

Psychological Effects of Dog Ownership: Role Strain, Role Enhancement, and Depression

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ABSTRACT. The purpose of this study is to examine the link between multiple roles and depression and to attempt to provide a clearer answer to the question of what effect, if any, the role of dog ownership plays. Role strain and role enhancement theories are drawn upon to study this relationship. Ordinary least squares regression is used to examine a national sample of 201 adults in the United States. Findings revealed sex and marital status differences in the relationship between dog ownership and well-being, with women and single adults more likely to benefit from dog ownership. The findings presented here suggest that inattention to variations in marital status and sex may have been one factor in the inconsistency in the literature on pets and well-being.

Keywords: depression, human-animal interaction, multiple roles

PET OWNERSHIP CAN BENEFIT both psychological and physical health (Barak, Savorai, Mavashev, & Beni, 2001; Friedmann & Thomas, 1995; Herrald, Tomaka, & Medina, 2002; Serpell, 1991; Anderson, Reid, & Jennings, 1992; Dembicki & Anderson, 1996; Headey, 1999; Allen, Blascovich, & Mendes, 2002; Havener et al., 2001; Wells & Perrine, 2001; Upton, 2005; Irani, Mahler, Goetzmann, Russi, Boehler, 2006). Although *pets* have a positive influence on health and well-being (Garrity & Stallones, 1998), no consistent relationship between *dog* ownership and well-being has been documented. This line of research has been limited by both little theoretical guidance and methodological issues, including samples limited to veterinary students, veterinary clients, patients in health care settings, older institutionalized adults, or older adults, and inclusion of any type of pet. Although these limited samples may be appropriate for the needs of the research for the previous studies, surveys at the population level that

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examine the human-animal bond, including those collected in the United States, are rare. Dog ownership studies are becoming increasingly salient because more dogs are owned than ever before (approximately 75 million in the U.S. alone) [American Pet Products Manufacturers Association (APPMA), 2007-2008]. Based upon classic theories of social psychology, dog ownership has the potential to both decrease or increase depression, depending upon the circumstances under which people own dogs.

Multiple Roles and Dog Ownership

Role strain theory posits that role strain is the discomfort experienced when individuals have difficulty fulfilling multiple and often conflicting role obligations, therefore, multiple roles lead to lower well-being. Conversely, role enhancement theory suggests that, *under particular circumstances*, multiple roles can enhance well-being. Role enhancement proponents suggest that multiple roles can provide buffers that can reduce the likelihood of strain. A person who holds many roles may compensate for a failure in a relationship by relying more heavily on other relationships. Too few roles may also be detrimental to well-being because of stress from isolation, having fewer outlets for the release of tension, and lower satisfaction with life (Oakley, 1974).

Owning a dog may enhance well-being by providing buffers that have the potential to reduce the likelihood of strain or by decreasing the negative effects of occupying too few roles. The role of dog owner shares many of the characteristics of other roles that, while demanding, can also be quite rewarding (e.g. parenting). It may not be the ownership of a dog, per se, that leads to higher well-being, but the relationship between dog ownership and well-being may be mediated by two different variables: (1) social support and (2) physical activity.

Dog ownership: An alternative source of social support? Social support is important for well-being (e.g. Umberson et al., 1996; Veiel & Baumann, 1992). Higher levels of social support are associated with lower levels of psychological distress (Jackson, 1992; Schutt, Meschede, & Rierden, 1994; Umberson et al., 1996). The most powerful form of social support is whether a person has an intimate, confiding relationship (Thoits, 1995). Dogs may provide this type of relationship because we treat them like people (Beck & Katcher, 1996), they provide non-judgmental affection and companionship as well as a sense of security and companionship (Archer 1997), unconditional love, affection, happiness, security, and self-worth, (Sable, 1995). Dogs may also provide social support for their owners by improving their owners' network of human contacts by acting as social facilitators (Headey 1999; Sanders 1999; McNicholas and Collis 2000). A dog may provide an additional source of support for owners; therefore, the following hypothesis will be tested:

H1: Dog ownership will decrease depression levels through satisfaction with social support.

