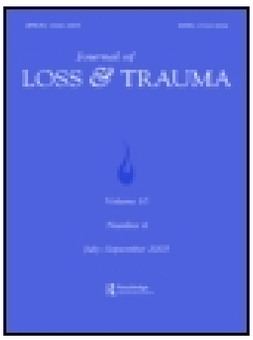

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Investigating the emotion regulation strategies implemented by adults grieving the death of a pet in Australia and the UK.

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Abstract

Pet-related grief has been for the most part been overlooked in psychological research. The aim of this study was twofold. First, to investigate whether the ambiguous loss of one's pet was associated with heightened grief compared to certain pet death; and second, to examine whether adaptive emotion regulation (ER) strategies were related to less pet grief reactions compared to maladaptive ER strategies. One hundred and thirty-four bereaved individuals recruited from the UK and Australia completed an online survey. Within the Australian sample no significant difference in grief severity emerged between individuals who had experienced ambiguous pet loss (N=10) vs. certain death (N=65). For the second aim, based on 67 Australian and 56 UK participants who had experienced the death of their pet, maladaptive ER strategies including catastrophizing were positively associated with heightened grief, anger and trauma symptoms following pet death, while more 'adaptive' ER strategies were significantly associated with less grief, anger, trauma and guilt symptoms. The findings have clinical implications for individuals recovering from the death of their pet.

There is little doubt that humans can form extremely strong attachments to their pets. Indeed, research has stated that this bond meets the criteria of an attachment relationship (Zilcha-Mano, Mikulincer, & Shaver, 2011). Given the significance of the human-pet bond relationship, it is crucial to understand how individuals regulate their intense emotions following the loss or death of a pet. In particular, because the loss of a pet can be a person's first experience of grief, it may form the framework for how individuals cope with bereavement across their lifespan (Podrazik, Shackford, Becker, & Heckert, 2000).

Strong human-pet attachments can lead individuals to experience significant grief following the loss of their pet (Field, Orsini, Gavish, & Packman, 2009). There are two types of pet-related grief that may occur: ambiguous loss and disenfranchised grief. During grief processes, those left behind often have the clarity that accompanies a clear-cut loss (Boss, 2004). However, researchers have discussed a type of loss that is increasingly distressing because it lacks closure which is ambiguous loss resulting from a loved ones' unexpected or uncertain disappearance (Boss, 2002, 2004). In context of pets, physical ambiguous loss involves the pet being perceived as physically absent but psychologically present because it is not known with any degree of certainty whether the pet is still alive or dead (Boss, 1999). However, there is a paucity of studies that have investigated whether the ambiguous loss of a pet is related to more grief than the certain death of one's pet. Accordingly, the first aim of the current study was to examine this question.

Furthermore, how individuals adapt following the loss or death of a pet may be influenced by their emotion regulatory strategies. Emotion Regulation (ER) is the process by which individuals adjust 'their emotional experiences, expressions and physiology along with the situations that illicit such emotions in order to produce an appropriate response' (Aldao, 2013, p. 2). Similarly, Gross (1998) defined ER as 'the process by which individuals influence which emotions they have, when they have them, and how they experience and express them' (p.275). An important aspect of ER is referred to in the literature as

Spontaneous Emotion Regulation or, Automatic Emotion Regulation (AER) (the latter term will be used for the purposes of the current study). AER is a goal-driven change to any aspect of an individual's emotions without any conscious intention to do so (Mauss, Bunge, & Gross, 2007), hence occurring spontaneously. Importantly however, there is a dearth of research that has investigated AER strategies individuals use in response to pet related grief. This line of inquiry has the scope to further our understanding of whether adaptive AER strategies are associated with less grief severity following the loss or death of one's pet.

Two of the most widely researched ER strategies have been cognitive reappraisal involving reinterpreting the meaning of an event so as to reduce its emotional significance, and expressive suppression involving masking, inhibiting or reducing ongoing emotive behavior in order to disguise the current emotional response (Aldao, 2013; Gross, 2015). Whereas cognitive reappraisal has been typically considered as an 'adaptive' ER strategy because it has commonly been found to down-regulate negative affect (Gross, 2015), expressive suppression has been considered at least in the longer-term to be a more 'maladaptive' ER strategy associated with increased distress levels (Aldao, Nolen-Hoeksema, & Schweizer, 2010). For example, someone grieving the loss of a loved one by using emotional suppression for a prolonged period of time, may mask the physical manifestations of grief, such as crying, to disguise their emotions, however, overtime this may hinder their successful processing of losing their loved one.

