
Health Correlates of Compatibility and Attachment in Human-Companion Animal Relationships

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The relationship between animal ownership and owners' health has received increasing attention in the recent human-companion animal literature. This article considers a new aspect of the human-companion animal relationship, that of compatibility between pet and owner. Compatibility is viewed as the fit between the animal and the owner on physical, behavioral, and psychological dimensions. A postal survey was used to test the hypothesis that compatibility has influences on physical and mental health that are independent of those due to owners' level of pet attachment and human social support. A sample group of 176 pet owners completed a questionnaire containing a new measure of compatibility as well as standard measures of pet attachment, human social support, and mental and physical health. Results of multiple regression analyses indicated that people who are relatively more compatible with their pets report better mental health overall and fewer physical symptoms. Social support was positively associated with mental health. Pet attachment was also positively associated with mental health, but negatively with physical health.

The companion animal literature contains a wealth of anecdotal evidence suggesting that owning a companion animal is beneficial for one's health and well-being. However, formal research is relatively scarce and findings are inconsistent. It has been suggested that some of the inconsistencies may be resolved if account is taken of the actual characteristics of the pet-owner relationship, rather than just the ownership (Case, 1987; Friedmann, 1990; Poresky & Hendrix, 1990). The most notable focus of research following this line of thought has been on pet attachment – the emotional bond felt and expressed between pet and owner. In the present article, after briefly reviewing the research linking pet ownership and attachment to mental and physical health, we introduce the notion of pet-owner compatibility. We then report the findings of a survey designed to find out if compatibility, in

addition to the factors of ownership, attachment, and general social support, explains variability in mental and physical health.

Studies of pet ownership and mental health have found better general psychological health among cat owners than nonowners (Straede & Gates, 1993), reduced levels of depression in a nursing home following a pet-facilitated therapy program (Brickel, 1984), increased psychological well-being following the acquisition of a dog or cat (Serpell, 1990), and higher morale among veterans with pets than those without (Robb, 1983). In contrast, other studies found no association between ownership and well-being (Ory & Goldberg, 1983, 1984) or between pet ownership and depression (Garrity, Stallones, Marx, & Johnson, 1989). The apparent increased vigor found among pet-owning students could be explained simply by the type of accommodation they lived in (Friedmann, Katcher, Eaton, & Berger, 1984). Turning to physical health, pet ownership has been associated with increased post-coronary survival time (Friedmann, Katcher, Lynch, & Thomas, 1980); lower levels of coronary heart disease risk factors (Anderson, Reid, & Jennings, 1992); improved physical health in the preceding six months (Ory & Goldberg, 1983; 1984); fewer ill-health symptoms and lower drug use (Akiyama, Holtzman, & Britz, 1986-87); and a decrease in numbers of minor physical ailments (Serpell, 1990). Pet ownership has also been found to reduce the impact of stressful life events on the frequency of doctor contacts (Siegal, 1990). Less frequently, however, it has shown no link to general health (Ory & Goldberg, 1993, 1994).

Research on the effects of pet attachment on mental health has linked it to happiness (Ory & Goldberg, 1983) and lower levels of depression (Garrity et al., 1989). However, one study found no association between pet attachment and psychological well-being (Miller & Lago, 1990). Turning to physical health, one study reported associations between pet attachment and better self-rated health (Miller, Staats, & Partlo, 1992). Another found little, if any, connection once the effect of social support had been controlled for (Miller & Lago, 1990).

Although the research findings on pet owners' health are mixed, they are sufficiently promising to warrant further empirical study and further theoretical development aimed at identifying salient characteristics of the pet-owner relationship. A focal point of our research in this area is the notion of pet-owner compatibility. Compatibility can be viewed as the "fit" between the animal and the owner on physical, behavioral and psychological dimensions as perceived by the owner. On all three dimensions, the pet and owner have things they require of, as well as things they are able to contribute to, the relationship. The match between these requirements and contributions represents the compatibility of particular pet

and owner combinations. Although compatibility is, of necessity, defined by the owner, it can be viewed from both sides of the relationship. Thus, we further distinguish between pet compatibility (the matching of the pet to the owner), and owner compatibility (the matching of the owner to the pet). Both of these components incorporate physical, behavioral, and psychological dimensions.

