Attitudes toward Animals: The Effect of Priming Thoughts of Human-Animal Similarities and Mortality Salience on the Evaluation of Companion Animals

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Abstract

Human attitudes toward nonhuman animals are complex and quite contradictory. They can range between extremely negative (animal cruelty) to positive (treating companion animals like human surrogates). Attitudes toward animals are especially negative when people think about human creatureliness and personal mortality. This paper investigates people's attitudes toward highly valued animals (companion animals). The research presented here tested whether companion-animal caregivers would respond to reminders of human creatureliness and mortality salience (MS) with more negative attitudes toward pets. Participants completed an online survey in which MS and human-creatureliness conditions were manipulated. Results showed that, under MS, even pet owners responded to reminders of human creatureliness with less positive attitudes toward the average pet. Thus, the effects observed in previous research extend to more popular animals, even among people with presumably positive attitudes toward animals.

Keywords

animal attitudes, pets, mortality salience (MS) creatureliness, terror management

Introduction

The relationship between humans and nonhuman animals is a complex one. In many ways, humans treat other animals as if they existed primarily to serve
human needs. They are used for a variety of purposes—from providing mere entertainment (circuses, horseracing), to providing an important food source, to serving as valuable metaphors for social relationships (Levi-Strauss, 1966). Hirschman (1994) notes that animals serve as ornaments/objects (beautiful fish displays), status symbols, and equipment (in hunting, as guides for the blind, and as consumables in the laboratory). There is also ample evidence from a wide range of disciplines showing a pervasive tendency for humans to view and treat animals as lower status creatures (Cohn, 1996; Plous, 1993; Stibbe, 2001; Vollum, Buffington-Vollum, & Longmir, 2004).

Despite the general view that animals are relatively lower in status than humans, not all animals are regarded as equally inferior. Studies of people’s attitudes toward various species have shown that animals considered more evolutionarily recent and companion animals are given more favorable ratings on a variety of dimensions including attractiveness and mental complexity (Eddy, Gallup, & Povinelli, 1993; Herzog & Galvin, 1997; Hills, 1995). Although others argue that phylogenetic recency and pet-status do not affect ratings of mental complexity when information about an animal’s behavior-in-context is available (Mitchell & Hamm, 1997), the evidence is unconvincing. Moreover, several researchers report that animals perceived as more similar to humans are treated better than those considered less similar. People show greater discomfort when led to believe they are watching the abuse of an animal similar to humans; they recommend significantly more jail time and larger fines for abusers of these animals, and they prefer to save endangered species most similar to humans (Allen et al., 2002; Plous, 1993).

These findings are consistent with a large body of social psychological research suggesting that perceived similarity generally increases concerns with the rights and fair treatment of others. However, the effect of similarity does not always lead to more positive human-animal relationships. The role of similarity in concerns about the rights and fair treatment of animals appears to vary depending on the situation. Indeed, previous research shows that, under conditions of high conflict, perceived similarities can lead to more negative attitudes toward animals. According to Richards (1995), for example, highlighting similarities with chimpanzees leads to more negative attitudes toward the conservation of these animals, among the Mende people of Sierra Leone. Richards argues that, particularly during times of political unrest, belief in a shared evolutionary origin is threatening to the Mende because it implies that the moral standards of humans can (and do) descend to a point where human behavior is no better than chimpanzee behavior (which is reported to include violent and unprovoked attacks on human children).
Opotow (1993) has, likewise, reported negative effects of similarity under high conflict scenarios. In this study, a Bombardier beetle was described either as similar to humans or as very different. Opotow found that in a high conflict scenario, where destruction of the beetles’ habitat was needed for a reservoir, the similarity prime led to a decrease in the belief that considerations of fairness would apply to the beetle. In contrast, under a low-conflict scenario (where the habitat was to be destroyed for an unnecessary industrial complex), the similarity prime led participants to extend their scope of justice to include the beetle. At first glance, such results may be difficult to understand. However, Opotow also reported that many participants in the high-conflict condition mentioned concerns with human survival. One theoretical perspective that potentially provides an explanation for such results is Terror Management Theory (TMT). Indeed, from this perspective, the effect that reminders of human-animal similarities have on prompting negative attitudes toward animals is to be expected.

