997). Terror management theory and self-esteem: Evidence that increased self-esteem reduces mortality salience effects. *Journal of Personality and Social Psychology*, 72, 24 – 36.

Hart, J., Shaver, P. R., & Goldenberg, J. L. (2005). Attachment, self-esteem, worldviews, and terror management: Evidence for a tripartite security system. *Journal of Personality and Social Psychology*, 88, 999-1013.

Harter, S. (2003). The development of self-representations during childhood and adolescence. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 610 – 642). New York: Guildford Publications.

Hauser, M. D. & Spelke, E. (2004). Evolutionary and developmental foundations of

- human knowledge: A case study of mathematics. In M. Gazzaniga (Ed.), *The cognitive neurosciences*. Cambridge, MA: MIT Press.
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766 – 794.
- Higgins, E. T. (1989). Self-discrepancy theory: What patterns of self-beliefs cause people to suffer? In L. Berkowitz (Ed.), *Advances in experimental social psychology*, (Vol. 22, pp. 93 – 136). San Diego: Academic Press.
- Hirschberger, G., Florian, V., & Mikulincer, M. (2002). The anxiety buffering function of close relationships: Mortality salience effects on the readiness to compromise mate selection standards. *European Journal of Social Psychology*, *32*, 609 – 625.
- Hirschberger, G., Florian, V., & Mikulincer, M. (2003). Strivings for romantic intimacy following partner complaint or partner criticism: A terror management perspective. *Journal of Social and Personal Relationships*, *20*, 675 – 687.
- James, W. (1890). *The principles of psychology*. London: Macmillan.
- Jensen-Campbell, L. A., Graziano, W. G., & West, S. G. (1995). Dominance, prosocial orientation, and female preferences: Do nice guys really finish last? *Journal of Personality and Social Psychology*, *68*, 427-440.
- Kang, S. M., Shaver, P. R., Stanley, S., Min, K. H., & Jing, H. (2003). Culture-specific patterns in the prediction of life satisfaction: Roles of emotion, relationship quality, and self-esteem. *Personality and Social Psychology Bulletin*, *29*, 1596 – 1608.
- Kashima, E. S., Halloran, M., Yuki, M., & Kashima, Y. (2004). The effects of

- personal and collective mortality salience on individualism: Comparing Australians and Japanese with higher and lower self-esteem. *Journal of Experimental Social Psychology*, 40, 384 – 392.
- Kernis, M. H. & Waschull, S. B. (1995). The interactive roles of stability and level of self-esteem: Research and theory. In M. Zanna (Ed.), *Advances in experimental social psychology*, (Vol. 27, pp. 93 – 141). San Diego: Academic Press.
- Kirkpatrick, L. A. & Ellis, B. J. (2001). An evolutionary-psychological approach to self-esteem: Multiple domains and multiple functions. In G. Fletcher & M. Clark (Eds.), *Blackwell handbook of social psychology: Interpersonal processes* (pp. 411 – 436). Oxford: Blackwell.
- Kwan, V. S. Y., Bond, M. H., & Singelis, T. M. (1997). Pancultural explanations for life satisfaction: Adding relationship harmony to self-esteem. *Journal of Personality and Social Psychology*, 73, 1038 – 1051.
- Lansford, J. E., Antonucci, T. C., Akiyama, H., & Takahashi, K. (2005). A quantitative and qualitative approach to social relationships and well-being in the United States and Japan. *Journal of Comparative Family Studies*, 36, 1 – 22.
- Leary, M. R. (2004a). The sociometer, self-esteem, and the regulation of interpersonal behavior. In R. Baumeister & K. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 373 – 391). New York: Guilford Press.
- Leary, M. R. (2004b). The function of self-esteem in Terror Management Theory and Sociometer Theory: Comment on Pyszczynski et al. (2004). *Psychological Bulletin*, 130, 478 – 482.

- Leary, M. R. & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer Theory. In M. Zanna (Ed.), *Advances in Experimental Social Psychology*, Vol. 32 (pp. 1 – 62). San Diego, CA: Academic Press.
- Leary, M. R. & Buttermore, N. R. (2003). The evolution of the human self: Tracing the natural history of self-awareness. *Journal for the Theory of Social Behavior*, 33, 365 – 404.
- Leary, M. R., Cottrell, C. A., & Phillips, M. (2001). Deconfounding the effects of dominance and social acceptance on self-esteem. *Journal of Personality and Social Psychology*, 81, 898 – 909.
- Leary, M. R. & MacDonald, G. (2003). Individual differences in trait self-esteem: A theoretical integration. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 401 – 418). New York: Guildford Publications.
- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, 68, 518-530.
- Leary, M. R. & Tangney, J. P. (2003). The self as an organizing construct in the behavioral and social sciences. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 3 – 14). New York: Guildford Publications.
- Luk, C. L. & Bond, M. H. (1992). Explaining Chinese self-esteem in terms of the self-concept. *Psychologia*, 98, 147 – 154.
- MacDonald, G. & Jessica, M. (in press). Family approval as a constraint in dependency regulation: Evidence from Australia and Indonesia. *Personal Relationships*.
- MacDonald, G. & Leary, M. R. (2005). Why does social exclusion hurt? The

