Final Report for the Florence Stier Award

Animal ownership in low-income households: Is there a relationship between human and animal food insecurity?

Partners: University of Pittsburgh School of Social Work; Animal Friends Chow Wagon; Greater Pittsburgh Community Food Bank

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It was a privilege to be the first recipient of this award, and I hope that this research honored the intentions of Dr. Stier in establishing this endowed fund to the School. As a result of her award, three Hartford students were employed part time to collect data at the pantries, do interviews, transcribe, enter and clean and analyze data. Qi Chen, another MSW student, volunteered her time for the length of the project to assist in all aspects. Hyunji Lee, a doctoral student assisted with analysis of data. I believe that all of them enjoyed the experience of doing research in the community and that this helped to strengthen their understanding of how social work research intersects with practice and promotes justice and equity. Mary Carter Ph.D. and, Helen Cahalane Ph.D., assisted with project coordination, data collection, data analysis and writing.

Animal Friends and the Greater Pittsburgh Community Food Bank were partners in this study. We are grateful for their help in shaping this study and allowing access to the food pantries and providing information: Rachel Martone and Jenn Geibel at Animal Friends and Marlene Hogan at GPCFB and all of the pantry volunteers at the 30 different pantries and produce to people sites were partners in access and data collection.

The products that were the result of this award as of January 2019 were one internal grant application to the Social Sciences Research Initiative; a poster at the UPMC Aging Institute authored by the MSW and PhD students; one article under review; and one executive summary infographic which can be used by GPCF and AF and one presentation at the International Association of Human-Animal Interaction Organizations Conference IAHAIO 15th international triennial conference at Green Chimneys, New York, 12-14 April 2019.

Abstract

This study examined the relationship between owning a pet and experiencing food insecurity in low-income households using self-administered surveys (N=392) and in-depth interviews (N=15). The study found that low-income pet owners were not at greater risk for being food insecure. In fact, having a pet associated with better food security than when people did not own a pet. The cross-sectional design limits causal explanation. It is possible that people who are very food insecure choose not to accept stray animals into their homes or do not adopt or re-home animals from shelters or family members (typically how owners acquired pets). However, another explanation supported by the interviews is that having a pet or pets activates or motivates people to manage their food needs and to work harder at keeping food on the table and in the bowl. Owners may be activated or motivated to do things such as go to the pantry and manage the household finances so that they can continue to care for their pets. Moreover, having a pet provides emotional and social support benefits, particularly for older adults and those with disabilities. Pets give a sense of routine and for dog owners, motivate physical exercise. However, owners did share their human food when they did not have pet-food. Other potential deleterious impacts were grief following the death of beloved pets and financial concerns about current and future veterinary care.

Introduction and Significance

The relationship between humans and their companion animals (also known as pets) is complex. There is a considerable research literature on the physical and emotional benefits of having pets (Hodgson et al., 2015; Kushner, Blatner, Jewell, & Rudloff, 2006; Sable, 1995). However, there is also a body of research about the risks and challenges of having a companion animal(s), such as delaying medical care, refusing to evacuate in a natural disaster, or delaying leaving an abusive relationship because of the negative impact on the pet, or the inability to bring the animal with them (Ascione et al., 2007; Hodgson et al., 2015; Wire, 2018). Less dramatic, are the financial day-to -day decisions that come with pet ownership for low-income owners. Small decisions about feeding their companion animals and themselves could cumulatively have a significant negative impact on the financial and physical health for both the human and the companion animal. Food insecurity in companion animals negatively affecting human food security is relatively unexplored, but extant research suggests that humans share food with pets when pet food is unavailable. (Fink, 2015; Rauktis, Rose, Chen & Martone, 2017).

Research Questions

1) What is the relationship between human and animal food insecurity in low-income households?
    i) Are pet owners more or less food secure than non-pet owners?
    ii) What food sparing strategies are used to keep the animals and humans fed?
    iii) What individual factors associate with greater food security for pet owners?
    iv) Are pet owners more food secure when pet-food is available in pantries controlling for other factors?
    v) Is there a relationship between commitment to the companion animal and household food security?
2) According to owners, what are the health benefits and the risks of companion animals?