Terror Management Theory and Research

Following the work of anthropologist Becker (1973), Terror Management theorists (Greenberg, Solomon, & Pyszczynski, 1997; Murray, 2006), argue that humans are discomforted by the knowledge that humans, like all other creatures, must inevitably face their biological fate, death. Based on this viewpoint, humans are said to be endowed with creatureliness concerns, which can be understood as anxiety associated with reminders that humans are, in many respects, no more than animals and subject to the same biological conditions and limitations as other life forms. As such, reminders of our animal or creaturely nature are assumed to prime anxiety-invoking thoughts of our biological vulnerability and mortality. In response, people are motivated to elevate themselves beyond mere animal (and mortal) status; this is partly achieved by investment in a cultural worldview.

TMT defines the cultural worldview as a set of consensually shared beliefs about the nature of the physical and social world (Greenberg et al., 1997). The theory proposes that the cultural worldview functions to delineate the conditions under which a person may derive meaning and value. In addition, the theory provides death transcendence through literal or symbolic means: respectively (a) belief in an immortal soul or (b) identification with something that will outlast the physical body such as family, nation, or one’s work. Investment in the cultural worldview quells thoughts about mortality, protects us from the related existential anxiety, and elevates humans above the status of biological entities that, like other animals, are subject to decay and extinction. To test whether the worldview does function to protect people from existential
anxiety, TMT proposes the mortality salience (MS) hypothesis. This hypothesis states that “if a psychological structure provides protection against the potential terror engendered by knowledge of mortality, then reminders of mortality should increase the need to maintain that structure” (Greenberg et al., 1997, p. 78). That is, reminders of mortality should lead people to validate their own worldviews and derogate those of others.

Indeed, this hypothesis has been supported in more than 100 separate studies and more than 14 countries (Greenberg et al., 1997). TMT researchers have shown that MS leads to greater endorsement of in-group values (Holloran & Kashima, 2004), enhanced efforts to meet cultural standards for the body (Goldenberg, Arndt, Hart, & Brown, 2005), and greater difficulty violating cultural in-group norms (Goldenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995). It also increases derogating of, and distancing from, out-group members (Castano, Yzerbyt, Paladin, & Sacchi, 2002; Florian, Mikulincer, & Hirschberger, 2001; Harmon-Jones, Greenberg, Solomon, & Simon, 1996).

TMT, Creatureliness, and Animal Attitudes

Despite the central position creatureliness-concerns occupy in TMT, only recently have TMT researchers tested the proposition that people would respond negatively to reminders that humans are relatively similar to other animals. Goldenberg et al. (2001) found evidence that MS led college students to evaluate an essay (and author) describing humans and animals as similar more negatively than one describing humans and animals as different. More recently, Cox, Goldenberg, Arndt, and Pyszczynski (2007) reported that the presentation of a breast-feeding prime in conjunction with MS enhanced the accessibility of creatureliness cognitions, and that MS led to more negative responses to breast-feeding as compared with bottle-feeding mothers. Moreover, the effect is bidirectional; Cox Goldenberg, Pyszczynski, and Weise (2007) recently demonstrated that mildly disgusting stimuli increased death thought accessibility only when human creatureliness had been primed. In sum, there is substantial evidence to suggest that reminding people of their animal or creaturely nature and their mortality leads to derogation of animals and entities or actions reminding us of our animal nature.