Dog ownership and physical activity. Dog ownership may also decrease depression through promoting physical activity. Physical activity has been shown to improve psychological well-being (Camacho et al., 1991; McNeil, LeBlanc, & Joyner, 1991; Mutrie, 2002; Singh, Clements, & Fiatarone, 1997; World Health Organization ([WHO] 2006), and dog owners have been found to be more likely than non-dog owners to engage in both physical activity (Raina et al., 1999; Rogers, Hart, & Boltz, 1993; Thorpe, Kreisle, et al., 2006a; Thorpe, Simonsick, et al, 2006b) and walking behavior (Thorpe, Simonsick, et al, 2006b). Dog owners are more likely to get the prescribed 30 minutes of exercise per day (Ham & Epping, 2006). This may help to explain why dog owners are healthier than non-dog owners (Anderson, Reid, & Jennings, 1992; Dembicki & Anderson, 1996; Motooka, Koike, Yokoyama, & Kennedy, 2006; Raina et al., 1999; Serpell, 1991). Based on this, the following hypothesis will be tested:

H2: Dog ownership will decrease depression levels through physical activity.

Moderators of the Relationship Between Dog Ownership and Well-Being

The theoretical frameworks that guide this study can also be used to suggest that there are factors that will moderate the relationship between dog ownership and well-being. Based on previous research, the factors that are examined in the current study are marital status, age, and gender.

Marital status. Role strain theory argues that married individuals have more role demands than single individuals. Married adults typically must juggle their marriage with parenthood, employment, housework, kinship, friendship, and leisure activities (Netemeyer, Boles, & McMurrin, 1996). Married individuals who hold multiple roles have been shown to report lower well-being induced by the number and types of roles that they occupy (Barnett, Marshall, & Pleck, 1992; Greenberger & O'Neil, 1993; Noor, 2004). Owning a dog may be one more role with responsibilities that married individuals may find difficult to meet without compromising their performance of other roles.

The role enhancement perspective can also be used to suggest that the benefits of dog ownership will be greater for singles than marrieds. Dogs may serve as an alternative source of social support for single individuals who tend to have smaller, less reliable support networks (Barrett, 1999) and may well benefit from dog ownership. Barrett (1999) found that single adults are at a disadvantage as a result of their lower probability of having a confidant and lower levels of interaction and perceived support. Dogs benefit people who are single, separated, divorced or widowed (Headey, 1999), and women who lived alone (Zasloff & Kidd, 1994)

by meeting the needs caused by inadequacies in their human social relationships. Although the current study does not ask about cohabitation, cohabiting couples have been shown to look more like single couples than married couples in terms of relationship happiness and well-being (Reed, 2007; Rhoades, Petrella, Stanley, & Markman, 2007). Therefore, role strain and role enhancement theories, as well as empirical evidence, can be used to argue:

H3: Owning a dog will be associated with lower depression levels for single than married dog owners.

Age. The benefits of dog ownership may increase with age because social networks tend to be more restricted in the later years (Lang & Cartensen, 1994; Lang, Staudineger, & Cartensen, 1998). In 2000, 17 percent of men over the age of 65 lived alone, and 40 percent of women over the age of 65 lived alone (Clark et al., 2004). Older adults experience more losses of friends and family (Alpass & Neville, 2003; Anderson, 1998; van Baarsen, 2002) and report considerably more loneliness than younger adults (Pinquart & Sorensen, 2001).

Older adults are especially likely to gain companionship benefits of pets (Raina et al., 1999; Dembicki & Anderson, 1996; Rogers, Hart, & Boltz, 1993). For older adult dog owners, dogs were the primary focus of conversation with others on walks, and all of these individuals talked to their dogs during walks (Rogers, Hart, & Boltz, 1993). Older dog owners also had higher well-being than non-owners (Rogers, Hart, & Boltz, 1993). Thus:

H4: Owning a dog will be associated with lower depression levels for older than younger dog owners.

