

Understanding Dog Owners' Increased Levels of Physical Activity: Results From RESIDE

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We examined the influence of dog ownership on physical activity, independent of demographic, intrapersonal, and perceived environmental factors, in a cross-sectional survey of 1813 adults. Although only 23% of the dog owners walked their dogs 5 or more times per week, the adjusted odds of achieving sufficient physical activity and walking were 57% to 77% higher among dog owners compared with those not owning dogs ($P < .05$). Dog ownership was independently associated with physical activity and walking. Actively encouraging more dog walking may increase community physical activity levels. (*Am J Public Health*. 2008;98:66–69. doi:10.2105/AJPH.2006.103499)

If your dog is fat, you aren't getting enough exercise.

—Anonymous

Effective strategies are required to increase population levels of physical activity.¹ Dog

walking has the potential to increase physical activity in a large proportion of the community. The few studies conducted have reported that 40% to 80% of dog owners walk their dog,^{2–6} with considerable variation in total reported physical activity and walking.^{2,3,7,8} The extent to which dog walking is sufficient to produce health benefits for both owner and dog requires further investigation.⁹ Also, greater understanding of factors associated with physical activity and dog ownership would assist future interventions.^{10–13} In this study, we used an ecological model¹⁴ to examine the independent influence of dog ownership on physical activity and walking after adjusting for known correlates of physical activity and walking.

METHODS

Sample and Procedure

We examined cross-sectional data from 1813 participants taking part in the first phase (September 2003–March 2005) of the RESIDential Environment (RESIDE) project. RESIDE is a 5-year longitudinal study of people building homes in 74 new housing estates in Perth, Australia. The study aims to evaluate the impact of the state government's subdivision design code on walking, cycling, public transportation use, and sense of community. The RESIDE methods have been reported elsewhere.^{15,16} Participants were aged 19 to 78 years (mean age = 40.0), and 40.5% were men. Ethical approval was provided by the University of Western Australia, and all participants provided written consent.

Survey Items

We used the Neighborhood Physical Activity Questionnaire¹⁵ to collect self-reported physical activity and walking data over a usual week from RESIDE participants. Sufficient “total physical activity” and “total walking” were dichotomized at 150 min/wk according to recommended guidelines.¹⁷ “Sufficient walking for recreation in the neighborhood” was dichotomized at 90 min/wk. Dog owners also reported usual frequency of personally walking their dog.

Modified versions of items previously reported were used to measure physical and social environmental perceptions,^{18–20} intrapersonal factors (i.e., intention, attitude toward

trying, perceived behavioral control, self-efficacy, behavioral skills, and enjoyment),^{21–23} and sociodemographic characteristics.

Statistical Analysis

We used SPSS version 12.0.1 (SPSS Inc, Chicago, Ill) to conduct analyses. We used the χ^2 and independent sample *t* tests to examine bivariate relations between dog ownership and independent variables. We used logistic regression to explore the association between dog ownership and “sufficient” (1) physical activity, (2) walking, and (3) walking for recreation in the neighborhood. Blocked forward stepwise procedures were used to enter variables (1 = sociodemographic, 2 = physical environmental, 3 = social environmental, 4 = intrapersonal), with significant variables for each block forced into subsequent models along with dog ownership (0 = no, 1 = yes).

RESULTS

Sociodemographic, Neighborhood, Social Environmental, and Intrapersonal Factors

Overall, 44% of the participants owned a dog (Table 1). Dog owners were significantly more likely than those who did not own a dog (nonowners) to be women, to have been born in Australia, to have older children, to live in a single-family home, and to work in clerical, sales, or service occupations. Dog owners perceived their neighborhoods as more attractive and rated ease of access to parks and nature reserves higher than did nonowners. Dog owners perceived that they had more social support from their family in the last month to walk and to do other forms of physical activity and reported higher neighborhood cohesion than did nonowners. In addition, compared with nonowners, dog owners had higher scores for intention to walk and to do other leisure-time physical activity at the recommended levels, confidence that they could adhere to walking daily irrespective of barriers (such as work, family, or social commitments), perceived behavioral control, and use of behavioral skills (such as setting goals and planning days and times to exercise).

