ROLE OF ATTACHMENT IN RESPONSE TO PET LOSS

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This study examined the impact of attachment on grief severity following the death of a pet. Seventy-one participants who had lost a dog or cat within the past year completed a set of measures that included an attachment measure assessing individual differences in attachment anxiety and avoidance, strength of the past attachment to the pet, the continuing bond with the deceased pet, social support, and complicated grief symptoms. Attachment anxiety and strength of the past attachment to the pet were each uniquely predictive of more severe grief. Furthermore, the continuing bond to the deceased pet partially mediated the impact of strength of the past attachment to the pet on grief severity. No significant mediators of the effect of attachment anxiety on grief were found, however. The results highlight the importance of distinguishing strength of attachment from attachment security in examining the effect of attachment on response to pet loss.

Inter-species attachment bonding is assumed to develop in much the same manner as bonding between humans in providing security and protection or stimulate a natural instinct to offer security and protection or reciprocal attachment security (Noonan, 1998; Voith, 1985). It therefore should follow that response to the loss of a pet attachment relationship will be similar to that found for loss of a human attachment bond.

Consistent with this, previous research has shown the strength of the attachment bond to a pet to be a significant predictor of grief severity following pet death (Brown, Richards, & Wilson, 1996; Gosse, 1989; Gosse & Barnes, 1994). The present study extends...
prior work on pet loss in examining the role of attachment style on extent of grief following loss of a pet. Furthermore, it attempts to identify mediators through which the attachment style might impact grief—specifically, social support, the strength of the pet attachment bond, and the continuing bond to the deceased pet. To our knowledge, this is the first attempt to examine attachment style in pet loss.

The Human–Pet Bond

Pets occupy traditionally acknowledged human roles because they evoke similarly known patterns of emotion and behavior observed within human attachment relationships. In addition, pets are endowed with human qualities, making them capable of filling roles such as “attachment figure, transitional object [and] therapist” (Noonan, 1998, p. 17) or child (Albert & Bulcroft, 1987; Archer, 1997). Archer (1997) provided numerous examples of the similarities between pets and babies that may appear unmistakably accurate to an owner of a pet, such as their ability to elicit emotional responses without a commensurate capacity to verbalize meanings (see also Lorenz, 1970), or the uncritical acceptance that can be achieved in relationships with pets, known in psychological language as “unconditional positive regard” (italics in original) or in layman’s language as “unconditional love and acceptance” (p. 253).

Similar to humans, pets carry the potential to provide an emotional attachment bond that promotes a sense of security and well-being (Sable, 1995). The attachment relationship between humans and pets is reinforced by the fact that pets are often viewed as part of the family (Raupp, 1999; Raupp, Barlow, & Oliver, 1997). People become emotionally close and committed to pets, accept responsibility for pets, share activities with pets and grieve when their pet dies. Thus, the human–pet attachment bond is similar to that between humans.

Pet Bonding and Grief

To the extent that the human–pet bond constitutes an attachment bond, a similar response to separation and loss of a pet should be found following loss of a human attachment bond. This has been addressed in a number of studies. Quackenbush (1985) found that
pet death is experienced in a manner similar to human death in terms of sleep loss, days missed from work, and other psychological and social difficulties. Gerwolls and Labott (1994) found that loss of a pet after two weeks and eight weeks revealed grief scores that are similar to those reported after losing a human relationship. In an interview study of adults grieving the loss of a pet, Cowles (1985) found reports of memories of their deceased pet that are commonly observed in the grief reaction to losing a human attachment relationships such as searching behavior, obsessive rumination of the events leading up to the pet’s death, thoughts of previous significant losses both animal and human, and fears of losing control or “going crazy.” Thus, losing a pet is very similar to losing a human attachment relationship.

In a study examining strength of attachment and grief, Gosse (1989) found degree of attachment to a pet to be a strong predictor of grief response following pet death. Archer and Winchester (1994) similarly found a significant positive correlation between degree of attachment to the pet and grief. Thus, the strength of the attachment bond to the pet is an important factor in extent of distress following pet loss.