Sex. Dog ownership may have more positive effects on women's than men's depression. Women show higher levels of positive behaviors and attitudes toward animals than men (Herzog, 2007), seek social support more than do men (Banyard & Graham-Bermann, 1993; Risman, 1998) and place greater value on emotionally intimate relationships (Williams, 1993; Risman, 1998). Women are also viewed as valuing companionship and emotional relationships, whereas men are viewed as valuing activity-based relationships (Risman, 1998). Based on these arguments:

H5: Owning a dog will be associated with lower depression levels for women than men.

Method

Participants

In the spring of 2006, a national sample of adults in the United States was drawn using random digit dialing. A telephone survey was conducted by a social

research lab at a large Midwestern university. Each interview took between 45 and 60 minutes to complete. The interviews consisted of 200 questions and covered several topics, including health and medical, environmental, and social issues. The variables used in the current study were a small subsection of the total survey. A total of 201 adults participated in the survey, with a response rate of 60%. Respondents ranged from 19 to 94 years of age (mean = 57; S.D. = 17.6). Eighty-six percent of the sample was White, 70 percent were female, and 61 percent were married. Twenty-two percent of the sample had completed 12 or fewer years of school, 14 percent had completed some college, four percent had an associate's degree, 16 percent had a bachelor's degree, and 14 percent had a graduate or professional degree. Thirty-eight percent of the sample owned one or more dogs. Table 1 provides a correlation matrix for all variables used in the analyses. Table 2 provides means and standard deviations of all variables used in the analyses.

Procedure

Analyses were conducted in two steps. First, ordinary least squares (OLS) regression was used to examine any main effects of dog ownership and the mediating variables of social support and physical activity. Second, OLS regression was again used to examine the effects of the moderating variables of marital status, age, and sex. This was done by creating interaction terms for dog ownership*sex, dog ownership*age, and dog ownership*marital status.

Measures

Dependent variables. Depression was measured using the CES-D 7-item scale (Ross & Mirowsky, 1984). The CES-D is a depression scale that has been found to be a valid, reliable measure developed to measure symptoms of depression in the community (Radloff, 1977). The 7-item version excludes items that are not generalizable across men and women (Ross & Mirowsky, 1984). For a full description of this scale, please see Ross and Mirowsky (1984). Responses were averaged to produce an index scored from zero (low levels of depression) to seven (high levels of depression) (Cronbach's alpha = .83). Because of space limitations on the survey, this was the only measure of depression. Previous research has shown that this is a good measure of negative well-being (Ross & Mirowsky, 1984).

Independent, mediating, and moderating variables. Dog ownership was a binary variable with dog owners equal to one and non-owners equal to zero.

Satisfaction with social support was measured by asking the respondents how satisfied they were with the level of emotional support that they get from their friends and family. Responses were coded so that higher scores indicated

TABLE 1. Correlation Matrix of All Variables

	Depression	Dog ownership	Satisfaction with social support	Physical activity	Age	Race	Education	Sex	Marital status	Employment status	Children at home
Depression											
Dog Ownership	-.051										
Satisfaction with Social Support	-.269	-.091									
Physical Activity	-.118	.006	.117								
Age	-.106	-.178	.182	.192							
White	-.088	.007	.080	.034	.276						
Education	-.240	-.029	.126	.183	-.021	.157					
Female	.001	.071	-.030	.001	-.080	.090	.167				
Marital Status	-.113	.034	.043	.028	-.169	.222	.222	.150			
Employment Status	-.008	.155	-.070	-.225	-.548	-.036	.222	-.083	.148		
Children at Home	-.061	.262	-.068	-.135	-.520	-.066	.070	.057	.214	.364	