Apart from anecdotal evidence that compatibility is a recognizable and potent feature of pet ownership, there are several conceptual reasons for believing that it may be a fruitful area for health research. First, the inherently bipolar nature of compatibility means that it can range from compatibility to incompatibility and thus capture both positive and negative aspects of the pet-owner relationship. Pet attachment, on the other hand, ranges from a level of attachment to an absence of attachment, consequently measuring only positive and neutral situations. Given the power of the general stress paradigm in health research, capturing aversive or distressing characteristics of the pet-owner relationship may be an important requirement.

Second, the general theoretical notion of psychological misfit or mismatch has already been shown to be relevant to research on the determinants of physical disease. For example, Moss's (1973) theory of biosocial resonance and Totman's (1979) social rules theory have proved useful ways of integrating a variety of psychological and social experiences that influence health. Finally, although not specific to health research, the range of experiences and behaviors encompassed by compatibility is far greater than has previously been incorporated into concepts such as pet attachment. Focusing on mismatches in physical, behavioral and psychological dimensions of the human-pet relationship provides a way of identifying and reporting a rich array of its characteristics.

Pet ownership may appear to be a simple concept, but definitions can range from the presence of a pet in the household, to more complex economic and psychological versions. As all the participants in this study were required to have a pet in their households in order to complete the relationship measures, ownership was not defined in terms of a pet's presence. Instead, a distinction was drawn between those who viewed themselves as sole owners of the pet and those who either shared ownership with another member of the household or simply lived in the same house as a pet who was owned by somebody else.

The pet-owner relationship is embedded in the owner's network of social relationships with other humans. Since aspects of human social networks and support have been shown to influence mental and physical health (Cohen, Mermelstein, Kamarck, & Hoberman, 1985), it is important to question whether

any health effects of the pet-owner relationship are actually specific to this relationship or are confounded with general social support effects, as found by Miller and Lago (1990). Accordingly, we also examined social support in our study of pet relationships. Since there are many approaches to social support available, we adopted a multidimensional version encompassing both structural and functional aspects of a variety of forms of interpersonal support.

The present study examined the relationships of compatibility, ownership, attachment, and social support with mental and physical health. Since the study design was a postal survey of the general population, mental and physical health characteristics were limited to those easily self-reported. Thus, mental health was defined as positive and negative aspects of psychological well-being rather than in terms of psychiatric diagnoses. Physical health was defined in terms of reports of a range of physical symptoms. These are restricted definitions, but earlier research cited above suggests that they may be adequate for our purposes.

In summary, our general aim was to examine the relationship between pet-owner compatibility and mental and physical health. Since we wished to know whether compatibility provides additional insight into the health consequences of relationships, our primary hypothesis was that any health effects of compatibility would be over and above those produced by ownership, attachment, and social support. It has also been suggested that human social support may buffer the effects of stressors on health (Cohen & Hoberman, 1983; Schwarzer, Jerusalem, & Hahn, 1994). For example, in the pet field, it has been proposed that attachment to pets may be more beneficial for those owners who have little human social support, because pets may take over some of the social support role for those who experience few meaningful links with other people (Garrity et al., 1989; Ory & Goldberg, 1983). We further hypothesized, therefore, that the effects of compatibility and attachment on health would be buffered by social support.