Methods

Design and procedures: This research used a mixed methods design with a cross-sectional, self-administered survey of food pantry users and in-depth interviewing of a purposive sample of survey participants. The University of Pittsburgh Institutional Review Board approved the study.

Using a simple random sampling process, fifteen pet-food pantries were selected from a list of 30 with pet-food provided through Animal Friends Chow Wagon Program. The Greater Pittsburgh Community Food Bank supplied the names of 15 food pantries they believed to be similar to the Chow-Wagon/pet-food pantries e.g. serving similar communities. Directors of the selected pantries were initially emailed by either Animal Friends or the Greater Pittsburgh Community Food Bank and asked to participate; if they wished to opt out of the study, they were instructed to contact the director within a two-week period. The research team then contacted pantry directors using an introductory email followed by a phone call to set up a time to come to the pantry. Although none of the pantries chose to opt out, three did not schedule data collection and no reason was given for refusing to schedule after indicating initial willingness to participate.

Flyers and posters were sent to the pantries prior to data collection so that food pantry users and volunteers would know about the data collection. During data collection, signs advertising the survey were also displayed in prominent locations at the pantry such as waiting areas and check-in areas. We also created informational flyers about low-cost pet wellness services including spaying/neutering and vaccinations to distribute at each of the pantries. Additional resources on food access and health care were also created and brought to the pantries. Data collection began in February 2017 and continued until June 2018.

A convenience sample was obtained, with individuals approaching the researchers if they were interested in participating. Both pet owning and non-pet owning participants could take the survey, and a minimum of 10 participants were surveyed in each pantry. A purposive sampling frame based on the research about individuals thought to benefit by pet ownership was used for the interviews (Poresky & Daniels, 1998). When distributing surveys, older adults, single parents with children, working young adults, individuals with disabilities and veterans were asked if they would be willing to be interviewed. If they agreed to an interview, they were contacted within 48 hours. Everyone who agreed to be contacted (N=15), participated in an interview.

Data collection methods. The primary data collection method was a self-administered survey offered either on a tablet or on paper, which took approximately 20 minutes. Participants could choose the method: more participants (approximately 75%) chose the paper due to expressed discomfort with technology. Participants were asked if they needed assistance with taking the survey, and if so, one of the researchers read the survey using either paper or the tablet. We did not document the number of surveys that we assisted in reading to participants, but an estimate was about 50-60. Participants requested assistance for a variety of reasons: poor eyesight, illiteracy, or a disability that interfered with reading comprehension (head injury, stroke). Participants received a $10 cash incentive or an insulated grocery bag if the pantry requested that cash not be distributed. Individual interviews were conducted by telephone and digitally recorded. Participants received a $20 gift card for their participation, and the interview time ranged between 30 to 60 minutes. The interviews were conducted by the students with supervision and by Dr. Rauktis and Dr. Carter.

Measures

Telephone interview consisted of a series of open-ended questions, starting with general information about pet ownership, the name and age of the pet, how long they have owned the pet and whether they had animals in the home while growing up. The second set of questions focused on the benefits and challenges of owning a pet such as “what are the good things about owning (pet name)?” The interview questions then became specific to strategies for feeding their pets and the family: “what kinds of things do you do to help to make sure that you have food” followed by questions about commitment “has there ever been a time when you have thought of giving away or finding another home for (pet)?” The final question was whether they felt that

pet ownership contributed to their physical and/or emotional well-being, and if so, they were asked to provide detail. The interviews were transcribed by the students, Dr. Rauktis and Dr. Carter. NVivo was used in the analysis.

Survey *Demographic information* requested included age, gender, race, ethnicity, marital status, income, number and type of government benefits, education, military service, and household size as well as the number and type of pets owned and if the pet was a service animal. Most of these variables were dichotomous or ordinal.