TABLE 2. Means and Standard Deviations of Variables Used in Analyses

	Total sample (n = 201)	Dog owners (n = 76)	Non-Dog owners (n = 125)
Age (mean in years)	56.8 (17.6)	52.89 (17.52)	59.38 (17.23)
White	.86	86.7	86.2
Female	.70	65.8	72.8
Married	.61	63.9	60.5
Education	4.69(1.73)	4.63(1.76)	4.74(1.73)
Employment Status	.47	.57	.41
Children Living at Home	.30	.45	.20
Depression	1.04(1.29)	.99 (1.27)	1.12(1.31)
Satisfaction with Social Support	3.42(.66)	3.35(.67)	3.47(.65)
Physical Activity	1.16(1.61)	1.18(1.67)	1.16(1.58)

Note. Standard deviations in parentheses.

great satisfaction and ranged from “not at all satisfied” [1] to “very satisfied” [4]. It is important to note that this item was designed to measure satisfaction with support from friends and family, not from pets. Although a single item measure for social support is not ideal, a measure of satisfaction with social support was chosen that has been used extensively in other studies and has been shown to be a very good predictor of the more complex processes involved in this phenomenon (Ganz et al., 1996; Bosworth et al., 1999). Blake and McKay (1986) found that it can also be a successful predictor of morbidity. The measure of social support used in the current study has also been shown to be an excellent predictor of perceived social support (Sagrestano et al., 2002).

Physical activity was measured by asking respondents how often they exercised. Responses were coded so that higher scores meant more physical activity and ranged from “never or once per week” [0] to “more than once per day” [5]. Although not ideal, a single item measure of physical activity has been shown to be a valid measure of physical activity in adults (Jackson, Morrow, Bowles, Fitzgerald, & Blair, 2007).

Age was coded as age in years. Sex was coded into a binary variable, with one equal to female and zero equal to male. Marital status was coded into a binary variable, with married equal to one and single (never married, separated, divorced, and widowed) equal to zero. Two other variables used to determine additional sources of role strain were included in the analyses; current employment status and if there were children under the age of 18 living in the home. Both were binary variables with “currently employed” coded as 1 and “currently unemployed” coded as 0; “children under 18 living in the home” was coded as 1 and “no children under 18 living in the home” coded as 0. Although these are not

the only predictors of role strain, they commonly used to measure role strain in adults.

Control variables. Race and education were included as control variables. Race was a binary variable with White equal to one. Education, which was used as a measure of socioeconomic status (SES), was measured in categories ranging from less than ninth grade [1] to graduate or professional degree [7]. Education has been shown to be the best, and most widely used, predictor of SES and also the best SES predictor of health (Liberatos, Link & Kelsey, 1988; Winkleby, Jatulis, Frank, & Fortman, 1992).

Results

Table 3 presents the findings regarding the main effects of dog ownership and the mediating variables of social support and physical activity. Models 1, 2, and 3 provide coefficients for depression and the variance explained by each model. Model 1 shows that there is no main effect of dog ownership on depression ($\beta = -.01$, $p = .925$). Model 2 includes a variable for satisfaction with social support. There is no decrease in the coefficients for dog ownership between Model 1 ($\beta = -.01$) and Model 2 ($\beta = -.02$), thus we can assume that satisfaction