Method

Participants

Participants were sought through an article in the local newspaper, through veterinary clinics, and through on-campus courses for extramural students at Massey University. Anyone who had shared a house with the same companion animal for at least a year was considered eligible to participate. This requirement was necessary to ensure that a relationship with the pet had formed. The resultant convenience sample consisted of 176 volunteers. It was impossible to calculate a

response rate due to the sampling technique employed. A total of 32% of the group were male and the age range was from 21 to 79 years with a mean age of 42 ($SD = 11.3$). The majority of participants lived with another adult (75%) and just under half (46%) had at least one child. The length of time the pet had been in the household ranged from 1 to 20 years with an average time of 5.7 years ($SD = 4$). With respect to ownership of the household pet, 39% of participants indicated that they were the sole owners, and 61% reported shared ownership. Care of the pet was undertaken alone by 20% of participants, and shared care by 80%.

Measures

Five measures were incorporated into a self-report questionnaire to assess human-companion animal compatibility, pet attachment, social support, and physical and mental health. Since no existing measures of compatibility could be found, a new instrument was constructed based on work by Serpell (1983). A full account of the development of this Animal Human Compatibility Scale (AHCS) can be found in Budge, Jones, and Spicer (1997). The version used in the present study consists of two subscales, Pet Compatibility and Owner Compatibility, which contain 26 and 15 items respectively. For each item, an attribute of the pet and owner relationship is presented on a 10-point rating scale with opposite poles at either end. For example an item concerning the pet's playfulness presents a scale ranging from "not at all playful" to "very playful." Participants were required to rate each item twice, once with respect to their actual pet or themselves as owners and a second time with respect to the ideal pet or owner. The absolute difference between the actual and ideal rating provided an index of their compatibility on that attribute. Scores were averaged across the Pet and Owner items respectively to produce two subscale scores and across all scores to produce an overall Compatibility index. It is important to note that because of the direction of the scoring, a higher score meant a less compatible relationship. The Pet and Owner subscales had Cronbach's α (Thorndike, 1982) coefficients of .84 and .87 respectively, indicating an acceptable level of internal consistency. The subscales were moderately correlated ($r = .49$), suggesting that they were capturing similar aspects of pet-owner compatibility.

The Pet Attachment Survey (PAS) (Holcomb, Williams, & Richards, 1985) chosen to measure pet attachment included both behavioral and emotional aspects of pet attachment with two subscales, Relationship Maintenance and Intimacy. The Survey also provided a reasonable range of items within each subscale, 27 in all. Each item required participants to rate an aspect of their relationship with their pet on a 4-point rating scale ranging from "almost never" to "almost always." An

example item is “you like to stroke and touch your pet.” Ratings on each item are summed to provide a pet attachment score. Previous applications of the PAS indicate that it had reasonable levels of internal consistency with Cronbach’s α coefficients of .83 and .74 respectively and that the subscales are correlated with each other ($r = .59$) (Holcomb et al., 1985). Cronbach’s α coefficients in the current sample were .85 for Relationship Maintenance and .83 for Intimacy, and the two subscales were strongly correlated ($r = .76$).

Social support was measured with the general version of the Interpersonal Support Evaluation List (ISEL) (Cohen et al., 1985). The ISEL measures four diverse aspects of social support: tangible support, belonging, self-esteem support, and appraisal of support. It measures the availability of close friends and family as well as the specific functions of social support that they provide. The 40 items are presented as statements concerning realistic support situations. The respondent is required to answer true or false to items such as “there is at least one person I know whose advice I really trust.” Previous applications of the measure suggest that it has adequate test-retest reliability (correlations ranged from .63 to .70 over a 6-week period, and from .49 to .74 over a 6-month period [Cohen et al., 1985]), internal consistency (Cronbach’s α coefficients from .88 to .90 [Heitzmann & Kaplan, 1988]), and validity. Scores on the ISEL have been found to be consistently correlated with psychological symptoms and less consistently associated with physical health symptoms (Cohen et al., 1985). Within the current sample, the Cronbach’s α coefficient was .87.