Food security , the state of having reliable access to a sufficient quantity of affordable and nutritious food was measured using the USDA U.S. Household Food Security Survey, Six-Item Food Security Module (Blumberg, Bialostosky, Hamilton, & Briefel, 1999). The short module has been shown to identify food-insecure households and households with low food security with reasonably high specificity and sensitivity and minimal bias compared to the 18-item measure (Radimer, 2002). For this study, raw scores are converted into dichotomous scores of food security (yes/no) as well as the sum of the affirmative responses (0 to 6). A score of 0-1 indicates high to marginal food security, 2-4 is low food security and a score of 5-6 is very low food security. In addition, the summed scores were transformed into an interval-level measure.

Strategies for securing human and pet-food was a measure created for this study based upon the literature (Wood, Shultz, Butkus, & Ballejos, 2009; Wood, Shultz, Edlefsen, & Butkus, 2007) about food securing strategies for humans. Respondents were asked how frequently they used the food pantry or bank, sent children to family and friends for a meal, had a meal at a free meal site such as a shelter or church, or used financial strategies to secure food such as not paying bills, borrowing money, or selling blood products or participating in research studies. Comparable items were created about strategies specific to pets such aas: how frequently they used human food (purchased or from the pantry) to feed their pets when they could not afford to purchase pet-food; whether they let their animal outside to forage for food; or cut down on the amount of food; or reduced the frequency of feeding; or used expired food. In these analyses, “frequently” and “occasionally” were recoded as “yes” and “rarely” and “never” as “no”.

Commitment to Pets was measured by revising the Miller-Rada Scale (Staats, Miller, Carnot, Rada & Tunes, 1996) for low-income owners. Questions asked about their degree of commitment to the animal under potential difficult circumstances. Exploratory factor analysis

suggested a three-factor structure. Factor 1 related to the financial burdens (food, medical care); Factor 2 was destructive or dangerous behavior of the animal and Factor 3 related to family problems (violence or illness). The full scale was used in analyses. The alpha coefficient for seven- item scale was α =.78.

Attachment to pets was measured using the Lexington Attachment to Pets Scale (Johnson, Garrity & Stallones, 1992) using one average score since the factor structure did not mirror that reported by the authors. Items ask the respondents about their emotional ties to their companion animal. The alpha coefficient was α ==.90.

W*ell-being* was measured using the Flourishing Scale (FS), an eight-item summary measure of a self-perceived success in areas such as relationships, self-esteem, purpose and optimism (Diener et al., 2010). Each item of the FS is answered on a 1-7 scale that ranges from "strong agreement" to "strong disagreement". All items are worded in the positive direction e.g., "I am optimistic about my future". In this study the alpha coefficient was α = .89 and an average score was created. The FS was found to have good test-retest validity and moderate to high internal consistency with high convergence with similar scales (Diener et al., 2010).

Global physical and global mental health were measured using four items from the (PROMIS®), Scale v1.2 (Patient-reported outcome measurement information system) which was funded by the National Institutes of Health in order to provide researchers and clinicians access to efficient, precise and valid measures of health physical and mental health http://www.healthmeasures.net/images/PROMIS/PROMISStandards_Vers2.0_Final.pdf . The items use on a 5-point scale, 'excellent' to 'poor,' and ask the respondents to answer the following: "In general, how would you rate your physical health?"; "To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?"; "In general, how would you rate your mental health, including your mood and your ability to think?"; and "In general, how would you rate your satisfaction with your social activities and relationships"? The two health items were averaged to form one health score and the mental health and emotional well-being were treated similarly.

Results

The group surveyed was primarily female (70%). The average age was 57, (range from ages 20 to 88). There were slightly more dog households than cat (44% to 37%) and fewer multiple species households (19%). More than three-fourths of the sample reported a yearly income under twenty-thousand USD per year (84%). The majority (80%) were un- partnered due to death, divorce or had never married. A little over a third (37%) were African-American, 56% were Caucasian and 6% identified as other or multiracial. Only 1% identified as Asian, although the food pantries in the southern part of the County have considerable number of Nepali and Bhutanese clients. Over a third (38%) had a high school diploma, 20% some college education, 12% a two-year degree and 9% had a degree from a four-year institution.

What individual factors associate with greater food security for pet owners? Are pet owners more or less food secure than non-pet owners?