TABLE 3. Regression of Depression: Mediating

	Model 1			Model 2			Model 3		
	B(SE)	β	p	B(SE)	β	p	B(SE)	β	p
Dog Ownership	-.02 (.19)	-.01	.925	-.05 (.19)	-.02	.807	-.04 (.20)	-.01	.848
White	.10 (.29)	.03	.738	.13 (.29)	.04	.658	.07 (.29)	.02	.806
Age	-.02 (.01)	-.22	.042	-.01 (.01)	-.20	.060	-.01 (.01)	-.20	.066
Education	-.14 (.06)	-.20	.016	-.13 (.06)	-.18	.022	-.12 (.06)	-.17	.046
Married	-.30 (.20)	-.12	.151	-.25 (.20)	-.10	.210	-.31 (.20)	-.13	.130
Female	-.06 (.21)	.21	.761	-.02 (.20)	-.01	.907	.01 (.20)	.01	.941
Employment Status	-.01 (.23)	-.00	.970	-.05 (.22)	-.02	.829	-.01 (.23)	-.03	.976
Children Living at Home	-.46 (.24)	-.17	.057	-.44 (.23)	-.16	.064	-.45 (.24)	-.17	.064
Social Support				-.41 (.15)	-.20	.007			
Physical Activity							-.05 (.06)	-.07	.371
R ²		.10			.14			.09	

with social support does not mediate the relationship between dog ownership and depression. Therefore, Hypothesis 1 was not supported. Model 3 includes a variable for physical activity. Again, seeing that there is no decrease in the effects of dog ownership between Model 1 ($\beta = -.01$) and Model 3 ($\beta = -.01$), we can assume that physical activity does not mediate the relationship between dog ownership and depression. Therefore, Hypothesis 2 was not supported.

Table 4 presents the findings regarding the effect of dog ownership on depression and the moderating variables of marital status, age, and sex. Model 4 includes the interaction term of dog ownership*marital status. The findings from this analysis indicate that there is an interaction between dog ownership and marital status ($\beta = .23$, $p = .034$). Specifically, the interaction term indicates that the relationship between dog ownership and depression differs for married and single individuals. The beneficial effects of dog ownership on well-being are greater for single individuals than married individuals. Therefore, Hypothesis 3 was supported. Model 5 includes the interaction term of dog ownership*age. The findings from this analysis indicate that the relationship between dog ownership and depression does not vary by age ($\beta = .02$, $p = .860$). Therefore, Hypothesis 4 was

TABLE 4. Regression of Depression: Moderating

	Model 4			Model 5			Model 6		
	B(SE)	β	p	B(SE)	β	p	B(SE)	β	p
Dog Ownership	-.48 (.31)	-.19	.131	.02 (.26)	.01	.960	.21 (.34)	.08	.545
White	.20 (.30)	.05	.499	.10 (.30)	.03	.733	.10 (.29)	.03	.720
Age	-.74 (.40)	-.25	.066	-.01 (.01)	-.21	.061	-.33 (.41)	-.11	.425
Education	-.14 (.05)	-.19	.020	-.14 (.06)	-.19	.016	-.14 (.05)	-.20	.015
Married	-.57 (.25)	-.23	.025	-.30 (.21)	-.12	.150	-.31 (.21)	-.12	.140
Female	-.03 (.21)	.01	.875	-.06 (.21)	-.02	.780	.06 (.25)	.02	.820
Employment Status	-.05 (.23)	-.02	.814	-.01 (.23)	-.00	.962	-.03 (.23)	-.01	.894
Children Living at Home	-.42 (.24)	-.16	.083	-.46 (.24)	-.17	.057	-.46 (.24)	-.17	.059
Dog Ownership* Marital Status	.02 (.01)	.23	.034						
Dog Ownership* Age				-.06 (.36)	.02	.860			
Dog Ownership* Sex							-.02 (.01)	-.22	.040
R ²		.14			.12			.12	

not supported. Model 6 includes the interaction term dog ownership*sex. These findings reveal that there is an interaction between dog ownership and sex ($\beta = -.22$, $p = .040$). Specifically, dog ownership is associated with greater well-being for women and lower well-being for men. Thus, Hypothesis 5 was supported.

In summary, there is no main effect of dog ownership; therefore, dog ownership does not appear to be associated with depression. Dog ownership only helps to explain well-being under particular circumstances—specifically, it is associated with greater well-being for women and for individuals who are not married.