Cognitive ER strategies have also been documented to have an impact on emotional well-being. Notably, strategies including positive refocusing (thinking about joyful or pleasant events instead of the stressful ones), and putting into perspective (viewing the emotionally eliciting stimulus in light of the 'bigger picture'), have been shown to have a positive impact on affect over-time. Conversely, strategies such as rumination (focusing one's own attention on the symptoms of distress), catastrophizing (focusing on the worst possible outcome) and self-blame (attributing the occurrence of a stressful situation to

oneself), are considered to have a negative impact on well-being (Garnefski & Kraaij, 2006). For example, positive reappraisal has been negatively linked to measures of psychopathology (Carver, Scheier, & Weintraub, 1989), while the less adaptive styles of rumination (Aldao et al., 2010), catastrophizing (Garnefski, Kraaij, & Spinhoven, 2006) and self-blame (Garnefski, Kraaij, & van Etten, 2005) have been positively associated with psychopathology symptoms. However, research on these strategies is notably lacking in relation to pet-related grief. Accordingly, the second aim of the current study was to address this gap in the field.

Furthermore, social support has been shown to protect against severe grief following the human loss of a loved one (Vanderwerker & Prigerson, 2004). However, there exists a conflicting body of research as a number of researchers claim the impact of social support on grief is neither negative nor positive (e.g., Zech, Stroebe, & Abakoumkin, 2005). Wilsey and Shear (2007) postulate that in some instances following the loss of a loved one, social interactions are even perceived by the bereaved as negative, such as intrusive or rude behaviors. Importantly, the impact of social support following pet loss is even more unclear, with research indicating that social support may not be as important in coping following the loss of a pet as it is following the human loss of a loved one (Field et al., 2009). Pet grief has also been noted as a form of disenfranchised grief (Walter, Hourizi, Moncur, & Pitsillides, 2012), where others do not recognize a legitimate cause of the grief (Doka, 2002). Therefore, if the grief is as strong as losing a human family member but the social support is lacking, it may be increasingly important for individuals to implement effective ER strategies when coping with pet-related grief. Given the importance of social support, for the purposes of this study, social support was included as a potential covariate.

Aims of Present Study

The first specific aim of the current study was to evaluate whether there are differences in grief reactions between certain death versus the uncertainty pertaining to the loss of one's pet. It was predicted that individuals who experienced ambiguous/uncertain loss

of their pet rather than certain death would report elevated grief scores. The second aim was to investigate the relationship between AER strategies on reported grief and emotional well-being within the initial 2 years following the death of one's pet. It was hypothesized that elevated scores on theoretically 'adaptive' AER strategies, including cognitive reappraisal, positive refocusing, acceptance and putting into perspective strategies, would be associated with less severe grief and increased emotional well-being. In contrast, it was predicted that elevated scores on theoretically 'maladaptive' AER strategies, including expressive suppression, rumination, catastrophizing and self-blame strategies would be associated with heightened pet grief severity responses and emotional distress.

Method

An online self-report survey was used following institutional ethics approval.

Participants

The eligibility criteria comprised adults aged 18 years or older who had lost a pet (due to certain death or ambiguous loss) within 2-24 months at the time of recruitment. This timeframe was selected on the basis of the human ER grief literature (e.g., O'Connor, Allen, & Kaszniak, 2002). Participants were recruited using convenience sampling in Australia and the UK through several platforms; a) social media – through both a snowball effect of a post on the research team's Facebook and Twitter pages being shared by other people to reach a wider audience, and via pet-related social media pages and groups; b) online pet loss forums, posted with the permission of the sites' administrative teams; c) advertisements distributed to pet-related services such as veterinary practices; and d) an undergraduate psychology unit at an Australian University whereby eligible students received course credit for participation.

One hundred and ninety-one individuals consented and completed the survey. After removing data due to: incomplete datasets (i.e., participants completed less than 50% of the survey), completing the survey outside of the requested grief window, and respondents being from outside of the UK or Australia, a total of 134 datasets remained for analysis. The

majority of participants in the current study were Caucasian (83.6%), female (84.3%) and were not grieving their first pet loss (72.4%).

Materials

All measures used in the current study were validated in previous research in the study of human-pet relations or in the broader ER field. A demographic scale was used to collect standard demographic information; pet information, including type of deceased or lost pet (e.g., cat or dog), type of loss/death (by selecting from a choice of two items: certain death, uncertain loss), and time elapsed since loss/death of pet; and mental health history.