To date, however, few studies have considered whether humans’ relationships with animals are affected more directly by knowledge of our creaturely nature and personal mortality (MS). In one study, Goldenberg, et al. (2001) found that MS led to increased revulsion toward animals ordinarily associated with disgust (maggots, worms, rats). However, whether this effect was due to distancing from animals in general or the concept of decay in particular
remained unclear. In another study, Beatson and Halloran (2007) demonstrated that—among participants with low self-esteem—the conjunction of creatureliness and MS reminders led to more negative ratings of animals as a broad category. However, whether this finding applies to specific categories of animals has not yet been empirically tested.

While these studies have certainly contributed to our understanding of the complex relationship between humans and animals, they have not systematically delineated between responses to different types of animals. This is somewhat surprising given the considerable evidence that the concept “animal” is complex and multifaceted, divisible into at least utilitarian animals such as animals on the farm and animals in the wild and animals as companions. Moreover, as Beatson and Halloran (2007) pointed out, people share different kinds of relationships with animals; some animals are ordinarily associated with disgust, while others occupy a more favorable position in the human psyche. Pets or companion animals, for example, represent a special category of animals who, according to Hirschman (1994) “reside in an intermediate position between nature and culture” (p. 623). Moreover, they are one group of animals often elevated to human status. Indeed, several studies have shown that pets are regarded as friends, family members, and even extensions of the self (Hirschman, 1994; Risley-Curtiss, Holley, & Wolf, 2006; Voith, 1985).

Given the elevated status of pets, it is not surprising that several lines of research have shown pet caregivers to have more favorable attitudes toward animals. Eagles and Muffitt (1990) found that, compared with students who did not have a pet in the family home, those who did had more humanistic and naturalistic attitudes toward animals. In addition, several studies have shown pet owners are more opposed to the use of animals in medical research (Hagelin, Johansson, Hau, & Carlsson, 2002; Wells & Hepper, 1997), indicating a general concern for animal welfare. Similarly, Vollum et al. (2004) showed that pet owners exhibited more punitive attitudes toward those who harm animals, recommending harsher punishment for both abuse and neglect of animals. Thus, one might question whether the MS by creatureliness effects observed in previous research would apply to pet owners. In this paper, we addressed this question for the first time with an experimental research paradigm. In doing so, the findings provided a worthy test of the scope of creatureliness-concerns that people experience and important implications for understanding people’s attitudes toward animals.

The Current Research

The aim of this study was to extend upon previous research showing that reminders of mortality led people primed with thoughts of human creatureli-
ness to respond less favorably to animals. Given that pets share a unique relationship with humans, we thought it important to test whether the patterns observed for unspecified “animals” (Beatson & Halloran, 2007) and “disgusting” animals (Goldenberg et al., 2001) would be replicated for a category of animals typically embraced by human society.

An experimental design was employed to answer this question, in which thoughts about personal mortality and human creatureliness were manipulated and attitudes toward pets measured among participants who owned pets. Because previous research has shown that MS effects are often moderated by self-esteem, a self-esteem scale was administered prior to the manipulation of the independent variables. Affect was measured after participants read the MS and Creatureliness manipulations to control its potential effect on the dependent measures of animal attitudes. To insure there was no self-reference effect from evaluating one’s own pet, participants were asked to complete scales measuring their evaluations of other pets and their attitudes toward treating pets like people. Based on the findings of previous research, we tested the hypothesis that participants would show less favorable evaluations and attitudes toward treating pets like people when they were primed with thoughts about personal mortality and human-animal similarities.

Method

Participants

One-hundred and five pet owners were recruited (predominantly) from a university participant registry. All were recruited with an email invitation to anonymously complete an online survey, and/or forward the invitation to interested social contacts. One participant failed to complete all dependent measures, and a further seven participants failed to answer items measuring negative affect. These cases were subsequently excluded from analyses, leaving 23 to 26 participants in each of the four conditions. The final data set included 79 women and 18 men between 18 and 64 years of age ($m = 25.06, sd = 9.52$). The vast majority of participants (74%) identified themselves as students.