**Attachment Style and Response to Interpersonal Loss**

Beyond the significance of the strength of the attachment bond for understanding characteristic behavioral responses observed in grief reactions to loss, individual differences in attachment style has been shown to play a role in adjustment to loss (Archer, 1999; Mikulincer & Shaver, 2003). Attachment style pertains to the quality of relationships and not to strength of the attachment bond per se. For example, abusive relationships may involve strong albeit maladaptive attachment ties that are more likely to be found among those who are insecurely attached (Henderson, Bartholomew, Trinke, & Kwong, 2005). Specifically, attachment style is an indicator of one’s cognitive and emotional capacity to negotiate care in human relationships. Two different types of insecure attachment styles have been identified in the adult attachment literature—anxious and avoidant attachment. *Anxious attachment* is characterized by excessive concern over abandonment or rejection in a person’s adult human relationships with significant others (Mikulincer & Shaver, 2003). *Avoidant attachment* is identified by
a tendency to defensively dismiss the need for emotional connection and support in one’s adult human relationships with significant others (Mikulincer & Shaver, 2003). Although the nature of the influence of attachment style on grief has been investigated in regard to human relationships, it has not been explored in regard to human–pet bonds. We address this in the present study in examining how the quality of a person’s human relationships, reflected in his or her attachment style, has bearing on how he or she responds to the death of a pet.

Attachment style has direct bearing on response to separation or loss and is an important predictor of variability in the grief response (Archer, 2001; Field & Sundin, 2001; Parkes, 2003; Stroebe, Schut, & Stroebe, 2005). Bowlby (1980) identified symptoms of chronic grief, such as pronounced distress and helplessness that do not abate over time, to be associated with an anxious style of attachment and delayed grief with an avoidant style of attachment. Support for anxious attachment as a predictor of chronic grief has been shown in a number of studies (e.g., Field & Sundin, 2001; Fraley & Bonanno, 2004; Wijngaards-de Meij, Stroebe, & Schut, 2007). Other anxious attachment manifestations of disordered mourning identified in the empirical literature involve negative appraisals of one’s ability to cope following loss of an attachment figure (Mikulincer & Florian, 1998). A perceived inability to cope following loss parallels the pre-morbid anxious attachment features such as compulsive care-seeking and care-giving, both behaviorally (e.g., proximity seeking) and cognitively (e.g., thinking about the attachment figure), which are aimed at maintaining a feeling of safety provided by the attachment relationship. According to Field and Sundin (2001), compulsive care-seeking prior to loss mirrors the post-loss behaviors of individuals with anxious attachment who make inordinate albeit futile attempts to recover the lost attachment. However, over time, the continual activation of distress as a result of the failure to reestablish proximity with their loved one may heighten feelings of hopelessness and despair in the anxiously attached.

With respect to avoidant attachment, the results are mixed. Field and Sundin (2001) did not find support for an association between compulsive self-reliance (i.e., avoidant attachment style) and bereavement-related adjustment in conjugal bereavement. Fraley and Bonanno (2004) similarly found no effect of avoidant
attachment on bereavement-related symptomatology. However, they found that a fearful type of avoidance (i.e., those who were high in both attachment avoidance and anxiety) was predictive of slower recovery following death of a spouse or child. Most recently, Wijngaards-de Meij, Stroebe, and Schut (2007) found that avoidant attachment was predictive of more severe bereavement-related symptomatology.

**Mediators of Attachment Style on Grief Response**

Given that different forms of insecure attachment can interfere with successful adaptation to bereavement, it is important to identify the underlying mechanisms through which attachment style might affect adjustment. Each of the following are possible mechanisms for this.

**Social Support**

A way by which attachment style impacts poorer adjustment to loss of a pet could be through lack of social support. According to attachment theory (Bowlby, 1973), internal working models of attachment are guided by prior experiences in close relationships with others and function to shape beliefs about available support in the environment. Thus, past negative experiences of support will promote a sense of distrust or attachment insecurity regarding the availability of others while positive experiences will promote a sense of trust or attachment security in that availability.