Mental health was assessed with Veit and Ware’s (1983) Mental Health Inventory (MHI), a measure of psychological well-being. The 38 items can be separated into two scales: Psychological Distress and Well-being. These two scales break down into five subscales: Anxiety, Depression, Emotional Ties, General Positive Affect, and Loss of Emotional Control. Participants are required to rate their moods, feelings, and emotions during the last month on 7-point response scales ranging from “always” to “never.” Internal consistency and test-retest reliability have been shown to be adequate in previous studies. Alpha coefficients range from .83 to .96 (Veit & Ware, 1983; Zika & Chamberlain, 1992). Stability coefficients are reported to range from .56 to .64 over a 12-month time period (Veit & Ware, 1985) and between .65 and .86 over a 6-month time period (Chamberlain & Zika, 1992). The inventory’s construct validity is reported to be excellent (Wells, Manning, & Valdez, 1989). In the current study, Cronbach’s α coefficients ranged from .85 to .96 and correlations between subscales ranged from .45 to .80.

Physical health was measured with Pennebaker's well-established and frequently used Inventory of Limbic Languidness (Pennebaker, 1982), a checklist of physical symptoms. Participants required to rate how much a symptom has bothered them during the last month on a 5-point scale ranging from "not at all" to "severely." A shortened version was used in the current study, containing 28 items and covering the same range of symptoms as the original but with only one item per symptom. It was devised for use with a New Zealand population and previous use produced an α reliability coefficient of .86 (C. MacDonald, personal communication, June 18, 1996) compared with .81 in the current sample.

Procedure

Questionnaires were sent to people who responded to the newspaper request, left at the reception desk in veterinary clinics, or were taken home by students. Participants filled in the questionnaires and returned their replies in prepaid envelopes.

Results

The range and mean of total compatibility scores was small (0–5.47, $M=1.23$, $SD=0.79$) relative to the possible score range of 0 to 9. Since low scores indicate compatibility, it appears that the present sample contains few people who are notably incompatible with their pet. The means of the Owner and Pet Compatibility subscale scores suggest that, on average, participants rated themselves to be slightly more compatible with their pets as owners ($M=0.91$, $SD=0.92$) than they rated their dogs and cats to be compatible with them ($M=1.45$, $SD=0.84$). The mean attachment (PAS) scores were similar to those found in other studies (Holcomb et al., 1985; Marks, Koepke, & Bradley, 1994). The means (and standard deviations) in the current study were 72.77 (12.96) for total attachment and 42.47 (7.91) and 30.50 (5.92) for the Relationship Maintenance and Intimacy subscales respectively. The social support mean ($M=34.58$, $SD=5.04$) suggests that, on average, participants perceived themselves to be well supported, but they are only marginally higher than those reported in previous research (Cohen et al., 1985). The mean (13.56, $SD=9.56$) of physical symptoms scores in this study was very similar to that found in another New Zealand study (C. MacDonald, personal communication, June 18, 1996). The mental health mean (199.46, $SD=36.32$) was slightly higher than those reported in other New Zealand studies (Vincent, Long, & Chamberlain, 1991; Vincent, Chamberlain, & Long, 1994; Zika & Chamberlain, 1992).

In summary, the scores on existing measures were similar to those found in earlier studies, but the low AHCS scores suggested a bias towards compatible relationships in this sample.

Table 1. Regression Analyses of the Relationships of Compatibility, Pet Attachment, and Social Support with Nine Dependent Health Variables Controlling for Ownership (Ns = 101–106)