Procedure and Materials

Participants were invited to take part in an online study purportedly concerning personality and attitudes toward pets. They were randomly assigned into experimental conditions that manipulated thoughts about mortality and human creatureliness with a 2 (MS vs. Control) and 2 (Creatureliness prime:}
High vs. Low) between-subjects design. Prior to receiving the manipulations, participants answered some demographic questions and completed a measure of self-esteem. After the MS and Creatureliness manipulations, participants completed the dependent measures, were debriefed, probed for suspicion, and thanked for their contribution to the study. Each of the measures and manipulations employed in the study are described below in detail.

Self-esteem. Rosenberg’s (1965) Self-esteem Scale (RSE) was included because self-esteem has been identified as a moderator of MS effects in prior TMT research (Harmon-Jones et al., 1997). This scale comprises 10 items, a typical example of which is “I take a positive attitude toward myself.” Participants respond to the statements on a five point scale (1 = strongly disagree, 5 = strongly agree). Higher scores reflect higher self-esteem. Cronbach’s coefficient α for the scale was .88.

Companion animal and owner demographics. Participants were instructed to think about only one companion animal, and then asked to provide some information about this animal. The participants were requested to indicate the species category, the age of the pet, whether the participant was the primary owner, and how long the animal had lived with and known the participant. Participants were also asked to record their own age and gender.

Mortality salience manipulation. Following previous TM research (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989), MS was manipulated with two open-ended questions. Participants were requested to “Please describe the emotions or feelings you have when you think of your own death” and to answer “What will happen to you physically when you die, and once you are dead?” In the Control condition, participants were asked equivalent questions about another anxiety-related event: What would happen to them when giving a public speech.

Creatureliness prime. After the MS manipulation, participants were asked to read a short extract to prime thoughts about human creatureliness. This material was introduced by reminding participants that one of the (purported) aims of the study was to determine whether thinking about one’s personality and attitudes toward pets would affect one’s ability to remember different types of information, such as animal and non-animal related topics. The participants then learned that they had been assigned to the condition where they would read an extract related to people and pets.

Goldenberg et al. (2001) creatureliness-essay manipulation was used to manipulate thoughts about human creatureliness. Participants assigned to the High Creatureliness condition read a paragraph emphasizing how the “boundary between humans and animals is not as great as most people think.” They
read that humans and animals are all made up of the same biological products, are driven by the same needs, and do not vary substantially in the origins of their intellectual abilities. Those assigned to the Low Creatureliness condition read that despite some commonalities with animals, humans are unique. This paragraph emphasized how language, culture, and emotional complexity make humans distinct from animals.

**Delay and distraction.** Because TMT argues that worldview defence occurs only when thoughts of death are outside current focal attention (Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000), a word-search task and measure of affect were completed. Watson, Clark, and Tellegen’s (1988) Positive and Negative Affect Schedule (PANAS) also allowed us to check that MS effects were unrelated to mood. The measure included both Positive Affect and Negative Affect subscales, each comprising 10 items. Participants were instructed to read statements such as “I feel irritable right now” and indicate how well each emotion described their current mood state. Response options were on a five-point scale from 1 (not at all) to 5 (extremely). The scales both provided highly reliable measures of positive and negative affect (Cronbach’s $\alpha = .90$ and .88, respectively).

**Pet evaluations.** Following the MS and Creatureliness manipulations, participants’ attitudes toward pets were measured with the Pet Enhancement Scale (El-Alayli, Lystad, Webb, Hollingsworth, & Ciolli, 2006). This scale comprises 22 items, consisting of 11 positive (friendly, clever) and 11 negative (boring, annoying) trait descriptors. Participants rated the extent to which each trait could be considered characteristic of the average pet. Responses were made on a seven-point scale from 1 (not at all characteristic) to 7 (completely characteristic). The average scores for the positive and negative traits were computed, forming two reliable subscales (Cronbach’s $\alpha = .85$ and .89, respectively).