In social support research, attachment style differences have come under study as potential predictors of variability in giving, using and benefiting from social support (Mikulincer et al., 2001). Davis, Morris, and Kraus (1998) found a negative correlation between insecure attachment and social support with avoidant attached individuals reporting having less social support than other insecure non-avoidant individuals on a measure of global support (Davis et al., 1998). In the context of bereavement, Wijngaards-de-Meij et al. (2007) found that anxious attachment was associated with greater grief among parents who had lost a child through death and that this relationship was partially mediated by relationship satisfaction (i.e., spousal support).
To the degree that attachment insecurity impacts negatively on the ability of the person to obtain emotional support following loss of a pet, such that those who are more insecure are more likely to lack this resource to help buffer their distress, social support should mediate the impact of insecure attachment on grief. In effect, social support can provide the bereaved with a sense of felt security in being able to appeal to others for comfort to help him or her process the loss. On the other hand, lack of social support may increase the likelihood that the bereaved will avoid processing the loss because the emotions, aroused by reminders of the loss, are too overwhelming to bear alone.

*Pet Bond*

Pets may have served a compensatory function among those with insecure attachment whose relationships with other people are of lower quality. In effect, such individuals may have developed a stronger bond to their pet as a result. Consistent with this, Stallones, Marx, Garridy, and Johnson (1990) found that attachment to pets, but not simply pet ownership, was inversely associated to human social support with stronger attachment to pets reported by those who had less human social support. In light of this more exclusive focus of attachment on their pet, the loss may have much greater implications for someone who is insecurely attached than for someone who is more capable of satisfying their attachment needs through human relationships. These individuals therefore are likely to experience more severe grief following the loss of their pet. This may be compounded by lack of social support to help them cope with the loss.

*Continuing Bonds*

According to an attachment theory perspective, successful adaptation to bereavement requires relinquishing the goal of regaining physical proximity to the deceased (Field, Gao, & Paderna, 2005). The tendency of anxiously attached individuals to experience chronic grief following the loss implies such failure to do so. This may be reflected in an attempt to maintain a bond with the deceased pet that is indicative of avoidant coping. If a continuing bond to the pet is a type of avoidant coping, it may interfere with processing the loss. There is controversy in the bereavement
literature as to whether a continuing bond to the deceased is mala-
daptive or, in fact, is integral to successful adaptation to bereave-
ment, however (see Klass, Silverman, & Nickman, 1996; Stroebe
& Schut, 2005). If indeed it is a maladaptive form of avoidant cop-
ing, it might then follow that a continuing bond with the deceased
pet would mediate the relationship between attachment anxiety
and more severe grief. On the other hand, a continuing bond
may constitute an important resource in serving as an internalized
secure base in helping to offset the pain of the loss that is fully
compatible with acknowledging the permanence of the separation
(Field et al., 2005). In this case, it should follow that securely
attached individuals are best equipped to make use of a continuing
bond as an internalized secure base to help them cope with the
loss; it thus should mediate more successful adjustment reflected
in lower grief. This study addresses the possible mediating role
of a continuing bond to the deceased pet in hindering or in facili-
tating successful adaptation to bereavement.

This study extends beyond the direct effects of the strength of
the attachment bond to a pet on the adjustment following pet
death, by highlighting the importance of looking at attachment
style as a significant individual difference factor predictive of grief
severity. Moreover, it attempts to identify mediators through
which attachment style might impact grief through its influence
on social support, the strength of the past attachment to the pet,
and the continuing bond to the deceased pet. It is hypothesized
that anxious and avoidant attachment will be predictive of more
severe grief as mediated through their impact on poorer social sup-
port and as mediated through their impact on a stronger attach-
ment bond to their pet to compensate for the lower quality of
their attachment to people. The continuing bond to the deceased
as a mediator of the effect of attachment style on grief severity will
also be examined although no clear hypothesis is offered as to its
directionality as a mediator.

Method

Participants

A sample of pet loss survivors was solicited through an internet flyer
sent to pet loss support counselors and other pet loss establishments
(e.g., humane society, crematoriums, hospitals), through a computer-generated file of pet loss survivors that included contact information and an internet classified ad listing. Two criteria were used to select research participants: (a) 18 years-of-age or older, and (b) loss of a dog or cat in death or separation (e.g., missing, stolen) within 12 months from the date of data collection.

