

Pet Ownership, Attachment and Health-Rated Quality of Life in New Zealand.

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Abstract

A great number of previous studies have linked pet ownership to positive health outcomes, but so far no study has investigated its effects on health-related quality of life. Using a sample of 282 university undergraduate students, the present study investigated the effects of pet ownership on health-related quality of life, whilst controlling for demographic variables and exploring the effects of level of attachment to the pet. Quality of life was measured using the World Health Organization Quality of Life - BREF (WHOQOL-BREF), which includes four separate domains: physical, psychological, social, and environmental quality of life. Dog ownership was related to significantly higher scores on physical quality of life ($p=.04$), and owning a pet other than a dog or a cat was linked to significantly higher scores on the social domain ($p<.01$). The present results failed to replicate previous findings of increased psychological health in pet owners. Although pet owners generally reported to be highly attached to their pets, level of pet attachment was not significantly related to psychological quality of life. This study provides the first exploratory results of the effect of pet ownership on quality of life as measured by the WHOQOL-BREF in a New Zealand sample.

Keywords: *Pet ownership; Health-related quality of life; Attachment; New Zealand; WHOQOL-BREF*

Introduction

Since at least half of the households in Western societies own pets (Podberscek, Paul, & Serpell, 2000), it is not surprising that a great number of studies have been devoted to the study of human-animal interactions (Barker, Rogers, Turner, Karpf, & Suthers-McCabe, 2003). Of particular interest are the health benefits that ownership of companion animals is thought to provide.

Because of the nature of the research topic, only very few studies have been able to use an experimental design (Wilson & Turner, 1998), and the vast majority of the studies have been observational (Garrity, Stallones, Marx, & Johnson, 1989; Serpell, 1991; Siegel, 1990; Straede & Gates, 1993). However, the general consensus of these studies is that animals have positive health outcomes on the people with whom they interact (Beck & Meyers, 1996), such as improved cardiovascular health (Friedmann & Thomas, 1995), improved psychological health (Straede & Gates, 1993), fewer visits to physicians (Headey, 1999; Siegel, 1990), and a general reduction in minor general health problems (Serpell, 1991).

Studies that claimed positive effects of pet ownership have generally used different measurement instruments, and results are therefore difficult to compare across studies. Additionally, most research has been restricted to measurable physical benefits of pet ownership, and there is a need for research using a more general definition of health that also includes psychological and social wellbeing (McNicholas et al., 2005). The advantage of the World Health Organization Quality of Life (WHOQOL) instrument (The WHOQOL Group, 1998; Skevington, Sartorius, Amir, & The WHOQOL-Group, 2004) is that it is a psychometrically robust tool that has been used extensively internationally and addresses a wide scope of aspects of quality of life, ranging from physical, psychological, social and environment domains. This instrument is particularly advantageous since different types of animals might be expected to have impact on different specific domains.

Undoubtedly, demographic variables are directly related to health and quality of life, and may have confounded results in studies that did not control for such variables. The effect may be lessened if a homogenous sample is used with limited variability in general demographic factors (Pachana, Ford, Andrew,

& Dobson, 2005). Additionally, most previous research did not measure attachment to pets, which may be an important factor in psychological health. Headey, Na, and Zhang (2008), for example, reported positive health benefits for dog owners in China, but noted that future studies should explore in more detail the roles of attachment to the pet and which person in the household is the primary caregiver of the pet.

Levels of attachment of owners to their pets are often very high (Albert & Bulcroft, 1988), and even comparable to those between pet owners and other members of their family. For example, pet owners are often found to talk to their pets in manners similar to those observed between parents and infants (Mitchell, 2001), and Kurdek (2008) reported that university students rated their levels of attachment to dogs very close to the levels of attachment to other family members. Most previous research on the benefits of pet ownership failed to account for attachment of the owner to their pet. Exploring the role of attachment in human-animal interactions might therefore help explain how health benefits are brought about by pet ownership.

The purpose of the present study was to explore the effects of pet ownership on quality of life when demographic factors are controlled for, and to explore the effects of pet attachment. This research was the first to use the WHOQOL-BREF measurement tool, the abbreviated version of the standard WHOQOL questionnaire, for this research topic, and the first to include a New Zealand sample. Based on the wealth of previous research, we hypothesised that pet ownership will have a positive impact on quality of life.