Emotion Regulation (ER): Two validated ER measures were administered to assess trait and state AER strategies. The *Emotion Regulation Questionnaire* (ERQ; Gross & John, 2003) is a 10-item scale, which measures trait-like (generic) cognitive reappraisal and expressive suppression. Higher scores on the ERQ denote greater reappraisal and suppression respectively. The ERQ has strong psychometric properties (Gross & John, 2003) and which was also evident for the current samples (a = .84 Reappraisal, a = .82 Suppression).
The *Cognitive Emotion Regulation Questionnaire* (CERQ; Garnefski & Kraaij, 2007) contains 36-items which measure the ER strategies: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and blaming others. For the current study, the instructions were tailored to the loss of a pet. Specifically, participants were instructed to "indicate, what you generally think, since you have lost your pet". Each subscale score ranged from 4-20, with greater scores indicating a greater use of that particular cognitive ER strategy. The CERQ was chosen due to its strong factorial validity, high subscale reliabilities (Cronbach's α ranging from .75 to .87) and adequate to good test-retest reliabilities ranging from .48 to .65 (Garnefski & Kraaij, 2007). Strong psychometrics were also found for each of the subscales for the current sample with reliability ranging from .70 (for the Reference to Planning subscale) to .91 (for the Blaming Others subscale).

Pet Bereavement: The *Pet Bereavement Questionnaire* (PBQ; Hunt & Padilla, 2006) was used to measure grief severity. The PBQ consists of 16-items to measure four factors conceptualized to be involved in bereaving pet loss: grief, anger, guilt and trauma. For example, the statement, "I miss my pet enormously" is part of the grief subscale, and "I feel bad I didn't do more to save my pet", is part of the guilt subscale. Responses were rated on a 4-point response scale where 1 = *Disagree strongly* and 4 = *Agree Strongly*, with higher scores relating to greater individual feeling of that subscale. The PBQ has strong internal reliability (Cronbach's α = .87) and good construct validity (Hunt & Padilla, 2006). For the current sample, strong psychometric properties were found across all four subscales: a = 88 PBQ-Grief; a = .76 = PBQ- Anger; a = .77 = PBQ-Guilt; a = .76 PBQ-Trauma.

Two general measures were also included to control for potential covariates. The *Multidimensional Scale of Perceived Social Support* (MSPSS; Zimet et al., 1988), a 12-item measure, was used to assess social support. Participants were asked to rate items twice: within one-month post-pet loss/death, and in the past month. The MSPSS scale has been documented to have good internal (.88) and test-retest reliability (.85) along with moderate construct validity (Zimet et al., 1998); and this was replicated for the current sample (a = .94 for one-month post-pet loss/death; and a = .95 for the past month).

The *Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988) was also used to measure participants' current affective state. The PANAS includes 20-items measuring negative (10-items) and positive affect (10 items). Participants obtained a score between 5-50 for both the positive and negative affect subscale, with higher scores on either scale indicating an individual's affective state is predominantly positive or negative. This measure has acceptably high alpha reliabilities for inter-correlations and internal consistency reliabilities (.86 to .90 for Positive Affect and .84 to .87 for Negative Affect), and strong convergent validity (ranging from .89 to .95) (Watson et al., 1988).

For each scale administered, an additional response option was added to denote *I prefer not to answer* in line with the University's ethics procedures.

Data Analyses

Due to the number of analyses being compared, a *p* value of <.01 was used for statistical significance. Several variables violated the assumption of normality and were transformed. Transformations that brought skewness and kurtosis z values close to or <1.5 were chosen as ANCOVAs are relatively robust to minor deviations from normality (Maxwell & Delaney, 2004). Residual plots showed residuals were normally distributed and therefore met the assumption for multiple hierarchical linear regressions (Aim 2). After transformation one extreme outlier remained, on the PBQ anger subscale which was removed from analysis. Several CERQ subscales did not meet residual linearity needed for multiple regression. These were combined into two scales based on conceptual relationship (Garnefski & Kraaij, 2006) and inter-correlation. The new scales comprised 1) the CERQ positive subscale a combination of CERQ positive reappraisal, positive refocusing and putting into perspective; and 2) the CERQ negative subscale a combination of CERQ rumination and catastrophizing. All remaining assumptions for statistical analyses were met.

Results

Aim 1: Uncertain Loss Leads to Greater Grief

Only 11 participants reported the uncertain loss of their pet (N=10 Australian and 1 UK); hence, the first aim was only tested within the Australian sample (N=65 certain death vs N=10 uncertain loss). To test the initial hypothesis, a series of ANCOVAs were conducted rather than a MANCOVA because the PBQ scales were not linear with each other, which is a fundamental assumption of a MANCOVA. Age was added as a covariate because there were significant mean age differences between the uncertain loss versus the death subgroups; 19 and 25.91 respectively. Based on previous research (Vanderwerker & Prigerson, 2004), social support was also added as a covariate, however no statistical significance was found between

this covariate and grief, therefore it was excluded from all further analyses. No statistically significant interactions emerged between type of pet loss and each of the four PBQ scales (see Table 1).