Four hundred and ninety-six ground mail letters were mailed. Out these, 9 were returned as “not deliverable” and 401 did not respond. The 71 people who agreed to participate in the study were sent an informed consent form to fill out prior to their participation and asked to return it along with a survey packet.

Demographic information on the study sample is summarized in Table 1. The mean age of participants was 44.48 (SD = 14.05). The majority were Caucasian (91%), female (84%), married (65%), and living with at least one other person (84%).

<table>
<thead>
<tr>
<th>TABLE 1 Demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Age (M = 44.48, SD = 14.05)</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Marital status</td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td>Divorced</td>
</tr>
<tr>
<td>Widowed</td>
</tr>
<tr>
<td>Single</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Household status</td>
</tr>
<tr>
<td>Living alone</td>
</tr>
<tr>
<td>Not living alone</td>
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<tr>
<td>Education</td>
</tr>
<tr>
<td>High school</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>Graduate school</td>
</tr>
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<td>Buddhist</td>
</tr>
<tr>
<td>Catholic</td>
</tr>
<tr>
<td>Jewish</td>
</tr>
<tr>
<td>Protestant</td>
</tr>
<tr>
<td>Non-denominational</td>
</tr>
</tbody>
</table>
Measures

DEMOGRAPHICS

Standard demographic information was obtained on the study sample that included age, gender, ethnicity, religion, education, marital status, and whether living alone.

ASPECTS OF THE LOSS

Contextual factors and other aspects associated with the loss that could potentially affect the course and intensity of bereavement were assessed. This included the nature of the death, length of time since the death, whether the participant obtained a new pet since the loss, type of pet, age of the pet, length of pet ownership, and number of prior pet losses.

PET ATTACHMENT SURVEY (PAS)

The PAS Scale (Gosse, 1989) is an 11-item measure assessing strength of attachment in the past relationship with a deceased pet (e.g., “You had your pet near you when you studied, read, or watched TV”). Each item is rated on a 5-point scale ranging from 1 (almost never) to 5 (almost always). The measure possessed satisfactory internal consistency ($\alpha = .79$) in the present study sample.

RELATIONSHIP SCALES QUESTIONNAIRE (RSQ)

The 30-item RSQ is a self-report measure of individual differences in adult attachment (Griffin & Bartholomew, 1994). Each item is rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scaled scores for attachment anxiety (e.g., “I often worry that romantic partners don’t really love me”) and attachment avoidance (e.g., “I am comfortable without close emotional relationships”) were derived based on a procedure used by Fraley and Bonanno (2004). The two scales were moderately correlated ($r = .48$). The internal consistency of the anxiety ($\alpha = .80$) and avoidance ($\alpha = .81$) subscales were in the satisfactory range.

INVENTORY OF COMPLICATED GRIEF SCREEN

Complicated grief symptoms were measured by a 9-item shortened version of the original 19-item Inventory of
Complicated Grief (Prigerson et al., 1995). Use of this shortened version was necessitated by the full measure including items that were descriptive of continuing bonds thus confounding complicated grief symptoms with continuing bonds expressions. In a previous study involving human loss, this modified version was shown to be valid in terms of its internal consistency, relation to time since the loss, and perceived health (Filanosky, 2004). Items describe emotional, cognitive, and behavioral states associated with complicated grief. Respondents rated the frequency with which they experienced each item during the past month on a 5-point scale, ranging from 1 (never) to 5 (always). The internal consistency of this shortened version was high ($\alpha = .90$).

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (MSPSS)

The MSPSS (Zimet, Dahlem, Zimet, & Farley, 1988) consists of 12 items designed to measure perceived social support in relation to family, friends, and a significant other. Each of the items are answered on a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). A total score based on summing the 12 items was derived for the present study purposes. This was based on the high internal consistency of this total scale score ($\alpha = .94$).