<i>Health variables</i>	<i>Independent variables</i>	β	<i>t</i>	<i>adjusted R²</i>	<i>F</i>
Mental Health	Compatibility	-.19	-2.01*	.26	10.21***
	Pet Attachment	.09	0.93		
	Social Support	.51	5.89***		
Well Being	Compatibility	-.18	-2.03*	.33	13.72***
	Pet Attachment	.19	2.11*		
	Social Support	.56	6.77***		
Psychological Distress	Compatibility	.18	1.82	.19	7.32***
	Pet Attachment	-.02	-.22		
	Social Support	-.45	-4.95***		
Emotional Instability	Compatibility	.11	1.10	.16	6.07***
	Pet Attachment	-.01	-0.10		
	Social Support	-.43	-4.61***		
Depression	Compatibility	.12	1.16	.15	5.66***
	Pet Attachment	-.08	-0.81		
	Social Support	-.41	-4.41**		
Positive Affect	Compatibility	-.18	-1.94	.27	10.62***
	Pet Attachment	.19	2.03*		
	Social Support	.50	5.79***		
Anxiety	Compatibility	.04	0.50	.18	6.80***
	Pet Attachment	.02	0.19		
	Social Support	-.42	-4.56***		
Emotional Ties	Compatibility	-.13	-1.48	.30	12.48***
	Pet Attachment	.13	1.42		
	Social Support	.51	6.08**		
Physical Symptoms	Compatibility	.24	2.29*	.08	3.32*
	Pet Attachment	.23	2.14*		
	Social Support	-.19	-1.96		

* $p < .05$ *** $p < .001$

A series of all-in multiple regression analyses was performed to examine the independent relationships of compatibility, pet attachment, and social support with the nine mental and physical health variables. The results of these nine regressions are presented in Table 1. Each set of results includes the β weights, which reflect the relative impact of each independent variable on a health variable, a t-test of each beta's significance, the strength of the relationship between the set of independent variables (R^2), and an F test of the significance of this relationship. As there were no significant effects of ownership, these results are not included. The independent variables jointly and significantly explain between 15% and 33% of the variance in mental health variables and 8% of the physical symptoms variance.

With respect to the primary hypothesis, it appears that people who are relatively more compatible with their pets report better mental health overall and fewer physical symptoms and that these associations cannot be attributed to levels of attachment or social support. Looking more closely at specific mental health variables, it seems that compatibility is related to well-being and to positive affect, although the latter relationship was marginally insignificant ($p = 0.055$). Thus the negative aspects such as anxiety and depression do not appear to be related to compatibility.

It is striking that pet attachment was significantly associated with the same two mental health variables as compatibility. People who were more attached to their pets scored higher in well-being and positive affect. It is also interesting to note that, in general, compatibility and pet attachment had similar β weights with respect to the positive aspects of mental health. Although these effects are similar in strength, they are independent of each other.

Pet attachment was also associated with physical symptoms to a similar degree as compatibility, but in an anomalous direction. The positive β suggests that people who are highly attached to their pets are more likely to report physical health problems. In keeping with research discussed earlier, social support shows the strongest independent relationship with all the mental health outcomes – higher levels were associated with better mental health. Although the relationship was marginally insignificant ($p = 0.052$), physical symptom reporting was also negatively associated with lower levels of social support.

Having found relationships between compatibility and health, a second set of multiple regression analyses was performed to examine the roles of two components of compatibility. Regressions were run as before except that the total compatibility score was replaced by either the Pet or Owner subscale score. Table 2 presents the outcomes of the resulting 18 separate regression analyses, each of which control for attachment, social support, and ownership. Only the compatibil-

ity results are provided as the results for the other variables remained ostensibly the same as those shown in Table 1.

Table 2. Regression Analyses of Relationships Between Compatibility Components and All Dependent Variables, Controlling for Attachment, Social Support, and Ownership (Ns = 101–106)

<i>Health variables</i>	<i>Compatibility</i>	β	<i>t</i>	adjusted R^2	$\dagger F$
Mental Health	Pet	-.21	-2.45*	.25	10.52***
	Owner	-.10	-1.16	.25	10.73***
Well Being	Pet	-.21	-2.59*	.33	14.44***
	Owner	-.10	-1.15	.33	14.44***
Distress	Pet	.19	2.17*	.19	7.40***
	Owner	.10	1.04	.18	7.36***
Control	Pet	.11	-0.22	.15	6.26***
	Owner	.09	0.91	.15	5.85***
Depression	Pet	.14	1.54	.15	6.10***
	Owner	.04	0.41	.15	6.17***
Positive Affect	Pet	-.19	-2.28*	.26	11.07***
	Owner	-.11	-1.20	.27	11.49***
Anxiety	Pet	.25	2.82**	.19	7.36***
	Owner	.11	1.16	.15	6.06***
Emotional Ties	Pet	-.20	-2.41*	.28	11.86***
	Owner	-.07	-0.76	.28	12.13***
Physical Symptoms	Pet	.19	2.01*	.07	2.91*
	Owner	.19	1.88	.06	2.65*