The Infographic (appendix) includes a bar chart for the total sample, then for pet and non-pet owners. 45% of those with pets were food secure whereas 32% of those without pets were food secure. Bivariate correlations found no significant relationship between age and food security for pet owners. However, female pet owners had lower food security than men who owned pets.

Logistic regression was performed to identify associations between individual characteristics and food insecurity (Table 1). The logistic regression model was statistically significant, $\chi^2(12) = 36.97$, $p = .000$. The model explained approximately 15.9% (Nagelkerke R^2) of the variance in food insecurity and correctly classified 67.8% of cases. Of the total sample, the pet owners were almost 61% less likely to report food insecurity than the individuals who did not own pets, after controlling for other variables (OR=.39, $p = .001$). Females were almost 1.8 times more likely than males to be at risk for food insecurity when controlling for other variables, indicating that gender can be a significant factor for predicting food insecurity (OR=1.79, $p = .041$). Race/ethnicity marginally significantly predicted food insecurity at a .10 significance level. Specifically, African Americans were about 1.6 times more likely than Whites to have food insecurity (OR=1.64, $p = .076$). Multiracial/Asian/other groups were almost 3 times more likely to be at risk for food insecurity compared to Whites, after controlling for other variables (OR=2.98, $p = .059$). In this model, there was no unique contribution of other variables, such as

household income, benefits, age, education levels, and status of employment, to explaining food insecurity when other variables were taken into account.

Table 1

Logistic Regression Analysis of Pet Ownership and Food Insecurity (N=298)

					95% CI	
Independent variable (reference group)	OR	β	SE(β)	p	Lower	Upper
Pet ownership (no)						
Yes	0.386***	-0.952	0.294	0.001	0.217	0.687
Income (low income)						
Low-and-moderate-income	0.605	-0.502	0.380	0.186	0.288	1.274
Age (under age 49)						
50-59 years old	0.933	-0.069	0.382	0.857	0.441	1.974
60 and older	0.608	-0.498	0.347	0.152	0.308	1.200
Benefits (1-3 benefits)						
4-6 benefits	1.340	0.293	0.281	0.298	0.772	2.324
7 and more benefits	0.561	-0.579	0.497	0.244	0.212	1.484
Education (high school or less)						
Post-secondary education	1.530	0.426	0.264	0.106	0.913	2.566
Employment (unemployment)						

Part time	0.848	-0.165	0.449	0.713	0.351	2.044
Full time	2.520	0.924	0.608	0.128	0.766	8.295
Gender (male)						
Female	1.793**	0.584	0.285	0.041	1.025	3.135
Race (white)						
Black	1.643*	0.496	0.280	0.076	0.949	2.845
Multiracial/Asian/Other	2.978*	1.091	0.578	0.059	0.960	9.237
Constant	1.578	0.456	0.473	0.334		
Nagelkerke R-squared	0.159					
-2 Log likelihood	359.552					

OR=Odds ratio; 95% CI= 95% confidence interval.

*$p \leq .10$. **$p \leq .05$. ***$p \leq .001$.

What food sparing strategies are used to keep the animals and humans fed?

The infographic outlines the food strategies for keeping food on the table and in the food bowl for pet owners. Approximately half had Supplemental Nutrition Assistance Program (SNAP) benefits, with small percentages using other federal or state food benefits such as summer food programs for children and senior "boxes". More commonly utilized were regularly using the food pantry (93%), putting off paying a bill (34%), getting free meals (38%), and borrowing money. Food pantries were not for emergencies but rather as part of a routine strategy for staying food secure. In the 16 months that it took to collect data in the food pantries, we were able to observe the context of food distribution in this region. Clients got into line several hours before the pantry opened, sometimes waiting outside in bad weather. It was also common for people to

take the bus or walk with their groceries: we watched many individuals, often elderly, push heavy grocery carts over hilly terrain. Our conclusion was that it takes a lot of time, effort and ingenuity to have sufficient food in low-income households.