CONTINUING BONDS WITH THE DECEASED

A 4-item measure of continuing bonds with the deceased pet assessing extent of use of positive continuing bonds expressions involving fond memories, legacy of the deceased, and use of photographs for maintaining a bond. Participants were instructed to rate how often they made use of each of these continuing bonds expressions during the past month on a 4-point scale ranging from 1 (not at all) to 4 (often). Its internal consistency was satisfactory ($\alpha = .78$).

Results

Grief and the Continuing Bond with the Pet

The average time since the death for the sample as a whole was 5.40 ($SD = 3.78$) months. The mean score of 2.15 ($SD = .82$) for complicated grief symptoms is somewhat lower than findings for human loss within the first year of bereavement using the same measure ($M = 2.55; SD = 1.07$), $t = -2.55; p < .05$ (Filanosky, 2004).
The item means and standard deviations for each of the continuing bonds (CB) measure items are shown in Table 2. Table 2 also includes the means and standard deviations for the same set of items from a database involving human loss within the first year of bereavement for comparative purposes (Filanosky, 2004). The mean scores for each of the pet loss CB items are not statistically significantly different from their human counterparts indicating that attachment to the pet continues after the death in a similar fashion to that found in humans.

Demographic Factors and Circumstances Surrounding Loss and Grief

A series of correlational and $t$-test analyses were conducted to determine whether any of the demographic factors were predictive of grief severity. An independent $t$-test analysis indicated a significant relationship between whether or not the participant was living alone and grief, such that those who were living alone reported greater grief ($M=2.63$, $SD=1.00$) than those not living alone ($M=2.07$, $SD=.76$), $t(69)=2.13$, $p<.05$. No significant relationships were found for any of the other demographic factors with grief, however. No differences were found in grief severity between those who procured a new pet since the death of their pet ($M=2.18$, $SD=.89$) and those who did not do so ($M=2.14$, $SD=.79$) $t(69)=0.22$, $ns$. Also, no significant relationships were found for grief severity with time since the death ($r=-.20$, $ns$), length of pet ownership ($r=-.21$, $ns$), or number of previous pet losses ($r=.10$, $ns$). Furthermore, an analysis of variance (ANOVA) indicated that type of death was not predictive of grief severity, $F(4, 69)=.121$, $ns$.

<table>
<thead>
<tr>
<th>TABLE 2 Continuing Bonds Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Focused on fond memories of deceased</td>
</tr>
<tr>
<td>Shared fond memories with others of deceased</td>
</tr>
<tr>
<td>Positive influence of deceased on who I am today</td>
</tr>
<tr>
<td>Looking at photographs or pictures of deceased</td>
</tr>
</tbody>
</table>
Simple correlations among the main set of variables are shown in Table 3. There are a number of noteworthy features in the pattern of correlations here. Prominent relationships are found among strength of past attachment to the pet, pet CB, and grief; this highlights the importance of strength of bond on both a tendency to maintain attachment following the death and grief severity. The strong relationship between pet CB and grief is particularly noteworthy here. Attachment anxiety and avoidance are predictive of grief and social support, but not with strength of past attachment bond to the pet nor with pet CB. The pattern of correlations thus suggests how strength of past attachment to the pet and attachment style are distinct predictors of grief severity.

### TABLE 3 Correlations for Main Study Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anxiety</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Avoidance</td>
<td>.48***</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Alone</td>
<td>.22</td>
<td>.23</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Past bond to pet</td>
<td>.19</td>
<td>.16</td>
<td>.31</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Continuing bond</td>
<td>.22</td>
<td>.19</td>
<td>.31**</td>
<td>.66***</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social support</td>
<td>-.51***</td>
<td>-.41***</td>
<td>-.14</td>
<td>-.30*</td>
<td>-.19</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>7. Grief</td>
<td>.53***</td>
<td>.25*</td>
<td>.29*</td>
<td>.58***</td>
<td>.67***</td>
<td>-.32**</td>
<td>–</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

Role of Attachment in Response to Pet Loss

To test the hypothesis that attachment style plays a role in adjustment to loss of a pet, such that higher anxiety and avoidance and/or their interaction would be predictive of more severe grief, a regression analysis was conducted in which grief symptoms were regressed on anxiety, avoidance, and their interaction. Prior to conducting this analysis, the anxiety and avoidance scores were centered on their group means and the interaction was computed based on these centered scores (see Aiken & West, 1991). The results are summarized in Table 4. The results indicate that attachment anxiety is a significant predictor of grief, such that higher anxiety scores are associated with greater grief. However, a significant interaction effect shows that the strength of the effect of anxiety on grief is moderated by avoidance, such that a stronger
relationship exists between anxiety and grief at higher levels of avoidance. No significant effect is shown for avoidance.