Discussion

The purpose of this study was to examine the link between multiple roles and well-being and to attempt to provide a clearer answer to the question of what effect, if any, the role of dog ownership plays in the lives of dog owners in the United States. Specifically, theoretical arguments regarding the effects of dogs on well-being were provided, and a set of conditions under which dog ownership may have positive or negative consequences on well-being were developed.

The data presented here demonstrate no main effects of dog ownership on depression. However, the analyses revealed that dog ownership had differing effects on depression for married and single individuals and for men and women. Therefore, the hypotheses that dog ownership would be more beneficial for single individuals and for women were supported. The beneficial effects of dog ownership on well-being are greater for single persons than they are for married persons, which is consistent with theories of role strain and role enhancement. In contrast, for married individuals, dog ownership may be one more role with obligations that are difficult to fulfill. Dog ownership was also associated with lower depression among women, but not men, consistent with theories of sex differences in relationships (Risman, 1998). Women seem to place greater value on their relationship with their dogs than do men. Contrary to expectations, dog ownership was not associated with lower depression through social support or physical activity, although this may be because the mean for satisfaction with social support was quite high regardless of dog ownership and the mean for physical activity was very low.

Employment, marital status, and parental status have been shown to be the three most important areas in individuals' lives when examining well-being (Noor, 2006); however, the present findings suggest that, under certain conditions, occupying the status of dog owner can also affect depression.

Pets can have positive effects on well-being (Ory & Goldberg, 1983; Lago, Knight, & Connell, 1983; Robb & Stegman, 1983, Lawton, Moss, & Moles, 1984); however, the current study tells us that these effects may not be the same for all individuals. Single individuals and women seem to gain these benefits, whereas married individuals and men do not gain the same benefits.

Limitations and Future Directions

Despite its strengths, there are a few limitations to the current study. First, the study is limited by a lack of racial and ethnic diversity. Previous studies have shown that pet ownership and attachment may vary by race (Brown, 2002; Risley-Curtiss, Holley, & Wolf, 2006). Future research may wish to examine how these racial differences affect the relationship between dogs and people.

Another important limitation is that role strain most likely varies by investment in dog ownership. Two arguments could be made here; those who are highly invested in their dogs could gain benefits because of increased social networks and an additional sense of social support. Conversely, being extremely invested in a dog could be detrimental because owners may spend so much time with the dog that do not invest enough time in other areas of their life. Therefore, other relationships may start to fail. Other factors that may produce stress in dog ownership, such as how stressful a dog is perceived to be, incompatibility between energy level of dog and owner, the breed, temperament, or energy level of the dog, problem behaviors, and/or the expectations of the owner also need to be examined in future studies.

This study is most directly relevant to people who own dogs as pets. Findings may be different if we examine the utility of the dog. Whether a dog that earns its living, by being a guard dog or a service dog, is a “pet” is a question that can only be answered by the person with whom the animal lives. Future research may wish to examine how the utilitarianism of the dog affects well-being and how these dogs are viewed by their owners compared to companion dogs.

The data were cross-sectional, and it was impossible to ascertain the causal ordering of the relations among study variables. Although dog ownership leads to higher well-being for single individuals and women, the reverse may also hold. People with more depression may seek out dogs as sources of companionship. The direction of causality is a question that can only be answered by carrying out longitudinal studies.

Dog ownership is at an all-time high in the United States, with approximately 39 percent of households owning at least one dog (APPMA, 2007-2008). The impact of dog ownership on psychological health is becoming increasingly important as the landscape of family life continues to change (e.g., families living further apart, increased divorce rate, etc.) (Sable, 1995). Despite the limitations imposed by the research design, the current study should be considered a pilot study for future studies as it sheds new light on the way in which dog ownership is related to individuals’ depression. In doing so, research on both pet-human relations and on multiple roles and well-being has been extended. The findings presented here suggest that inattention to variations in marital status and sex may have been one factor in the inconsistency in the literature on pets and well-being. The findings presented here also suggest that dog ownership may be an important factor to consider when studying the effect of multiple roles on well-being.

AUTHOR NOTE

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