Aim 2 (a): 'Adaptive' AER strategies are related to less grief

Due to the small sample size in the uncertain loss subgroup (N=10), to test the remaining hypotheses, a series of multiple hierarchical regressions were conducted between UK (N=56) and Australian (N= 67) citizens who reported *certain* death of their pets. On comparison of the demographics between Australian and UK subgroups, age, and months since pet loss were found to be significant (See Table 2) and were added as covariates for all analyses. In all analyses, the citizenship grouping variable, age and months since loss were entered in the first step, and the second and final step included the four positive AER strategies: ERQ cognitive reappraisal, CERQ refocus on planning, acceptance and positive combined score (see Table 3).

For the reflected PBQ grief subscale, the full model was significant, R^2 = .285, F(7, 112) = 6.380, p <.001, with lower CERQ positive combined scores and elevated CERQ refocus on planning scores, being significantly associated with higher PBQ grief scores. A significant interaction between citizenship group and grief scores emerged, with UK respondents reporting significantly more grief.

For the PBQ anger analyses, the full model was also significant, R^2 = .203, F(7, 111) = 4.030, p =.001. Lower CERQ positive combined scores, and elevated CERQ refocus on planning scores, were uniquely predictive of elevated PBQ anger scores. For the PBQ trauma scale, the full model was also significant, R^2 = .304, F(7, 112) =6.982, p<.001, being significantly associated with higher PBQ trauma scores. A significant interaction between citizenship group and trauma scores also emerged, with UK respondents reporting significantly more pet-related trauma symptoms. Finally, for the PBQ guilt scale, the full model was *not* statistically significant at the adjusted alpha level of p < .01, R^2 = .138, F(7,

112) = 2.557, p =.018. However, lower CERQ positive combined scores, and older age, were related to greater trauma symptoms.

To test whether adaptive AER strategies are related to better current emotional welling, a regression model was conducted for the PANAS positive scale score, with the full model being significant, R^2 = .471, F(7, 107) = 13.621, p <.001. Specifically, elevated ERQ cognitive reappraisal scores, and CERQ positive combined scores, were significantly associated with higher PANAS positive scores. A further analyses was conducted to test whether adaptive AER strategies are related to reduced PANAS negative subscale scores. The full model was *not* significant, at the adjusted alpha level, R^2 = .154, F(7, 107) = 2.789, p =.011; although, lower ERQ cognitive reappraisal was associated with heightened negative affect (see Table 3).

Aim 2(b): 'Maladaptive' AER strategies are related to more grief

A series of hierarchical regression models were further conducted to test whether maladaptive AER strategies are related to more grief (see Table 4). In all analyses, the citizenship grouping variable, age and months since loss were entered in the first step, and in the second step, the three negative AER strategies were included (ERQ expressive suppression, CERQ self-blame and negative combined scores).

For the reflected PBQ grief scale, the full model was significant, R^2 = .465, F(7, 112) = 13.920, p <.001, with elevated CERQ negative combined scale score being significantly associated with higher grief scores. For the PBQ anger scale, the full model was also significant, R^2 = .441, F(7, 111) = 12.534, p <.001. Elevated CERQ blaming others, and CERQ negative combined, were uniquely predictive of higher anger scores. For the PBQ guilt scale, the full model was also significant, R^2 = .431, F(7, 112) = 12.139, p <.001; with older age, elevated CERQ blaming others, and CERQ self-blame, being significantly related to higher guilt scores. Finally, for the PBQ trauma scale, the full model was significant, R^2 = .411, F(7, 112) = 11.161, p <.001; with CERQ negative combined scores, being associated

with elevated trauma scores. Citizenship differences in trauma scores also emerged, with the UK group reported significantly more trauma symptoms.

A regression analyses was also conducted to test whether maladaptive adaptive AER strategies are related to reduced PANAS positive scale scores. Although the full model was significant, $R^2 = .264$, $F(7, 107) = 5.497$, $p < .001$, no subscales were uniquely predictive of positive affect. A further regression model was conducted to test whether maladaptive AER strategies were related to increased PANAS negative subscale scores (See Table 4). The full model was significant, $R^2 = .234$, $F(7, 107) = 4.671$, $p < .001$, with elevated CERQ negative combined scores, uniquely predicted higher negative affect scores.

Discussion

This is the first study to examine differences in grief following the uncertain loss or certain death of a pet. However, no significant differences emerged between the ambiguous loss of a pet versus certain pet death. This outcome suggests that the ambiguous loss of a pet does not necessarily result in as severe grief as it does in human bereavement. However, this non-significant outcome should be considered preliminary due to the very small sample size in the uncertain loss group. This is further evidenced by the larger means reported by the uncertain loss subgroup for all PBQ subscales except grief. In fact, based on a conventional *p* level of .05, the uncertain loss subgroup reported more guilt ($p = .048$). Moreover, social support was not found to be significantly associated with pet grief. This outcome supports research documenting that social support may neither positively or negatively impact grief (Stroebe et al., 2005). These results were also comparable to Field et al.'s (2009) research suggesting that social support may not be as important in pet loss as it is in human loss.