Pet-owning survey participants who were interviewed on the phone confirmed the effort needed to have sufficient food to feed themselves and an animal(s). They described going to different stores, using coupons, using multiple pantries, specifically going to chow-wagon associated pantries, looking for sales, and finding pet-food on sale at big box stores or buying in bulk or on –line. One enterprising pet owner and guardian of a feral colony would go through big-box pet store dumpsters in order to find usable food for her feral cats. However, despite their challenges they were excellent stewards of their companion animals. Rather than putting the animals at risk by feeding them expired pet-foods or letting them forage outside, they used strategies such as choosing to share their food (29%) or cutting down on the amount (18%) or the frequency of feeding the animal to make the pet-food stretch until they could get more (16%).

Are pet owners more food secure when pet food is available in food pantries, controlling for other factors?

An independent group t-test found no significant difference in food status for pet-owning respondents using pet-food pantries (M=2.22, SD= 2.29) compared to those using pantries without pet food (M=2.37, SD= 2.08), t(253) = -.56, p =.58. However, cross-tabulations of type of pet household, food security and pet food in pantry suggested a relationship. Thus, logistic regression was then conducted to identify associations between the availability of pet foods in food pantries and food insecurity among pet owners, controlling for other individual characteristics (Table 2). The logistic regression model was statistically significant, χ^2 (12) = 33.49, p =.001. The model explained approximately 21% (Nagelkerke R^2) of the variance in food insecurity and correctly classified 68.9% of cases. The pet owners who used the pet food pantry (i.e., Chow Wagon) were almost 62% less likely to have a likelihood of food insecurity compared to the pet owners who did not use the pet food pantry, after controlling for demographic information (OR=.38, p =.005). In addition, the pet owners who received post-secondary education were about 2.34 times more likely to have food insecurity than their counterparts (OR=2.34, p =.015). African Americans were about 2 times more likely than Whites to be at risk for food insecurity (OR=1.96, p = .063), and Multiracial/Asian/Other racial groups

were approximately 7 times more likely than Whites to have food insecurity (OR=6.96, p =.02). In contrast, gender was not predictive for food insecurity in this model (p =.115).

Table 2

Logistic Regression Analysis of Pet Food in Pantry and Food Insecurity Among Pet Owners (n=196)

							95% CI	
Independent variable (reference group)	OR	β	SE(β)	Wald	df	p	Lower	Upper
Pet food in pantries (no)								
Yes	0.376**	-0.978	0.345	8.014	1	0.005	0.191	0.740
Income (low income)								
Low-and-moderate-income	0.536	-0.623	0.456	1.868	1	0.172	0.219	1.311
Age (under age 49)								
50-59 years old	0.926	-0.077	0.448	0.029	1	0.864	0.385	2.228
60 and older	0.680	-0.385	0.416	0.857	1	0.355	0.301	1.538
Benefits (1-3 benefits)								
4-6 benefits	1.423	0.353	0.350	1.018	1	0.313	0.717	2.830
7 and more benefits	0.458	-0.780	0.620	1.586	1	0.208	0.136	1.544
Education (high school or less)								
Post-secondary education	2.339**	0.850	0.343	6.135	1	0.013	1.194	4.582
Employment (unemployment)								
Part time	0.828	-0.189	0.589	0.103	1	0.748	0.261	2.625
Full time	1.541	0.432	0.730	0.351	1	0.554	0.368	6.444

Gender (male)								
Female	1.791	0.583	0.370	2.483	1	0.115	0.868	3.697
Race (white)								
Black	1.960*	0.673	0.363	3.445	1	0.063	0.963	3.989
Multiracial/Asian/Other	6.959**	1.940	0.832	5.443	1	0.020	1.364	35.508
Constant	0.728	-0.317	0.583	0.296	1	0.586		
Nagelkerke R-squared	0.210							
-2 Log likelihood	236.178							

*$p \leq .10$. **$p \leq .05$. ***$p \leq .001$.