**Mediating Models**

A series of hierarchical regression analyses were conducted to determine whether social support, strength of past bond to the pet, and the continuing bond to the pet each served as a mediator of the effect of attachment styles on grief. This involved entering anxiety, avoidance, and their interaction in Step 1 of the regression model and the specified mediating variable in Step 2 of the regression analysis as predictors of grief. Support for a mediational model would be shown by a significant reduction in the amount of variance contributed by the combined attachment style measures from Step 1 to Step 2 in predicting grief in conjunction with a significant relationship shown for the mediator with grief in Step 2 (Baron & Kenny, 1986). The Step 2 results are summarized in Tables 5–7. The absence of a significant reduction from Step 1 (see Table 4) to Step 2 in the strength of the standardized beta

### TABLE 4 Attachment Styles Predicting Grief

<table>
<thead>
<tr>
<th>Effect</th>
<th>Beta</th>
<th>SE Beta</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.30</td>
<td>.12</td>
<td>.29*</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.34</td>
<td>.19</td>
<td>.22</td>
</tr>
<tr>
<td>Anxiety \times Avoidance</td>
<td>.36</td>
<td>.10</td>
<td>.39***</td>
</tr>
</tbody>
</table>

*Note. \( R^2 \) change = .24, \( p < .001 \).

* \( p < .05 \).

*** \( p < .001 \).

### TABLE 5 Mediation Model Analysis for Social Support

<table>
<thead>
<tr>
<th>Effect</th>
<th>Beta</th>
<th>SE Beta</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.21</td>
<td>.11</td>
<td>.25</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.16</td>
<td>.11</td>
<td>.19</td>
</tr>
<tr>
<td>Anxiety \times Avoidance</td>
<td>.35</td>
<td>.10</td>
<td>.38**</td>
</tr>
<tr>
<td>Social support</td>
<td>−.09</td>
<td>.10</td>
<td>−.11</td>
</tr>
</tbody>
</table>

*Note. \( R^2 \) change = .01, ns.

** \( p < .01 \).
coefficients accounted for by the attachment style measures in predicting grief when the mediator was included in the regression model indicates that social support, attachment bond to the pet, and continuing bonds respectively do not mediate the relationship between attachment style and grief.

Path Analysis

For illustrative purposes, a path analysis was conducted to highlight the broader configuration of relationships among the set of relevant variables, using the AMOS 5 statistical software (Arbuckle, 2003). The structure of the path model was informed by the pattern of significant correlations shown in Table 3. This involved a recursive path model in which attachment anxiety and strength of attachment were modeled as distal predictors, and social support and CB as mediators, or proximal predictors, of grief. Attachment avoidance was not included in the path model because it was not a significant predictor of grief in the regression analysis (see Table 4). A model trimming process was used in

### TABLE 6 Mediation Model Analysis for Past Pet Bond

<table>
<thead>
<tr>
<th>Effect</th>
<th>Beta</th>
<th>SE Beta</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.18</td>
<td>.08</td>
<td>.21*</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.15</td>
<td>.08</td>
<td>.18</td>
</tr>
<tr>
<td>Anxiety $\times$ Avoidance</td>
<td>.36</td>
<td>.08</td>
<td>.40***</td>
</tr>
<tr>
<td>Past pet bond</td>
<td>.66</td>
<td>.11</td>
<td>.54***</td>
</tr>
</tbody>
</table>

*Note. $R^2$ change = .28, $p < .001$.  
*p < .05.  ***$p < .001.