**Special treatment.** We also measured attitudes toward treating pets like human beings with a four-item Special Treatment scale constructed for this study. Specifically, participants were asked to rate their agreement with statements like “I think people’s pets deserve to be pampered every now and then by going to a pet spa” and “I think it is silly to celebrate a pet’s birthday” (reversed). These items were based on newspaper reports that pet-parties, pet-pilates classes, and other special services are becoming available to pet owners in Australia—thus reflecting the treatment of pets like humans. Responses were made on seven-point scales with higher scores indicating stronger agreement. The four items formed a reliable scale, $\alpha = .75$ (Appendix).

**Creatureliness manipulation check.** To check that the Creatureliness manipulation was successful participants were asked to rate their agreement with the
following statement: “The extract on humans and animals reminded me of how different humans and animals are.” Responses were made on a seven-point scale, with higher scores indicating greater agreement.

**Suspicion probes.** Finally, two items were used to check that participants were not aware of the aims of the study. Participants were asked to describe what they thought the study was about and to indicate what they thought the researchers expected to find. Feedback from participants indicated that none were aware of the hypothesis of this study.

**Results**

**Preliminary Analyses**

To check that the Creatureliness manipulation was successful we conducted a *t* test. As expected, participants assigned to the Low Creatureliness condition (*M* = 5.17, *SD* = 1.45) agreed more strongly than those in the High Creatureliness condition (*M* = 2.29, *SD* = 1.62) that the extract they had read reminded them of the differences between humans and animals, *t*(95) = 9.22, *p* < .001, Cohen’s *d* = 1.87.

A series of ANOVAs and chi-square tests were conducted to check that—aside from the manipulation of independent variables—conditions were equivalent. As expected, the age of participants, length of relationship, age of pet, type of animal, and participant as primary owner (or not) of the animal were all equivalent across conditions. However, the analyses showed that, by chance, participants assigned to the MS-High Creatureliness condition had recorded higher self-esteem.1 Also, the analysis on negative affect revealed higher scores than in the other conditions among participants assigned to the Control High-Creatureliness condition.2 Because self-esteem and negative affect were not equivalent across conditions, they were entered in subsequent analyses as covariates. Gender was entered as a covariate because previous research has shown that men and women tend to differ in their attitudes toward animals (Herzog & Galvin, 1997) and because the ratio of males to females varied across conditions. Finally, age was also entered as a covariate following evidence that it predicts some attitudes toward pets. Indeed, Albert and Bulcroft (1988) found attitudes toward companion animals varied according to different stages in the family life cycle.

To explore the effects of the covariates in the present data, a series of regressions were conducted. Responses on the Negative Traits subscale of the pet evaluation measure were affected by each of the covariates. Higher self-esteem predicted less negative evaluations, \( \beta = -0.286, t(95) = 2.91, p = .005 \). Nega-
tive affect, on the other hand, predicted more negative ratings of the average pet, $\beta = .347$, $t(95) = 3.60$, $p = .001$. Older participants made less negative evaluations, $\beta = -0.379$, $t(88) = 3.84$, $p < .001$, (degrees of freedom are lower due to some participants declining to record their age), and men ($m = 3.00$, $sd = 1.22$) showed a tendency to give more negative evaluations than women ($m = 2.42$, $sd = .76$), $t(20) = 1.86$, $p = .078$, (degrees of freedom are lower due to adjustment for unequal variances). Responses on the Positive Traits subscale, and Special Treatment scale were unaffected by these variables.

**Main Analyses**

As the three dependent measures were largely uncorrelated, each was subjected to a separate $2$ (MS vs. Control) $\times$ $2$ (Creatureliness: High vs. Low) ANCOVA with self-esteem, negative affect, age, and gender serving as covariates. Given the small sample sizes for each of the cells, and thus limited power to detect small effects, an alpha level of $p < .10$ was adopted. The tests on pet evaluations are presented first, followed by those pertaining to the measure of attitudes toward special treatment of pets.