Since the cross-tabulation between type of household (cat only, dog only, both species) and the type of pantry (with pet food, without pet food) did seem to associate with food security, this was further explored. For respondents from the pantries with pet food, those in cats-only households were the most food secure of all three categories of pet ownership. When respondents were from pantries without pet food, dog only household respondents were the most food-insecure. However, there could be other factors associated with owning a cat or a dog or having both species that predicts food security, with the type of animal(s) functioning as a spurious variable. As a result, a series of logistic regression models including the type of household (cat only, dog only and mixed species household) as a variable in addition to whether pet food was available in the pantry were run.

In the first model, type of household (cat, dog, both species) was included as an independent variable, but not the availability of pet food in the pantry (Table 3). The logistic regression model was statistically significant, $\chi^2(13) = 32.14$, $p = .002$. Cat only households were about 69% less likely than the households both cats and dogs to be at risk for food insecurity (OR=.31, p=.015). The pet owners who received post-secondary education and were females and

multiracial/Asian/other ethnic/racial groups were likely than their counterparts to have food insecurity, respectively (OR=2.02; OR=2.10; OR=10.0, $p \leq .05$). African Americans were almost 1.9 times more likely than Whites to have food insecurity at a .10 significance level (OR=1.85, $p = .09$).

Table 3

Logistic Regression Analysis of Types of Pets and Food Insecurity among Pet Owners (n=193)

							95% CI	
Independent variable (reference group)	OR	β	SE(β)	Wald	df	p	Lower	Upper
Types of Pets (both species)								
Cat only households	0.308**	-1.178	0.483	5.957	1	0.015	0.120	0.793
Dog only households	0.680	-0.385	0.476	0.655	1	0.418	0.268	1.728
Income (low income)								
Low-and-moderate-income	0.589	-0.530	0.457	1.346	1	0.246	0.241	1.441
Age (under age 49)								
50-59 years old	0.968	-0.032	0.464	0.005	1	0.945	0.390	2.403
60 and older	0.687	-0.375	0.425	0.777	1	0.378	0.299	1.582
Benefits (1-3 benefits)								
4-6 benefits	1.437	0.362	0.354	1.049	1	0.306	0.718	2.873
7 and more benefits	0.523	-0.648	0.634	1.042	1	0.307	0.151	1.814
Education (high school or less)								
Post-secondary education	2.019**	0.703	0.333	4.442	1	0.035	1.050	3.881

Employment (unemployment)								
Part time	0.756	-0.279	0.599	0.217	1	0.641	0.234	2.449
Full time	1.254	0.226	0.732	0.096	1	0.757	0.299	5.263
Gender (male)								
Female	2.071**	0.728	0.371	3.847	1	0.050	1.000	4.287
Race (white)								
Black	1.852*	0.616	0.368	2.807	1	0.094	0.901	3.807
Multiracial/Asian/Other	10.020**	2.305	0.855	7.269	1	0.007	1.876	53.515
Constant	0.776	-0.254	0.649	0.153	1	0.695		
Nagelkerke R-squared	0.205							
-2 Log likelihood	233.123							

*$p \leq .10$. **$p \leq .05$. ***$p \leq .001$.

In the final model, type of household (dog, cat, both) and type of pantry (pet food or no pet food) was included in the equation (Table 4). The logistic regression model was statistically significant ($\chi^2(14) = 38.20$, $p = .001$). Interestingly, Chow Wagon pantry users had almost 57% lower likelihood of being at risk for food insecurity compared to non-Chow Wagon users, even controlling for other variables (e.g., types of pets, income, age, etc.) (OR=.43, $p = .016$). Households having only cats were about 65% less likely than households owning both cats and dogs to be at risk for food insecurity when controlling for other variables (OR=.35, $p = .031$), suggesting that households with both species may experience greater food insecurity. Yet, the likelihood of food insecurity in the households with both cats and dogs were not significantly different than that of the households having only dogs ($p = .483$). Perhaps there might be differences in the efforts of feeding pets according to the types of households. Females and African Americans were likely to have food insecurity than their counterparts, respectively

(OR=1.86; OR=1.99, $p \leq .10$). Of the pet owners, those with higher levels of education and Multiracial/Asian and other racial/ethnic groups were likely to be at risk for food insecurity, respectively (OR=2.47; OR=9.06, $p=.010$).