Physical Activity

In a usual week, a minority of dog owners (22%) never walked their dog or did so 5 or

TABLE 1—Sociodemographic, Physical Environmental, Social Environmental, and Interpersonal Factors and Physical Activity Among Dog Owners and Nonowners: RESidential Environment Survey, September 2003–March 2005

Characteristic	Dog Owners (n = 804)	Nonowners (n = 1009)	P
Sociodemographic			
Men, %	36.1	44.0	.001
Mean age, y (SD)	39.4 (11.6)	40.5 (12.1)	.049
Born in Australia, %	61.1	53.8	.002
Marital status, %			.232
Married/cohabitating	82.8	80.4	
Separated/divorced/widowed	6.6	8.7	
Single	10.6	10.9	
Education, %			.032
12 years or less	41.0	38.1	
Trade school or apprentice	38.8	36.4	
Undergraduate degree or greater	20.2	25.5	
Employment status, %			.069
Employed	83.5	80.6	
Unemployed	13.0	13.6	
Retired	3.5	5.8	
Occupation, %			.017
Management/administration	15.3	15.1	
Professional	25.2	29.8	
Blue collar	17.4	16.9	
Clerical, sales, service industry	26.7	20.6	
Not in workforce	15.3	17.6	
Annual household income, Aus \$, %			.102
≤ 49 999	23.7	27.8	
50 000–69 999	24.3	25.4	
70 000–89 999	23.7	22.9	
≥ 90,000	28.3	23.9	
Children under 18 y living at home, %	68.3	70.6	.167
Mean age of children living at home, y (SD)	8.65 (5.4)	6.90 (5.1)	<.001
Type of residence, %			<.001
Single-family dwelling	90.9	79.4	
Semiattached	5.6	10.7	
Apartment	3.3	9.7	
Mobile home	0.3	0.3	
Physical environmental subscales^a			
Mixed-access land use, mean (SD)	3.41 (0.63)	3.45 (0.59)	.204
Aesthetics, mean (SD)	3.43 (0.69)	3.32 (0.68)	.001
Walking facilities, mean (SD)	3.38 (0.58)	3.36 (0.59)	.650
Park or nature reserve that is easily accessible, mean (SD)	4.23 (0.74)	4.06 (0.83)	<.001
Street connectivity, mean (SD)	3.14 (0.45)	3.13 (0.45)	.514
Pedestrian/traffic safety, mean (SD)	3.20 (0.53)	3.19 (0.53)	.765
Crime safety, mean (SD)	3.45 (0.65)	3.42 (0.66)	.233

Continued

more times per week (23%); the average was 2.6 times per week. Dog walking in the neighborhood accounted for approximately 65% of all walking sessions reported within the neighborhood and for approximately 93% of all walking-for-recreation sessions within the neighborhood.

Usual frequency and duration of total walking, walking for recreation, walking in the neighborhood, walking for recreation in the neighborhood, and total physical activity (duration only) were higher among dog owners than among nonowners (Table 1). After we adjusted analyses for sociodemographic, neighborhood, social environmental, and intrapersonal factors, the odds of achieving “sufficient physical activity,” “sufficient walking,” and “sufficient walking for recreation in the neighborhood” remained 57% to 77% higher among dog owners compared with nonowners ($P < .05$; Table 2).

DISCUSSION

Although only 23% of the dog owners walked with their dog 5 or more times per week, compared with nonowners, dog owners completed significantly more minutes and sessions of walking (generally, for recreation, and for recreation in their neighborhood) and more minutes of total physical activity. These differences were independent of all other known major correlates of physical activity and walking, including demographic factors, perceptions of the physical and social environments, and intrapersonal factors.

The results confirm the potentially important role that dogs could play in increasing levels of physical activity among owners. Interventions designed to increase the proportion of dog owners who regularly walk with their dogs at recommended levels of physical activity are warranted. If successful, these programs have the potential to produce considerable health, community, and economic benefits.^{2,24} ■