**Pet Evaluation Results**

While the analysis on the Negative Traits subscale revealed no statistically significant effects of MS, Creatureliness, or their interaction ($Fs<1$, $ns$), the analysis of the Positive Traits subscale showed the expected MS $\times$ Creatureliness effect, $F(1, 82) = 3.35$, $p = .051$, partial $\eta^2 = .04$. As shown in Figure 1 below, following reminders of human creatureliness, evaluations of pets were less positive in the MS ($m = 4.78$, $se = .17$) than control ($m = 5.14$, $se = .18$) condition. In contrast, following reminders of human and animal differences, pets were evaluated less positively in the control ($m = 4.89$, $se = .18$) than MS ($M = 5.25$, $se = .18$) condition. Furthermore, simple main effects tests showed that reminders of human creatureliness led to less positive evaluations of pets in the MS condition, $F(1, 82) = 3.35$, $p = .071$, partial $\eta^2 = .04$, but did not affect evaluations under the control condition, $F(1, 82) = 1.04$, $p = .317$.

**Special Treatment**

As predicted, the ANCOVA on attitudes toward the special treatment of pets revealed a significant MS Creatureliness effect, $F(1,82) = 7.48$, $p = .008$, partial $\eta^2 = .08$. Simple main effects tests showed that following reminders of human creatureliness, attitudes toward the special treatment of pets were less favorable in the MS ($m = 3.40$, $se = .27$) than control condition, ($m = 4.16$, $se = .28$), $F(1, 82) = 3.67$, $p = .059$, partial $\eta^2 = .05$. Following reminders of human...
uniqueness, on the other hand, attitudes toward the special treatment of pets were more favorable in the MS ($m = 3.82, se = .29$) than control condition, ($m = 3.01, se = .26$), $F(1, 82) = 4.21, p = .043$. Viewed differently, the tests showed that responses to special treatment were more favorable following reminders of similarities than differences, under control conditions, $F(1,82) = 8.94, p = .004$, partial $\eta^2 = .10$. As can be seen in Figure 2, however, this effect disappeared when mortality was made salient, $F<1$, $ns$. Thus, the results suggest that reminding people of their mortal and creaturely nature leads to lower endorsement of special treatment of pets.

Because three of the four items on the measure of attitudes toward special treatment concerned services that would perhaps only be affordable for people higher in socio-economic status, we conducted a supplementary ANCOVA on the item measuring responses to celebrating a pet’s birthday. We reasoned that this behavior would likely be relatively common and, thus, a stronger test of our hypothesis. Consistent with the results obtained for the composite measure of special treatment, the analysis revealed a statistically significant interaction between MS and Creatureliness, $F(1,82) = 7.05, p = .010$, partial $\eta^2 = .08$. Simple main effects tests showed that following reminders of human
creatureliness, MS led to less favorable attitudes toward celebrating pets’ birthdays, $F(1,82) = 5.66, p = .020$, partial $\eta^2 = .07$. In contrast, there was no effect of MS when participants read about human and animal differences, $F<2.20$, ns. Means and standard errors are presented in Table 1.

**Table 1. Attitudes Toward Celebrating Pet Birthdays as a Function Of Mortality Salience and Creatureliness Reminders**

<table>
<thead>
<tr>
<th>Mortality Salience</th>
<th>Creatureliness</th>
<th>Control</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>4.07 (.37)</td>
<td>4.86 (.40)</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>5.59 (.38)</td>
<td>4.29 (.37)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard errors are presented in parenthesis. Higher scores indicate more positive attitudes toward celebrating pet birthdays.

**Discussion**

On the basis of previous research, we predicted that MS would lead participants reminded of human creatureliness to show relatively negative attitudes
toward pets and the human-like treatment they are afforded. The findings of this study were consistent with these predictions. Specifically, after reading a short paragraph on human and animal similarities, MS led participants to evaluate pets less positively, and to show less positive attitudes toward the special treatment of pets. The findings are especially noteworthy as participants were themselves pet owners.