Table 4

Logistic Regression Analysis of Types of Pets, Pet Food in Pantry, and Food Insecurity Among Pet Owners (n=193)

							95% CI	
Independent variable (reference group)	OR	β	SE(β)	Wald	df	p	Lower	Upper
Types of Pets (both species)								
Cat only households	0.347**	-1.058	0.489	4.679	1	0.031	0.133	0.905
Dog only households	0.714	-0.336	0.480	0.492	1	0.483	0.279	1.828
Pet food in pantries (no)								
Yes	0.427**	-0.852	0.352	5.849	1	0.016	0.214	0.851
Income (low income)								
Low-and-moderate-income	0.512	-0.670	0.470	2.027	1	0.155	0.204	1.287
Age (under age 49)								
50-59 years old	0.936	-0.066	0.467	0.020	1	0.887	0.375	2.338
60 and older	0.652	-0.472	0.430	0.987	1	0.320	0.281	1.515
Benefits (1-3 benefits)								
4-6 benefits	1.352	0.302	0.361	0.698	1	0.403	0.666	2.743
7 and more benefits	0.394	-0.931	0.646	2.078	1	0.149	0.111	1.397
Education								

(high school or less)								
Post-secondary education	2.467**	0.903	0.353	6.549	1	0.010	1.235	4.927
Employment (unemployment)								
Part time	0.694	-0.365	0.608	0.361	1	0.548	0.211	2.286
Full time	1.320	0.278	0.760	0.133	1	0.715	0.297	5.858
Gender (male)								
Female	1.856*	0.618	0.379	2.660	1	0.103	0.883	3.900
Race (white)								
Black	1.994*	0.690	0.376	3.365	1	0.067	0.954	4.168
Multiracial/Asian/Other	9.057**	2.204	0.855	6.642	1	0.010	1.695	48.392
Constant	1.215	0.194	0.681	0.081	1	0.775		
Nagelkerke R-squared	0.240							
-2 Log likelihood	227.066							

*$p \leq .10$. **$p \leq .05$. ***$p \leq .001$.

In total, these models suggest that the relationships between food sufficiency and pets in low-income households are complex, and that having access to pet food may not benefit all low-income owners equally. Moreover, there are some factors related to poverty independent of pet ownership (being female, race/ethnicity). Having food available in pantries is not going to solve the structural problems that create conditions of poverty contribute to food insecurity, but it may improve food security for some segment of the animal owning low-income population.

Is there a relationship between commitment to the companion animal and household food security?

The qualitative interviews with owners found that there were few circumstances that would result in re-homing their pets. One exception was a dog owner who did rehome her large dog with a family member after becoming very ill with cancer. However, the rest were quite definite about keeping their animals, even though many expressed concerns about what they would do if their companion animals needed expensive veterinary care in the future. In terms of food, they chose to share food with their animals rather than re-home their animals. In another case, an older adult chose to live in her expensive to maintain home because she did not think that her dog would do well in a senior high-rise apartment.

In the survey, commitment was measured by a new scale which poses different scenarios and asks owners how likely they would be to rehome their animal or place them in a shelter in these circumstances (e.g. destroying furniture, harming people, family move, serious illness in a family member, domestic violence). The scale was skewed with most answers falling on the unlikely to rehome pet. Because this is cross-sectional data, one could argue about the bi-directionality of these two variables. Animal commitment could be justified as the independent variable and food security as the dependent variable (since people give their human food to their animals as per the interviews). On the other hand, it is possible that food security could negatively impact commitment; those individuals who struggle to keep food on the table and in the food bowl may have lower commitment. Based upon the research questions, a decision was made to treat commitment as the independent variable and food security as the dependent variable in a regression analysis. The level of commitment only explained about 3.3% of the variance of food insecurity (R^2=.03, p=.00). A one unit increase in the level of commitment increased the food insecurity by about 1.18 units. Therefore, consistent with the interviews that found owners giving their food to their pets, and the descriptive results; being committed to the companion animal, can have a negative impact on food sufficiency for humans. It is a small amount of variance but significant when controlling for other factors. However, it is inconsistent with other results about the presence of animals in the home as a predictor for being more food secure. This question requires more sophisticated analyses such as a path analysis or structural equation modeling using additional variables such as attachment to the companion animal, individual characteristics of the owner, commitment, and well-being and food security. In addition, the commitment measure is untested and requires additional validity testing. This is an area in need of further investigation.