### TABLE 7 Mediation Model Analysis for Continuing Pet Bond

<table>
<thead>
<tr>
<th>Effect</th>
<th>Beta</th>
<th>SE Beta</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.19</td>
<td>.08</td>
<td>.23*</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.13</td>
<td>.08</td>
<td>.15</td>
</tr>
<tr>
<td>Anxiety $\times$ Avoidance</td>
<td>.32</td>
<td>.08</td>
<td>.36***</td>
</tr>
<tr>
<td>Continuing bond to pet</td>
<td>.61</td>
<td>.09</td>
<td>.56***</td>
</tr>
</tbody>
</table>

*Note. $R^2$ change = .29, $p < .001$.  
*p < .05.  ***$p < .001.
which all non-statistically significant paths in the just-identified model were deleted from the path model in arriving at the final model (for more detail on model trimming, see Kline, 1998). The final model is shown in Figure 1. This model had adequate fit based on $\chi^2 = 4.14$, ns, CFI = 1.00, NFI = 0.96, and RMSEA = 0.02 (0.00 to 0.18) fit indices. There are a few noteworthy features of this model. First, the effect of attachment anxiety on grief is exclusively a direct effect. Although it is significantly linked with social support, the path for social support with grief is not significant; therefore attachment anxiety does not exert an indirect effect through social support. Also, neither is there an indirect link through CB since attachment anxiety is not significantly associated with CB. On the other hand, strength of attachment has both significant indirect and direct effects on grief. The indirect effect of strength of attachment on grief through CB
suggests that a stronger bond with the pet when alive has an impact of the strength of CB that, in turn, results in more severe grief.

Discussion

The primary objective of this study has been to extend beyond the direct effects of the strength of the attachment bond to a pet on the severity of grief by examining attachment style as a significant individual difference factor predictive of adjustment following pet death. Furthermore, it attempted to identify mediators through which attachment style might impact grief—principally social support, strength of past attachment to the pet, and the continuing bond to the deceased pet. The results indicated that although the effects of attachment anxiety and the anxiety x avoidance interaction were shown to be predictive of grief, this effect was not mediated by each of the above factors.

This finding on the effect of attachment anxiety on grief is consistent with Bowlby’s (1973, 1980) theory of loss and attachment, which speculates that anxiously attached adults have difficulty regulating emotions during security threat experiences such as loss of an attachment figure, which leads to prolonged feelings of helplessness indicative of complicated grief. This result replicates the findings for the effect of attachment anxiety in human loss (e.g., Field & Sundin, 2001; Fraley & Bonanno, 2004).

The significant Anxiety x Avoidance interaction effect on grief is consistent with the findings of Fraley and Bonanno (2004) with respect to human loss. This finding highlights the importance of distinguishing fearful versus dismissive variants of avoidant attachment (see Bartholomew & Shaver, 1998); this significant interaction effect suggests that fearful individuals (i.e., those who are high in both anxiety and avoidance) are prone to be most affected by the loss of their pet.

The non-significant results for attachment avoidance suggest that defensive deactivation of attachment characteristic of this attachment style does not interfere with adjustment to bereavement—at least as it is manifested in grief-specific symptomatology. This is in keeping with the results for human loss in which attachment avoidance was not shown to have an effect on adjustment allowing the death of a significant human relationship (e.g., Field & Sundin, 2001; Fraley & Bonanno, 2004). It was also
noteworthy that avoidance was not linked with a stronger past bond to the pet despite its negative impact on social support.

Results of the path analysis revealed how attachment anxiety and strength of the past bond to the pet both served as unique predictors of grief. This highlights the importance of distinguishing strength of attachment from type or quality of attachment in terms of attachment style in examining the role of attachment in adjustment to loss (see Shaver & Tancredy, 2001). The indirect effect found for strength of pet bond on grief as mediated through continuing bonds suggested that those with a stronger past bond with their pet were also more likely to maintain a stronger bond with the pet following the death that in turn incited greater grief. Because the items contained in the continuing bonds measures are positively phrased whereas the items in the complicated grief are negatively valenced, the strong association between the two cannot be explained in terms of simple matching of valence. On the other hand, because attachment anxiety was not associated with continuing bonds, despite its significant positive relationship with grief, this suggests that continuing bonds represent a more adaptive component of grief as distinguished from complicated grief symptoms. An important focus in future research would be to examine more closely the relationship between continuing bonds and grief through a longitudinal design.