Methods

Participants and Procedure

A convenience sample of undergraduate students at Auckland University of Technology (AUT) was used in this study. Questionnaires were distributed at the end of lectures. Students were asked not to participate if they have already done so in a previous lecture. Participation was voluntary and anonymity was guaranteed. The study was approved by the AUT Ethics Committee. In total, 282 valid questionnaires were received.

Instruments

Demographic information was collected, such as gender, income bracket and marital status. Respondents were asked to indicate whether they owned a pet and what type of pet. Pet owners were asked to fill out a six-item pet attachment questionnaire (PAQ; Garrity et al., 1989), which asked questions like “Do you consider your pet a friend?”, to which the respondents could answer “yes”, “no”, “maybe”, or “don’t know”. Total scores were determined by adding “2” for a “yes” response and “1” for any other response. This scale was

reported to have an internal consistency of 0.58 (Garrity et al., 1989).

All respondents were asked to fill out the WHOQOL-BREF. This questionnaire consists of 26 items on a 5-point scale that address four independent domains: physical (seven items), psychological health (six items), social (three items), and environment (eight items). Domain scores were calculated as the sums of the individual domain item scores. For example, Item 5 asked “How much do you enjoy life?”. If a respondent ticked “Not at all” on one end of the Likert scale, “1” was added towards the psychological domain score, and “5” was added if the respondent ticked “An extreme amount”, on the other end of the scale. Three items were negatively worded and therefore had to be recoded. The questionnaire also included two global indicators of quality of life and satisfaction with health. The WHOQOL instruments were developed and validated cross-culturally in 15 collaborating field centres around the world (The WHOQOL Group, 1995). As to date no New Zealand version had been developed, the present study used the Australian version of the WHOQOL-BREF, which was reported to have adequate internal consistency, with Cronbach’s alpha scores for the four domains varying from .68 to .87 (Murphy, Herman, Hawthorne, Pinzone, & Evert, 2000).

Data Analysis

To evaluate internal consistency in the WHOQOL-BREF and the PAQ, Cronbach’s alphas were calculated. Factor loading of the WHOQOL-BREF was investigated within each domain using principal component analysis on SPSS Version 14.0 (SPSS, 2005). The statistical fits of a one-factor and a two-factor model were compared on LISREL 8.80 (Jöreskog & Sörbom, 1993) using the maximum likelihood estimation method of confirmatory factor analysis.

The effects of pet ownership were investigated by a stepwise multiple-linear regression. Dog ownership, cat ownership, and ownership of other types of pets were used as independent factors. These factors were not mutually exclusive, as respondents could own more than one type of pet. Income, gender, marital status and age were used as additional factors.

Results

There was a fairly even split in the present sample between pet owners ($N=144$) and non-owners ($N=138$). The majority of participants were between 20 to 30 years of age (79.0%), single (75.3%), and in the lowest two income brackets of \$0 to \$10,000 per annum and \$10,001 to \$20,000 per annum (75.4%). To enable statistical analyses, respondents from underrepresented response categories were collapsed. Respondents were categorised as either 30 years of age and below ($N=288$) and above 30 years of age ($N=48$). Similarly, income

Table 1: Effect of pet type and demographics on WHOQOL-BREF domain scores.

Predictors	Physical		Psychological		Social		Environment	
	β	p	β	p	β	p	β	p
Dog	.13	.04*	.03	.68	.06	.38	.09	.17
Cat	.08	.23	.06	.33	.14	.03*	.60	.36
Other pet	.01	.91	.08	.21	-.21	<.01**	-.09	.23
Age ^a	-.11	.16	-.02	.82	-.17	.01**	-.06	.41
Marital status ^b	-.04	.56	-.13	>.05 [†]	-.04	.54	.11	.13
Income ^c	.15	<.05* [‡]	.06	.41	.02	.78	-.01	.94
Gender ^d	-.05	.44	-.04	.50	.06	.38	.09	.17

*significant at .05 level of significance; **significant at .01 level of significance

[†] $p = .054$; [‡] $p = .047$

^a 0 for ≤ 30 years ($N=230$); 1 for > 30 years of age ($N=51$);

^b 0 for married and *de facto* ($N=61$); 1 for single ($N=221$)

^c 0 for \leq NZ\$20,000 per annum ($N=218$); 1 for $>$ NZ\$20,000 per annum ($N=43$)

^d 0 for male ($N=55$); 1 for female ($N=226$)

was reduced to \$20,000 per annum and below ($N = 217$) versus above \$20,000 per annum ($N = 42$). There were 218 respondents that considered themselves single, 29 married, and 30 in a *de facto* relationship. The categories married and *de facto* were combined into one. No respondents indicated that they were widowed.