About the Authors

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TABLE 1—Continued

Social environmental subscales			
Perceived social support for walking, mean (SD) ^b			
Family	2.75 (1.26)	2.59 (1.24)	.008
Friends	1.54 (0.90)	1.61 (0.94)	.118
Perceived social support for other physical activity, mean (SD) ^b			
Family	2.24 (1.16)	2.13 (1.14)	.042
Friends	1.71 (1.01)	1.74 (1.05)	.614
Neighborhood social cohesion, ^a mean (SD)	3.03 (0.72)	2.93 (0.69)	.002
Intrapersonal items and subscales			
Intention, mean (SD) ^c			
Walk for 30 min on ≥ 5 d/wk	4.61 (2.11)	4.11 (2.17)	<.001
Vigorous leisure-time physical activity for total three 20-min sessions/wk	3.87 (2.30)	3.72 (2.32)	.157
Other moderate leisure-time physical activity for 30 min on ≥ 5 d/wk	4.10 (2.02)	3.83 (2.06)	.005
Enjoyment of walking in neighborhood ^a	4.09 (0.73)	4.02 (0.77)	.068
Attitude toward process of trying to walk on most days, mean (SD) ^d	5.67 (1.20)	5.60 (1.25)	.225
Self-efficacy, mean (SD) ^e	3.27 (0.95)	3.11 (0.94)	.001
Perceived behavioral control, mean (SD) ^c	5.15 (1.73)	4.78 (1.87)	<.001
Behavioral skills, mean (SD) ^f	2.21 (1.40)	2.02 (1.31)	.003
Physical activity in a usual week			
Minutes of physical activity, mean (SD)			
Total physical activity	322.4 (338.3)	267.1 (311.9)	<.001
Walking for recreation in neighborhood	86.0 (108.0)	52.9 (86.5)	<.001
Total walking in neighborhood	114.1 (135.7)	77.8 (109.8)	<.001
Total walking for recreation	109.6 (134.4)	70.8 (109.5)	<.001
Total walking	150.3 (174.9)	110.9 (144.4)	<.001
Frequency in a usual week, mean (SD)			
Total physical activity	8.74 (15.77)	7.71 (17.27)	.206
Walking for recreation in neighborhood	2.75 (3.05)	1.50 (2.20)	<.001
Total walking in neighborhood	3.93 (4.37)	2.94 (3.94)	<.001
Total walking for recreation	3.26 (3.57)	1.91 (2.64)	<.001
Total walking	4.96 (5.55)	4.05 (5.30)	.001
Walking with dog in neighborhood	2.55 (2.27)	...	

Note. NA = not applicable.

^a1 = strongly disagree; 5 = strongly agree.

^b1 = never; 2 = less than once a month; 3 = at least once a month; 4 = 1–2 times/wk; 5 = 3 or more times/wk.

^c1 = very unlikely; 7 = very likely.

^d1 = very unpleasant/negative/difficult; 7 = very pleasant/positive/easy.

^e1 = sure I could not do it; 5 = sure I could do it.

^f1 = never; 5 = most days.

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Contributors

B. Giles-Corti, M. Knuiman, A. Timperio, and F. Bull were involved with the origination and design of the RESIDE study and baseline survey. H. Cutt analyzed and interpreted the data and led the writing, drafting, and revising of the brief. B. Giles-Corti oversaw the

collection of data. B. Giles-Corti and M. Knuiman advised on the analysis and interpretation of findings and also provided input at each stage of drafts. A. Timperio and F. Bull reviewed and provided feedback on drafts of the brief.

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Human Participant Protection

This study was approved by the Human Research Ethics Committee at the University of Western Australia.

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TABLE 2—Unadjusted and Adjusted Odds Ratios (Dog Owners vs Nonowners) for Sufficient Physical Activity, Walking, and Walking for Recreation in the Neighborhood: RESIDeNtial Environment Survey, September 2003–March 2005

	Model 1 (Unadjusted), OR (95% CI)	Model 2, ^a OR (95% CI)	Model 3, ^b OR (95% CI)	Model 4, ^c OR (95% CI)	Model 5, ^d OR (95% CI)
Sufficient physical activity (150 min/wk)	1.34** (1.11, 1.61)	1.68*** (1.26, 2.24)	1.70*** (1.27, 2.27)	1.68** (1.25, 2.28)	1.57** (1.14, 2.16)
Sufficient walking (150 min/wk)	1.41*** (1.16, 1.71)	1.78*** (1.30, 2.44)	1.75** (1.27, 2.40)	1.76** (1.26, 2.47)	1.59* (1.08, 2.36)
Sufficient walking for recreation in neighborhood (90 min/wk)	1.85*** (1.51, 2.25)	1.83*** (1.33, 2.51)	1.81*** (1.31, 2.51)	1.86** (1.31, 2.65)	1.77** (1.19, 2.63)

Note. OR = odds ratio; CI = confidence interval.

^aAdjusted for sociodemographic factors only (gender, age, country of origin, education, occupation, mean age of children living at home under 18 years, type of residence).

^bAdjusted for model 2 factors plus perceived neighborhood characteristics. Sufficient physical activity = crime safety. Sufficient walking = land-use mix, street connectivity, and crime safety. Sufficient walking for recreation in neighborhood = land-use mix, walking facilities, and crime safety.

^cAdjusted for model 3 factors plus social environmental factors. Sufficient physical activity = family social support for walking and other physical activity. Sufficient walking and sufficient walking for recreation in neighborhood = family social support for walking.

^dAdjusted for model 4 factors plus intrapersonal factors. Sufficient physical activity = intention to do other physical activity, self-efficacy, and behavioral skills. Sufficient walking = intention to walk, behavioral skills, and perceived behavioral control. Sufficient walking for recreation in neighborhood = intention to walk, enjoyment, self-efficacy, behavioral skills, and perceived behavioral control.

* $P < .05$; ** $P < .01$; *** $P < .001$.

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