The second aim of this study was to investigate the association between AER strategies and pet-related grief. Contrary to predictions, no interaction was found between either of the ERQ (trait-like) cognitive reappraisal and expressive suppression subscales and any PBQ grief subscales. In line with previous research (Gross, 2015), the findings suggest

that more habitual use of cognitive reappraisal was associated with more current positive affect and less negative affect within the two years following the death of one's pet. Conversely, pet-specific state ER functioning involving greater use of positive reappraisal, positive refocusing and putting into perspective were associated with less grief, anger, guilt and trauma as well as increases in positive affect. Thus, emotional coping following pet death may pertain more to state ER functioning than trait-like functioning. Supporting previous research, this suggests a positive influence of these 'adaptive' AER strategies (Garnefski & Kraaij, 2006) when implemented by individuals during pet-related grief. However, contrary to predictions, expressive suppression was not predictive of current affect states. Collectively, these findings attest to the importance of measuring ER in response to specific contexts and including an array of ER strategies.

One unexpected finding involved the CERQ refocus on planning subscale results. This subscale assesses thinking about what steps to take and how to deal with the pet death (Garnefski et al., 2001), and was related to *increases* in grief and anger. While an individual's thoughts around their ability to cope with provocation are thought to exacerbate the experience of anger (Deffenbacher, 1996), there is a lack of research on ER strategies and anger (Martin & Dahlen, 2005). Therefore, this study may be the first to highlight that refocus on planning convolutely interacts with anger. Perhaps because it involves questions such as, *"I think about how to change the situation",* and as such may increase feelings of anger and grief because in the case of bereavement the situation cannot be changed, their loved one is irreplaceable. Future research is warranted to further examine the complexity of this relationship by measuring ER strategies and anger in a wider variety of contexts.

Given previous research on the negative impact of 'maladaptive' strategies following negative life events (Garnefski et al., 2001), as part of the second aim, we further investigated whether these strategies are linked to negative affect following pet bereavement. The findings indicated that the elevated use of the negative strategies catastrophizing and rumination were

associated with heightened pet-related grief, anger and trauma responses as well as negative affect. In line with past research (Martin & Dahlen, 2005), CERQ blaming others was associated with increases in anger and guilt following the death of a pet, with CERQ self-blame also predicting increases in guilt (Peter et al., 2014). Collectively, these findings suggest that in order to down-regulate the negative effects of grief following the death of a pet, individuals should avoid the persistent use of these AER strategies.

Furthermore, differences between Australian and UK subgroups were not predicted given that both countries have a high prevalence in pet ownership. However, the study outcomes revealed that individuals from the UK reported more severe grief and trauma symptoms compared to Australian participants. This finding may in part be explained by sampling differences. Specifically, more than half the UK sample (55.4%) reported a history of mental health problems compared to the Australian sample (32.8%). Indeed, individuals with a mental health history may be more vulnerable to experiencing more prolonged pet-related bereavement. However this proposition warrants further investigation in future studies. To that end, most ER research to date has scarcely alluded to how ER processes might differ in individuals with psychological disorders, or personality facets and state-level psychological processes (Aldao, 2013). Clinical samples may find the death of a pet much harder and so may struggle to implement adaptive AER strategies. Investigation of this avenue may be of paramount importance because animal-assisted therapy has been shown to significantly reduce state anxiety in hospitalized patients with major depression (Hoffmann et al., 2009). Therefore, if clinical patients are in regular contact with a therapy animal it is imperative to understand adaptive ways they could cope with the loss of the therapy animal.

There are several limitations which also need to be considered. Principally, while internet-based data collection methods are time- and cost-efficient, significant differences can exist in recruitment of different population groups (Lefever, Dal & Matthíasdóttir, 2007). Significantly more females took part in this study; however, it is possible there are gender

differences relating to grief responses and possibly AER strategies implemented. Therefore, the current findings may not necessarily reflect the male experience following the loss/death of their pet. It is also possible that response rates may reflect gender differences in coping with grief more broadly; that is, females may have a more open grieving style and be more likely to complete a survey on this grief compared to males who focus on more intrapersonal grief work (Stroebe, 2001). Hence, further research is needed to distinguish any possible gender differences in grieving processes following the death of one's pet.