These findings extend previous MS research on attitudes toward animals and animal nature in several important ways. First, the results show that the effects of MS and creatureliness primes obtained in previous research not only occur when animals are conceptualized as a general category (Beatson & Halloran, 2007) or when participants focus on specific groups of animals associated with decay (Goldenberg et al., 2001) but extend to a highly valorized sub-group of animals. The research reported here suggests that pets are subject to the same type of attitudes directed at other animals, even by pet-owners.

In addition to replicating the previous research with different categories of animals, we have also shown that the effects occur with different manipulations of creatureliness and on different attitude measures. It is important to note that people's relatively negative responses to animals following reminders of death occur whether creatureliness is manipulated with a single paragraph describing human and animal similarities or with instructions for participants to watch a graphic depiction of Bonobo mating behaviors (Beatson & Halloran, 2007). The present findings also extend upon previous research by showing that negative responses are not limited to feelings of revulsion (Goldenberg et al., 2001) or relatively negative evaluations (Beatson & Halloran); they extend to attitudes concerning behaviors that elevate animal status (taking pets to day spas or celebrating a pet's birthday).

The findings also showed a tendency for participants reminded of the unique capacities of humankind to show more favorable attitudes toward pets in the MS than Control condition. Although this effect was not expected, it may be explained by the content of the Creatureliness manipulation, which included the following: “Humans have the capacity for love, generosity, and kindness—putting the welfare of others above themselves.” The most plausible explanation for the more positive attitudes is that the manipulation primed kindness and generosity values, which were endorsed more strongly when mortality was salient. Such an effect is consistent with the MS hypothesis, and with previous research showing that MS accentuates support for values associated with the cultural worldview (Halloran & Kashima, 2004). Nevertheless, it would be worthwhile investigating, in future research, whether a similar effect would emerge following reminders of differences other than those relating to the capacity to put the welfare of others above one's own needs.
Another interesting finding was that MS did not affect evaluations of pets on negative traits; MS only reduced evaluations of pets on positive traits and support for the special treatment of animals. Yet, this seemingly incongruous set of results is consistent with research reporting a positive-negative asymmetry in intergroup discrimination tasks (Mummendey & Otten, 1998). Positive-negative asymmetry occurs when people favor their ingroup on some positive dimension of intergroup comparison but do not show outgroup derogation on a negatively valanced dimension of comparison. Otten and Mummendey (1999) have further shown that thinking about negative characteristics in a social discrimination task increases vigilance toward showing unjust evaluations of outgroups. From this viewpoint, it appears that our participants may have felt it unjustified to show especially negative evaluations of pets. Instead, they showed their response to MS and thoughts of human creatureliness with lower ratings of pets on positive characteristics. Perhaps this finding is not so surprising given our participants were pet-owners; however, it raises a further question of whether the same conditions of this study would affect pet owners’ evaluations of their own pets.

In fact, we have gone some way to addressing this question in a replication of the present study, changing only the instructions for participants to evaluate the “average” pet and instead to evaluate their “own” pet. Ninety-seven persons participated in the study; however, there was no substantive evidence that MS, Creatureliness, or an interaction between the two had any effect on people's attitudes toward giving their pets special treatments or on unambiguous trait evaluations.³ It appears, then, that thinking about one's own pet (rather than other pets or animals in general) eliminates the effect of MS on producing (relatively) negative attitudes toward animals and raises the intriguing possibility that certain human-animal relationships (such as those with our own pets) can serve a Terror Management function.