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

\dagger The F value is for the total model

The overall pattern of results suggests that the Pet Compatibility component was primarily associated with both mental and physical health. Results demonstrate that Pet Compatibility was significantly associated with well-being and positive affect as in the previous compatibility analyses and was also related to emotional ties. Moreover, it is significantly associated with some of the negative mental health aspects, namely anxiety and distress. Owner Compatibility was not significantly

associated with any aspect of mental health, but reached borderline significance in its association with physical symptoms ($p = 0.06$).

The second hypothesis proposed a buffering effect of social support on the impacts of pet attachment and compatibility on health. To test this hypothesis, social support \times pet attachment product terms were created (Jaccard, Turrisi, & Wan, 1990) and entered on the second step of hierarchical multiple regression analyses with all main effects included in the first step. Only two interactions were found to be significant. These had no obvious interpretation and provided little evidence for any buffering effects.

Discussion

The main focus of this study was whether the compatibility between a pet and his or her owner relates to the mental and physical health of the owner. It appears that, from a psychometric standpoint, the AHCS was an adequate measure of compatibility, proving to be internally consistent. The moderate correlation between compatibility and pet attachment ($r = .44, p < .001$) suggests that they are capturing different, but related, aspects of the human-pet relationship. It was also reassuring to note that compatibility was uncorrelated, and therefore uncontaminated with the measure of social support.

In general, the results of this study demonstrated that a compatible human-pet relationship was associated with better mental and physical health. Some aspects of compatibility were significantly associated with mental health in that people who were more compatible with their pets experienced better overall mental health, a greater sense of well-being, and more positive affect, as well as less anxiety and distress. Compatibility was also significantly associated with physical health, with people in more compatible relationships reporting fewer ill-health symptoms. Perhaps a good, interactive relationship with a companion animal increases feelings of happiness, releases tension, and adds to the quality of life so that people are less effected by health problems and feel more positive about themselves, their health, and their lives in general.

As was mentioned earlier, compatibility is bipolar by nature as the match of pet and owner can range from compatibility to incompatibility. Although this provides a positive characteristic for valid measurement, the interpretation of the results is unclear. The association between compatibility and health may be indicative of an enhancing effect of compatibility or representative of a deleterious effect of incompatibility. This issue is difficult to explore with respect to physical health because of the way in which it was measured in terms of symptoms of ill-health. The

only possible interpretation is that the link between compatibility and physical symptoms is evidence of the negative effect of incompatibility. However, the mental health measure was capable of capturing both the positive effects of compatibility and the negative effects of incompatibility, and both were present in this study. This suggests that compatibility is behaving in a bipolar fashion demonstrating both compatibility and incompatibility effects.

These effects, expected in a general sample, were evident despite the limited variability in compatibility in the sample and also the lack of variability in health. It would be fruitful to extend future compatibility research by sampling groups of people who are less compatible with their pets and by measuring health with methods other than self-report. Finding a sufficient number of people with incompatible pets may be an unrealistic goal, however, as once the relationship becomes too problematic many people choose to terminate it. Given the sampling limitations of the current study, it was rewarding to have obtained significant results, but the use of more carefully selected groups in future research should result in stronger effects.

It was interesting to note that it was the pet compatibility rather than the owner compatibility component that was significantly related to particular aspects of health. Some reasons for this may be associated with the lack of variability in the sample. As has already been mentioned, the sample used in this study was a biased sample of owners who seemed to experience relatively compatible relationships with their pets. This may be because they actually were caring and considerate owners who perceived themselves to be close to ideal. Support for this notion comes from the observation that owner compatibility showed less variability than pet compatibility scores.