Furthermore, as aforementioned, the findings from the first aim are preliminary given the small sample size that reported the uncertain loss of their pet. Indeed, the small group of participants who reported ambiguous loss on average reported more guilt-related bereavement symptoms than those reporting the certain death of their pet. This result is not surprising given that guilt has commonly been associated with more chronic bereavement in adult studies (Stroebe et al., 2014). Moreover, in the current sample, the mean subsample scores across all four pet bereavement subscales were greater in the uncertain loss sub-sample compared to participants who reported the certain death of their pet. This further attests that the uncertainty of death and the potential method of death pertaining to the loss of one's pet is likely to have a more detrimental impact on grief and adjustment for owners. Given the paucity of research in this field, this issue clearly merits further and more rigorous investigation in future studies. To that end, we recommend the importance of specifically recruiting individuals who have recently lost pets (within 1 month of loss) but are uncertain as to the fate of their pet, and utilize a longitudinal design to assess owner's adjustment and ER responses overtime as compared to individuals whose pet has definitely died over the same period of time. This line of inquiry will further facilitate our understanding as to the impact of the ambiguous pet loss has on owners and their family and whether this is indeed more severe and complicated than experiencing the certain death of one's pet. Furthermore,

the type of death may also have an impact on adjustment and also needs to be assessed in this line of future inquiry.

A further shortcoming of the present investigation is that no data were collected about the quality of the relationship between the participant and their pet, inclusive of the extent of the close bond they had with their pet and whether they relied heavily on their pet for emotional support. It would be expected that very close and dependent bonds would contribute to greater and more prolonged grief reactions following the death of one's beloved pet. However, this proposition needs to be investigated in future studies in this field.

On the basis of the current data, we also cannot determine the role of flexibility in ER strategies and pet-related grief. It is theorized that individuals must be flexible with ER strategies, in that they use a combination of ER strategies to manage stressful situations (Gross, 1998; Gross, 2015). Flexible ER is proposed to protect people from complicated grief patterns (Gupta & Bonnano, 2010). Although this field is still in its infancy across any domain (Gross, 2015) inclusive of pet death, research on flexible ER strategies is gaining momentum in the broader psychology field. On the basis of the current findings, the strong influence of the CERQ positive and negative scales tentatively suggests the beneficial impact of implementing a variety of ER strategies together. Longitudinal research would be beneficial in investigating whether individuals experience less grief if they are more flexible with ER strategies implemented over time.

Conclusion

In the field of human-animal relations, psychology is well-positioned to add comprehensive insight which may also be applicable to human behaviour more generally (Amiot & Bastian, 2015). By investigating the grief following the breaking of the human-pet bond, the current study also adds to the notable paucity of research investigating ER following pet bereavement. The findings suggest adaptive cognitive AER strategies are associated with less severe grief and increased positive affect, whilst maladaptive cognitive

AER strategies are associated with more severe grief and negative affect following the death of one's pet. Interestingly, however, findings suggest the strategy 'refocus on planning', may be maladaptive in this context as pet death is permanent. The present study benefits clinical practice paradigms by offering adaptive strategies to cope with pet grief.

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Table 1

Descriptive statistics, Mean and Standard Deviation (SD), for each PBQ subscale .

	Loss or Death		F (df)	η	p
	Uncertain Loss (*n*=10)	Certain Death (*n*=65)			
PBQ Subscales					
PBQ grief (reflected square root)			.60 (1,72)	.008	.440
Mean	1.52	1.45			
SD	.22	.23			
PBQ anger (logarithm)			3.95 (1,70)	.053	0.051
Mean	.29	.18			
SD	.25	.17			
PBQ guilt (square root)			4.44 (1,72)	.058	.038
Mean	1.681	1.48			
SD	.24	.30			
PBQ trauma (square root)			1.064 (1,72)	.015	.306
Mean	1.39	1.31			
SD	.40	.31			

Table 2

Demographic characteristics of respondents for citizenship subgroups.

	Australian *n*=67		**UK** *n*=56		
	n	%	*n*	%	***p***
Mean age	25.91		40.63		*p*<.001
Gender					
Male	13	19.4%	6	10.7%	*p*=.184
Female	54	80.6%	50	89.3%	
Ethnicity					
White Caucasian	51	76.1%	56	100%	*p*=.009
Middle Eastern	2	3%	0		
Asian or Pacific Islander or Asian British	6	9%	0		
I prefer not to answer	1	1.5%	0		
Other	3	4.5%	0		
Mental Health Problems					
Yes	22	32.8%	31	55.4%	*p*=.012
No/Not sure/Prefer not to answer	45	67.2%	25	44.6%	
Species of pet					
Dog	42	62.7%	28	50%	*p*=.342
Cat	21.2	28.4%	20	35.7%	
Other	6	9%	8	14.3%	
Other major life stressors since pet loss					
Yes	30	44.8%	26	46.4%	*p*=.855
No/prefer not to answer	37	55.2%	30	53.6%	
First pet loss					
Yes	22	32.8%%	9	16.1%	*p*=.033
No	45	67.2%	47	83.9%	
Time since loss (months)	15.15		8.96		*p*<.001

Note. p value is based on Chi-Square test for the categorical variables, and is based on independent samples *t* test for the continuous variables. Significant at level *p*<.01.

Table 3.

Linear hierarchical multiple regression models for the association between 'adaptive' AER strategies and PBQ and PANAS subscale scores.