Indeed, the relationships people share with their own pets resemble the relationships humans typically have with members of their family (American Pet Product Manufacturers Association, 2006; Brown, 2002; Greenebaum, 2004; Hirschman, 1994; Voith, 1985). As with human companions, pets elicit strong emotional and behavioral responses among owners. Pet owners grieve for the loss of their companion animals in ways similar to those in which they grieve for people (Gerwolls & Labott, 1994), are sensitive to shifts in pet emotions (Thibault, Bourgeois, & Hess, 2006), and will even remain in very dangerous situations to protect their companion animals (Ascione, 2007). Moreover, it has been argued that pets provide owners with “a sense of history and tradition, a sense of emotional connection with living beings other than ourselves, and a sense that life has meaning” (Hirschman, 1994, p. 630). It is
possible, then, that pets assuage existential concerns with meaninglessness and isolation and, in doing so, reduce the threat engendered by knowledge of one’s own mortality. It may also be the case that pets serve a terror-management function to the extent that people perceive unconditional positive regard from their companion animals. A focus on one’s own pet, in the second study, may have primed thoughts about the pet’s regard for the person and momentarily increased self-esteem, which has been shown to buffer the effects of MS. In any case, the terror-management functions that animals and pets may (or may not) serve for different people would be a worthwhile research endeavor, as it appears to provide potential for further clarification of the human-animal nexus.

In addition to raising interesting questions for future research, the findings reported here have important implications for organizations interested in campaigns aimed at improving the human and animal relationship. Indeed, many animal-welfare campaigns are concerned with improving the quality of life experienced by animals who do not have an intimate relationship with the targets of the campaign (adoption drives and fundraising efforts for lost dogs’ homes). The results suggest that, under control conditions, emphasizing human and animal similarities appears to be an effective means for improving attitudes toward animals. In contrast, when mortality is made salient, participants give more generous ratings of animals if the differences between humans and animals are highlighted. When animal-welfare campaigns make death salient (showing abused or neglected animals close to dying), it may be beneficial to avoid emphasizing human-animal similarities and, instead, to focus on how humankind is uniquely positioned to show kindness and generosity to the creatures who are dependent on us, and the way in which we treat our shared environment.

**Conclusion**

The findings reported in this paper are consistent with previous research on attitudes toward animals and other entities and activities that sometimes serve as reminders of our biological or creaturely nature. As a category of animals broadly conceived, pets are no different from other animals. Even pet owners evaluate animals, and activities that elevate the status of those animals, less favorably when they are reminded of their own creaturely and mortal nature. Altogether, the research raises some interesting theoretical and research possibilities as well as practical implications for understanding and improving human attitudes toward animals.
Acknowledgment

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Notes

1. The ANOVA on self-esteem scores revealed significant MS × Creatureliness effect, $F(1, 93) = 5.86, p = .017, \eta^2 = .06$. Simple main effects analyses showed that participants assigned to the MS-Creaturely condition ($M = 40.23, SE = 1.10$) reported higher levels of self-esteem than those in the MS-Unique ($M = 36.48, SE = 1.71$), $F(1, 93) = 5.43, p = .022, \eta^2 = .06$, and the Control-Creaturely condition ($M = 36.17, SE = 1.71$), $F(1, 93) = 6.34, p = .013, \eta^2 = .06$, but not the Control-Unique ($M = 37.96, SE = 1.26$) condition.

2. A significant MS × Creatureliness effect was observed for levels of negative affect, $F(1, 93) = 4.22, p = .043, \eta^2 = .04$. Negative affect was higher in the Control-Creaturely condition ($M = 1.46, SE = .08$) than the MS-Creaturely condition ($M = 1.22, SE = .07$), $F(1, 93) = 5.03, p = .027, \eta^2 = .05$. Negative affect in the Control-Unique ($M = 1.26, SE = .07$) and MS-Unique ($M = 1.33, SE = .08$) conditions did not differ from the others.

3. There was, however, some evidence that MS led participants reminded of human creatureliness to attribute their own pet negative traits that are typically considered unique to humans.

References


Appendix

Attitudes toward the Special Treatment of Pets

1. I think pets deserve to be pampered every now and then by going to a pet spa.
2. I think it is important that pet owners ensure their pet has a wide variety of friends by going to pet clubs.
3. Pet owners should consider taking their pet to meditation or yoga classes to improve [the pet’s] temperament.
4. I think it is silly to celebrate a pet’s birthday (reversed).