- relationship between social and physical pain. *Psychological Bulletin*, 130, 202 – 223.
- MacDonald, G., Saltzman, J.L., & Leary, M.R. (2003). Social approval and trait self-esteem. *Journal of Research in Personality*, 37(2), 23 – 40.
- Markus, H. R. & Kitayama, S. (1991). Culture and self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224 – 253.
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology*, 79, 260-273.
- Mikulincer, M., Florian, V., & Hirschberger, G. (2003). The existential function of close relationships: Introducing death into the science of love. *Personality and Social Psychology Review*, 7, 20 – 40.
- Mischel, W. & Morf, C. C. (2003). The self as a psycho-social dynamic processing system: A meta-perspective on a century of the self in psychology. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 15 – 43). New York: Guildford Publications.
- Panksepp, J. (2005). Affective consciousness: Core emotional feelings in animals and humans. *Consciousness and Cognition*, 14, 30 – 80.
- Pyszczynski, T., Greenberg, J., & Solomon, S. (2000). Toward a dialectical analysis of growth and defensive motives. *Psychological Inquiry*, 11, 301 – 305.
- Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, 130, 435 – 468.
- Ryan, R. M. & Deci, E. L. (2004). Avoiding death or engaging life as accounts of

- meaning and culture: Comment on Pyszczynski et al. (2004). *Psychological Bulletin*, 130, 473 – 477.
- Ryan, R. M., Deci, E. L., & Grolnick, W. S. (1995). Autonomy, relatedness, and the self: Their relation to development and psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Theory and methods* (pp. 618-655). New York: Wiley.
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., et al. (2004). Patterns and universals of adult romantic attachment across 62 cultural regions: Are models of self and of other pancultural constructs? *Journal of Cross-Cultural Psychology*, 35, 367 – 402.
- Sedikides, C. & Skowronski, J. J. (2003). Evolution of the symbolic self: Issues and prospects. In M. Leary and J. Tangney (Eds.), *Handbook of self and identity* (pp. 594 – 609). New York: Guilford Publications.
- Silk, J. B., Alberts, S. C., & Altmann, J. (2003). Social bonds of female baboons enhance infant survival. *Science*, 302, 1231 – 1234.
- Singelis, T. M., Bond, M. H., Sharkey, W. F., & Kriss, S. Y. L. (1999). Unpacking culture's influence on self-esteem and embarrassability: The role of self-construals. *Journal of Cross-Cultural Psychology*, 30, 315 – 341.
- Smith, P. B. & Bond, M. H. (1999). *Social psychology across cultures*. Boston: Allyn and Bacon.
- Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 93 – 159). San Diego: Academic Press.
- Suddendorf, T. & Corballis, M. C. (1997). Mental time travel and the evolution of the

- human mind. *Genetic, Social and General Psychology Monographs*, 123, 133 – 167.
- Taubman Ben-Ari, O., Findler, L., & Mikulincer, M. (2002). The effects of mortality salience on relationship strivings and beliefs: The moderating role of attachment style. *British Journal of Social Psychology*, 41, 419 – 441.
- Taylor, M., Esbensen, B. M., & Bennett, R. T. (1994). Children's understanding of knowledge acquisition: The tendency for children to report that they have always known what they have just learned. *Child Development*, 65, 1581 – 1604.
- Tice, D. M. (1991). Esteem protection or enhancement? Self-handicapping motives and attributions differ by trait self-esteem. *Journal of Personality and Social Psychology*, 60, 711 – 725.
- Wisman, A. & Koole, S. L. (2003). Hiding in the crowd: Can mortality salience promote affiliation with others who oppose one's worldviews? *Journal of Personality and Social Psychology*, 84, 511 – 526.
- Wolfe, R. N., Lennox, R. D. & Cutler, B. L. (1986). Getting along and getting ahead: Empirical support for a theory of protective and acquisitive self-presentation. *Journal of Personality and Social Psychology*, 50, 356 – 361.
- Zhang, J. & Norvilitis, J. M. (2002). Measuring Chinese psychological well-being with western developed instruments. *Journal of Personality Assessment*, 79, 492 – 511.