Final Model - 'Adaptive' AER Strategies on PBQ Grief Scores

	b	SE B	β	*p*
Constant	1.481 (1.099, 1.863	.193		<.001**
Citizenship	-.130 (-.221, -.040)	.046	-.276	.005*
Age	-.001 (-.002, .004)	.001	.054	.571
Months since loss	.002 (-.002, .006)	.002	.068	.424
ERQ cognitive …reappraisal	.003 (-.003, .009)	.003	.092	.298
CERQ Refocus on ….Planning …(Logarithm)	-.533 (-.883, -.184)	.176	-.337	.003*
CERQ Acceptance …(Square root)	.021 (-.057, .098)	.039	.046	.593
CERQ Positive …combined	.012 (.007, .018)	.003	.513	<.001**

Final Model - 'Adaptive' AER Strategies on PBQ Anger Scores

	b	SE B	β	*p*
Constant	.390 (.075, .760)	.159		.016
Citizenship	.030 (-.045, .104)	.038	.080	.437
Age	-.001 (-.004, .001)	.001	-.125	.219
Months since loss	-.001 (-.004, .003)	.002	-.040	.658
ERQ cognitive …reappraisal	-.005 (-.010, .000)	.003	-.179	.057
CERQ Refocus on ….Planning …(Logarithm)	.385 (.097, .674)	.146	.312	.009*
CERQ Acceptance …(Square root)	-.035 (-.099, .030)	.032	-.099	.287
CERQ Positive …combined	-.009 (-.013, -.004)	.002	-.479	<.001**

Final Model - 'Adaptive' AER Strategies on PBQ Trauma Scores

	b	SE B	β	*p*
Constant	1.266 (.718, 1.813)	.276		<.001**
Citizenship	.240 (.116, .369)	.065	.350	<.001**
Age	.000 (-.004, .004)	.002	.009	.923
Months since loss	-.002 (-.007, .004)	.003	-.044	.603
ERQ cognitive …reappraisal	-.002 (-.011, .007)	.004	-.038	.662
CERQ Refocus on ….Planning …(Logarithm)	.441 (-.060, .942)	.253	.192	.084
CERQ Acceptance …(Square root)	-.019 (-.131, .092)	.056	.192	.729
CERQ Positive …combined	-.014 (-.022, -.007)	.004	-.416	<.001**

Final Model - 'Adaptive' AER Strategies on PBQ Guilt Scores

	b	SE B	β	*p*
Constant	1.706 (1.186, 2.227)	.263		<.001**
Citizenship	.023 (-.100, .147)	.062	.040	.708
Age	-.005 (-.009, .001)	.002	-.280	.008*
Months since loss	-.001 (-.007, .004)	.003	-.041	.662
ERQ cognitive …reappraisal	-.005 (-.014, .003)	.004	-.123	.207
CERQ Refocus on ….Planning …(Logarithm)	.444 (-.033, .920)	.240	.226	.068
CERQ Acceptance …(Square root)	.005 (-.101, .111)	.053	.009	.927
CERQ Positive …combined	-.012 (-.022, -.007)	.004	-.400	.002**

Final Model - 'Adaptive' AER Strategies on PANAS Positive Scores

	b	SE B	β	*p*
Constant	4.379 (-9.894, 18.652)	7.2		.544
Citizenship	-3.723 (-7.115, -.331)	1.711	-.0185	.032

Age	-.061 (-.171, .049)	.056	-.093	.274
Months since loss	.072 (-.078, .222)	.076	-071	.344
ERQ cognitive …reappraisal	.383 (.158, .609)	.114	.259	.001**
CERQ Refocus on ….Planning …(Logarithm)	14.787 (1.788, 27.785)	6.557	.219	.026
CERQ Acceptance …(Square root)	-1.024 (-3.913, 1.864)	1.457	.054	.484
CERQ Positive …combined	.284 (.081, .487)	.102	.282	.006*

Final Model - 'Adaptive' AER Strategies on PANAS Negative Scores

	b	SE B	β	*p*
Constant	1.55 (1.261, 1.84)	.146		<.001**
Citizenship	-.006 (-.075, .063)	.035	-.018	.867
Age	-.001 (-.003, .001)	.001	-.089	.407
Months since loss	-.002 (-.005, .001)	.002	-.097	.307
ERQ cognitive …reappraisal	-.008 (-.013, .004)	.002	-.35	<.001**
CERQ Refocus on ….Planning …(Logarithm)	.128 (-.135, .392)	.133	.118	.336
CERQ Acceptance …(Square root)	.018 (-.04, .077)	.03	.006	.533
CERQ Positive …combined	-.003 (-.008, .001)	.002	-.215	.096

* p < .01; ** p < .001

Table 4.