The non-significant correlation between attachment anxiety and strength of the attachment to the pet further highlights this important distinction between strength of attachment and quality of attachment as identified in terms of attachment style. It also offers no support for the position that those who are insecurely attached (i.e., anxiously attached) are more likely to form a stronger attachment to a pet to compensate for failure to meet their attachment needs in human relationships.

The significant negative relationship found between social support and grief symptoms in the simple correlational analysis is consistent with previous grief studies (e.g., Stroebe & Stroebe, 1987). A similar significant negative correlation found for attachment anxiety with social support is also in keeping with past research (e.g., Wijngaards-de Meij et al., 2007). Despite this, the results of the hierarchical regression analysis as well as the path analysis results provided no support for social support as a mediator of the relationship between attachment anxiety and grief.
symptoms. In fact, in the regression and path analysis, social support was no longer a significant predictor of grief when considered alongside other predictors of grief. It suggests that social support is a less important factor in pet loss than in human loss. It also may be that the social support measure used in the present study was not a sensitive enough measure in that it did not specifically focus on social support in the context of pet loss but instead assessed the quality of social support in general without reference to a particular event or concern. In future research it may be useful to include a social support measure that more specifically targets social support in the context of a specific stressful life event such as pet loss.

Although attachment anxiety and continuing bonds were not related, such a relationship might have been found if CB expressions that were more clearly indicative of failure to relinquish the goal to re-establish physical proximity to the deceased were considered. The CB items used in the present study may not have been indicative of such failure, such as a focus on fond memories, which is fully compatible with accepting the loss. If indeed CB expressions more indicative of denial of the death were included, such as in keeping the pet’s supplies on hand as though needed as if the pet were still alive, a relationship between attachment anxiety and CB might have been found.

There are a number of limitations in this study. One limitation has to do with the use of a retrospective measure of the strength of the past attachment to the pet. It could be argued that an individual’s level of current grief may influence his or her memory for the strength of the past attachment to the pet such that those with more severe grief are likely to judge this attachment as stronger. The effect of current affective state on memory and judgment is well-established in the social cognition literature (e.g., Bower, 1981; Field, Thompson, & Gallagher-Thompson, 2006). This may partly explain the relatively strong correlation between the strength of the past attachment to the pet and grief. However, because the pet bond measure used in the present study assesses strength of the pet bond based largely on behavioral indices of strength of attachment, this may be less of a problem than in the case of a less behavior-oriented measure.

A second limitation involves the cross-sectional nature of the design. It is not possible to ascertain the directionality of the relationships among variables in the same way that it is possible with
longitudinal data. Furthermore, proper assessment of mediational models requires longitudinal analyses modeled on temporally ordered events. Although the results of the path analysis are compelling in providing a sensible model of the broader configuration of arrangement among the variables, such causal models must be interpreted with great caution.

A third limitation involves the relatively low response rate for participation in the study. Consequently, those who participated may not be representative of the larger population of bereaved pet owners with implications regarding generalizability of the present study findings. Finally, no information was obtained on psychiatric illness existing prior to the loss. It is likely that those with pre-existing psychiatric illness would have reacted more strongly to the death of their pet.

A number of implications follow from the findings. One implication is that indeed the loss of a pet is comparable to that shown for human loss in terms of its psychological impact. The extent of grief and continuing bond expressions item mean scores are supportive of the viewpoint that the relationship with the pet constitutes an attachment bond. In effect, distress in response to separation and an attempt to maintain proximity, expressed in grief and continuing bonds respectively, are important criteria in defining an attachment bond. This highlights the clinical implications of pet loss in showing that grief counselors need to extend their involvement beyond an exclusive focus on human loss. Arguing for the pet bond as an attachment bond is supported further by the findings for the effect of attachment anxiety on grief. The findings for this attachment style as an individual difference factor in the context of pet loss that is similar to that found in human loss adds further credence to the pet bond as an attachment bond. This is true both in terms of normative response to loss as well as individual difference that moderate this.

References