Alternatively, social desirability may have played a role in that people have a positive view of what the good pet owner is like and may bias their responses in that direction. This would again result in a lack of variability in self-ratings. People are also likely to be unfamiliar with the process of rating themselves as owners. While they may often consider their pets and how they would like them to change, they are less likely to think about their own behaviors as owners and, as a consequence, may be less able to accurately depict themselves.

The levels of pet attachment found in this sample were similar to those found in other studies. Although attachment, as expected, was related to positive affect and well-being, components of mental health, it was positively related to physical symptoms. This implies that people who are more attached to their pets, and specifically are more involved in relationship maintaining behaviors, report being more affected by physical symptoms. This finding was not a statistical artifact

resulting from the regression context since it also appeared in the simple positive correlation ($r = .20, p < .05$) between attachment and physical symptoms. A similar finding resulted from Paul and Serpell's (1996) study of children following the acquisition of a new dog.

One explanation is that people who are strongly attached to their pets spend a lot of time in close proximity with them and are also affected physically by symptoms related to this closeness. For example, symptoms associated with asthma or dust allergies may be exacerbated by close contact with animals. However, no correlation was found between attachment and asthma-type symptoms. Considering the attachment findings from a reverse perspective, it could also suggest that people who reported being more affected by physical symptoms are also strongly attached to their pets. Perhaps physically unwell people, less involved in activities, spend more time with their pets, use them as a form of compensation, and, as a result, grow more attached to them.

Alternatively, the degree to which people are attached to their pets and report physical health symptoms could be influenced by a third factor such as a neurosis. People with neurotic tendencies report more physical symptoms (Watson & Pennebaker, 1991) and may also attach themselves neurotically to their pets.

Previous research on social support has suggested that it is positively associated with mental health but less obviously related to physical health. Although not a focus of this study, the results are congruent with this as social support was associated with all types of mental health but not physical symptoms. The predicted interactions among compatibility, pet attachment, and social support with respect to beneficial health effects were not borne out by this study, which may result from a design problem. Failure to detect interactions may reflect purely statistical issues as explained by McClelland and Judd (1993). These authors discuss the statistical difficulties of detecting interaction effects in field research where effects may be swamped by uncontrolled error variance, in contrast to the more controlled conditions achievable in experiments.

Alternatively, the lack of detection, rather than indicating that the phenomenon does not exist, may simply have been the result of the limited variability in one or more of the variables. We have already alluded to this possibility with respect to compatibility, but it may also apply to social support. The buffering effect may be evident in those who are socially isolated but, by definition, such people are hard to find, particularly in sufficient numbers to fulfill statistical power requirements. The group of people who are most likely to be socially isolated in western societies are the elderly, which possibly explains the use of elderly samples in the few studies of social support and pet attachment. Evidence for this was provided by Garrity et

al. (1989) who found strong pet attachment to be linked to fewer reported illnesses in elderly bereaved people, but only for those who had less social support available to them.

This study has successfully introduced and measured compatibility as a new aspect of the human-pet relationship. More importantly, it has been able to demonstrate associations between compatibility and the mental and physical health of owners, associations that were over and above the previously identified effects of pet attachment and social support. Conceptualizing compatibility in a bipolar fashion was demonstrated to be useful in that it was associated with both positive and negative aspects of mental health. This suggests that a compatible pet relationship can enhance health, whereas an incompatible one may detract from it.

Although this research has made a promising beginning, it obviously requires further work to replicate the findings. Successful replication would introduce the need to uncover the mediating processes that link compatibility to health. Compared to the influence of human social relationships on people's health, the effects of pet relationships are not large. They are, however, considered worthy of further investigation.

Note

1. Correspondence should be sent to Claire Budge, School of Psychology, Massey University, Private Bag 11-222, Palmerston North, New Zealand. The research and writing of this article was aided by a grant awarded by the Auckland Veterinary Group.

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