The results of the multiple-linear regression are shown in Table 1. Dog ownership and income were significant predictors of the physical domain. Ownership of pets other than dogs and cats, age, and marital status were significant predictors for scores in the social domain. No other significant effects were detected.

Scores on the PAQ could vary from a minimum of 6 to a maximum of 12, but answers in the present sample indicated a ceiling effect, with a mean of 10.86 and a standard deviation of 1.42. For that reason, scores were recoded into the category *low attachment* if they were equal or below 10 and *high attachment* if they were above 10. Females were significantly more likely to rate themselves more highly attached to their pets than males ($\chi^2(1)=5.24, p=.02$). A two-way analysis of variance revealed no significant effect of either level of attachment ($F(1,141) = 1.35, p=.25ns$) or gender ($F(1,141) = 2.50, p=.12$) on psychological quality of life. Caregivers of pets were not significantly more likely to be highly attached to their pets than people who were not the primary caregivers of their household pets ($\chi^2(1) = 2.78, p=.09$). Both groups also scored equally high on physical ($t(142) = 1.65, p=.10$), psychological ($t(142) = 0.32, p=.75$), social ($t(142) = 1.38, p=.17$), and environmental quality of life ($t(142) = 0.17, p=.87$).

Internal consistency

A reliability analysis of the WHOQOL-BREF using Cronbach's alpha found the scale to be satisfactory

overall with internal consistency coefficients of .76, .76, .69, and .79 for the physical, psychological, social, and environment domains, respectively. Internal consistency of the PAQ was unsatisfactory with a Cronbach's alpha value of .51.

Factor analysis

Question items loaded onto one factor for the psychological, social and environmental domains of quality of life, but for the physical domain, Items 3 (pain) and 4 (medication) loaded onto a second factor. Using Hu and Bentler's (1999) recommendation of values of the comparative fit index (CFI) above .95, standardised root mean squared residuals (SRMR) close to or below .09, and root mean squared error of approximation (RMSEA) close to or below .06, an unrelated two-factor solution provided a slightly more satisfactory fit than the one-factor solution, with values of CFI=.95, SRMR=.12, RMSEA=.10, and CFI=.92, SRMR=.08, RMSEA=.12, respectively. For a related-factor solution with a factor correlation of .40, the fit was substantially more satisfactory, with values of CFI=.97, SRMR=.04, and RMSEA=.07. The additional factor was justifiable as its inclusion resulted in a significantly better fit than the one-factor model ($\chi^2(1)=37.37, p<.01$).

Discussion

To the best of our knowledge, the present study was the first to use the WHOQOL-BREF to investigate the effects of pet ownership. Dog ownership was linked to beneficial effects on physical quality of life, consistent with reports from previous research that dog owners are more physically active and have better physical health than non-owners (Bauman, Schroeder, Furber, & Dobson, 2001; Cutt, Giles-Corti, Knuiman, Timperio,

& Bull, 2008; Siegel, 1990; Serpell, 1991). Following the recommendation by Headey et al. (2008), the present study also explored whether being a caregiver of a pet is an important factor, and found that simply having a pet in the household was enough, and effects of pet ownership were independent of whether someone was a caregiver of the household pet or not. The effect of ownership of pets other than dogs and cats on the social domain, and the lack of an effect by dog or cat ownership, was unexpected, as dog ownership has usually been suggested to be the primary precipitator of social interactions (Geries-Johnson & Kennedy, 1995; Wood, Giles-Corti, & Bulsara, 2005).