Linear hierarchical multiple regression models for the association between 'maladaptive' AER strategies and PBQ and PANAS subscale scores.

Final Model - 'Maladaptive' AER Strategies on PBQ Grief Scores

	b	SE B	β	*p*
Constant	1.877 (1.614, 2.139)	.132		<.001**
Citizenship	-.096 (-.175, -.017)	.04	-.203	.018
Age	0 (-.002, .003)	.001	.02	.803
Months since loss	.002 (-.001, .006)	.002	.094	.213
ERQ cognitive …reappraisal	-.005 (-.012, .002)	.003	-.118	.132
CERQ Refocus on ….Planning …(Logarithm)	.144 (-.082, .37)	.114	.119	.209
CERQ Acceptance …(Square root)	-.156 (-.745, .433)	.297	-.045	.601
CERQ Positive …combined	-.023 (-.745, -.016)	.003	-.65	<.001**

Final Model - 'Maladaptive' AER Strategies on PBQ Anger Scores

	b	SE B	β	*p*
Constant	.492 (.281, .703)	.106		<.001**
Citizenship	.022 (-.041, .085)	.032	.059	.498
Age	-.001 (-.003, .001)	.001	-.055	.511
Months since loss	.000 (-.003, .003)	.001	-.004	.959
ERQ cognitive …reappraisal	.001 (-.004, .006)	.003	.031	.697
CERQ Refocus on ….Planning …(Logarithm)	-.188 (-.369, -.007)	.091	-.198	.041
CERQ Acceptance …(Square root)	-1.540 (-2.014, -1.066)	.239	-.565	<.001**
CERQ Positive …combined	.007 (.002, .013)	.003	.274	<..005*

Final Model - 'Maladaptive' AER Strategies on PBQ Trauma Scores

	b	SE B	β	*p*
Constant	.866 (.466, 1.266)	.202		<.001**
Citizenship	.22 (.1, .34)	.061	.321	<.001**
Age	.001 (-.003, .005)	.002	.034	.690
Months since loss	-.001 (-.006, .005)	.003	-.024	.763
ERQ cognitive …reappraisal	.002 (-.008, .012)	.005	.030	.709
CERQ Refocus on ….Planning …(Logarithm)	.101 (-.243, .446)	.174	.057	.561
CERQ Acceptance …(Square root)	-.848 (-1.747, .051)	.454	-.168	.064
CERQ Positive …combined	.016 (.006, .026)	.005	.317	.001**

Final Model - 'Maladaptive' AER Strategies on PBQ Guilt Scores

	b	SE B	β	*p*
Constant	1.275 (.939, 1.611)	.17		<.001**
Citizenship	.044 (-.057, .145)	.051	.075	.391
Age	-.006 (-.009, -.003)	.002	-.301	<.001**
Months since loss	.000 (-.005, .005)	.002	.002	.982
ERQ cognitive …reappraisal	.007 (-.001, .016)	.004	.137	.089
CERQ Refocus on ….Planning …(Logarithm)	.466 (.177, .755)	.146	.309	.002*
CERQ Acceptance …(Square root)	-1.309 (-2.063, -.554)	.381	-.303	.001**
CERQ Positive …combined	.004 (-.004, .012)	.004	.093	.328

Final Model - 'Maladaptive' AER Strategies on PANAS Positive Scores

	b	SE B	β	*p*
Constant	48.909 (35.756, 62.062)	6.635		<.001**
Citizenship	-4.332 (-8.395, -.269)	2.05	-.216	.037

Age	.08 (-.206, .046)	.064	-.122	.212
Months since loss	.091 (-.089, .272)	.091	.091	.317
ERQ cognitive …reappraisal	-.367 (-.703, -.032)	.169	-.201	.032
CERQ Refocus on ….Planning …(Logarithm)	-2.320 (-13.736, 9.095)	5.759	-.045	.688
CERQ Acceptance …(Square root)	4.913 (-24.691, 35.517)	14.934	.033	.743
CERQ Positive …combined	-.289 (-.611, .032)	.162	-.196	.077

Final Model - 'Maladaptive' AER Strategies on PANAS Negative Scores

	b	SE B	β	*p*
Constant	1.1 (.885, 1.315)	.109		<.001**
Citizenship	-.011 (-.077, .055)	.034	-.034	.743
Age	-.002 (-.004, .000)	.001	-.15	.135
Months since loss	-.001 (-.004, .002)	.001	-.079	.392
ERQ cognitive …reappraisal	.003 (-.002, .009)	.003	.105	.270
CERQ Refocus on ….Planning …(Logarithm)	.133 (-.054, .319)	.094	.16	.162
CERQ Acceptance …(Square root)	.023 (-.0461, .014)	.244	.01	.926
CERQ Positive …combined	.008 (.003, .014)	.003	.353	.002*

* p < .01; ** p < .001