Our study did not find any effect of ownership of any type of pet on psychological health, and thus differs from previous findings (Straede & Gates, 1993). It is possible that any effects might have been too small to be detected in the present data set, or the results might indicate that these effects are limited to people that are older than those in the present sample. Much of the literature that reported effects of pet ownership have done so in a sample of elderly people (Garrity et al., 1989; Pachana et al., 2005; Perelle & Granville, 1993; Siegel, 1990), and it has been suggested that beneficial effects of pet ownership are much greater in vulnerable populations (Beck & Meyers, 1996; Siegel, Angulo, Detels, Wesch, & Mullen, 1999).

Consistent with previous research (Brown, 2002; Herzog, 2007), female pet owners in the present study were more likely to be highly attached to their pets than male pet owners. However, even when gender was controlled for, there was no effect of level of attachment on psychological health, which contradicts previous suggestions that pet attachment is a predicting factor in psychological health (Garrity et al., 1989; Ory & Goldberg, 1983). The results of the present study confirmed the high levels of attachment of pet owners to their animals. Unfortunately, however, conclusions derived from the present study about the role of attachment in pet ownership may be limited by the ceiling effects obtained in the PAQ scale. For future research, a 5-point Likert scale might be advisable to achieve more spread in scores, especially since the level of attachment of pet owners with their pets generally appears to be very high (Albert & Bulcroft, 1988; Kurdek, 2008; Mitchell, 2001).

Due to the current lack of New Zealand versions of the WHOQOL instruments, the Australian version of the WHOQOL-BREF was used in the present study. This, however, does not limit any conclusions to be drawn from this study, since the statistical analyses relied on group comparisons within the present sample, and not on comparisons with population norms. Values of Cronbach's alpha were comparable to those previously obtained on the Australian version of the WHOQOL-BREF with 396 respondents (Hawthorne, Richardson, Day, Osborne, & McNeil, 2000). Factor analysis in the Australian study found that each domain

loaded onto a single factor (Hawthorne et al., 2000), unlike in the present study where items in the physical domain loaded onto two factors. In the present sample, Item 4 might have been a source for some confusion. This item, which asked "How much do you need any medical treatment to function in your daily life?" attracted a number of qualitative comments in regards to its perceived ambiguity. Respondents were not sure if the question related to non-prescription drugs, such as regular pain killers for headaches, or only to prescription medications. A recent study in a sample in Taiwan (Chien, Wang, Yao, Sheu, & Hsieh, 2007) also found that this item loaded onto a second factor, indicating that this item should be revised. Perhaps this item is not as appropriate for younger respondents as it is for older ones who are generally much more dependent on medication (Power, Quinn, & Schmidt, 2005). Therefore, similar to the need to develop an additional WHOQOL module to assess quality of life in older people, the WHOQOL-old (Power et al., 2005), this finding might have identified a need for the development of an additional module for young people.

In conclusion, this study has provided evidence for some positive effects of pet ownership on quality of life while controlling for demographic variables. Dog ownership was related to higher physical quality of life, and ownership of pets other than dogs and cats was related to higher scores in the social domain of the WHOQOL-BREF. This study formed the first study of its kind in New Zealand. Future studies using a larger sample of a more general population would be beneficial, which might also serve to establish currently unavailable New Zealand WHOQOL norms.

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Research Profile

Amber conducted this study in partial fulfilment of the requirements for the degree Bachelor of Health Sciences (Honours) in psychology. Her passion about animals instigated her to investigate the effects of human-animal interactions. She is currently exploring further postgraduate options.

Chris' research interests are in quantitative models of behaviour, particularly comparing human and animal choice behaviour. Recently, he has started some work on conceptual, philosophical, and religious issues in psychology, as well as research in language planning, interlinguistics and psycholinguistics. Chris is a founding member of the New Zealand World Health Organization Quality of Life (WHOQOL) Group, which is involved in a number of research projects.

Daniel's research interests are broad, but mostly grounded in psychometric assessment and the application of psychophysics to the assessment and explanation of maladaptive psychological processes. Current projects include the relationship between psychosocial stressors, personality, and health; retronasal assessment of schizophrenia; autonomic imbalance and mental illness; rapid audiometric testing; and web-based quality of life tests. Future projects will include developing intelligence tests based on adaptive testing protocols; developing child-friendly personality tests; and the continual development of new methods designed to quantify the operating limits of human sensory systems. Daniel is also a founding member of the New Zealand WHOQOL Group.