What are the health benefits and the risks of having companion animals?

Findings from the interviews suggest that their animal companions gave unconditional emotional and social support and helped to build social capital, particularly for older adults and those with disabilities. Having pets and interacting with them activated self-care behaviors. For example, walking was identified as a positive self-care behavior activated by the need to walk their dog. Pets were also motivators to practice other positive self-care behaviors such as medication and diet management, daily routines (getting up, feeding and/or walking the animal, getting food, making dinner). This was particularly important during times of grief, as after the death of spouses, or divorce, but also in non-crisis periods. However, the exception was the young woman who rehomed her dog because he was not a motivator/activator for self-care behavior; the needs of the dog were a reminder of her lost healthy state.

Risks were primarily financial such as the cost of pet-food, and veterinary costs for routine or acute care. The emotional risks were grieving the loss of former companion animals and anxiety about future financial decisions associated with caring for a pet on a limited income, as well as anxiety about leaving the animal alone for long periods due to working long hours at their jobs. Some of the health risks identified were allergies/asthma, tripping over the animal and falling and dog bites/wounds when young children were in the home (in one case).

Limitations

Sampling and the inability to generalize is the primary limitation of this study. Although the pet-food pantries were randomly selected, the other pantries included in the sample were selected by The Greater Pittsburgh Community Food Bank. In addition, the sample of respondents surveyed was one of convenience. For example, very few non-English speakers chose to participate, even though we were in food pantries serving high populations of these ethnic groups. We also went to food pantries an hour before services began, in order to avoid interfering with distribution activities. However, people who can wait in line for longer periods may be different from those who cannot (e.g. may be unemployed, retired, or disabled). Although we stayed in the pantries after the process of distribution began until the end, and went to evening distributions, a greater percentage of surveys were done in the first hour before distribution. Thus, this is a nonprobability sample and the findings cannot be generalized to all food pantries or users of food pantries or pet owners.

In addition, there may be some community-level variables not measured which may associate with food insecurity independent of whether the pantry has pet-food or not. The percentage of variance for food insecurity explained was modest, suggesting other variables not measured are influencing the dependent variable. Finally, this is cross sectional survey limiting the ability to make causal statements.

Discussion and Implications for Social Justice and Social Work Practice

Companion animals should be included in psychosocial assessments and as members of the family when support networks are being mobilized (Slatter, 2012) .Engaging cli3n5w around pets can be done easily by asking if they own a pet, or asking to see their pet photos. Follow up questions would include time spent with the companion animal, which then opens the discussion to additional questions. Physicians have reported that asking about pets "opens a door" into a therapeutic relationship (conversation, Hodgson, 12.1.2018). Interventions capitalizing on their role in motivating self-care should be used as they are a natural support existing in the family home. Mobilizing animal ownership to improve self-care while addressing risks is a productive area for further intervention research. To date, therapy animals who are owned by professionals and included in therapeutic interventions, or owned by community members and "Professionalized" as certified in order to go into clinical spaces such as hospitals or nursing homes have dominated the role of animals in helping humans. However, many people may never encounter these therapy animals in the course of their lives, but they do have pets. This study suggests that pets living in homes, who are companions, not trained as "therapeutic" agents have a role to play in promoting the well-being of humans.

This is analogous to the evolution of natural supports in child welfare. Families and natural supports were once viewed with suspicion. However, over time the role of family and peers as therapeutic agents became professionalized through positions such as "family liaisons", or hiring families as "peer mentors" or "professional peer supports". This further evolved to including the "natural supports" in family conferencing meetings, activating the natural supports already existing in the ecosystem to increase safety and well-being of the children in the family. Similarly, including animals or introducing them into care settings was once viewed as risky due to concerns about disease and the potential for injury. Then animals became professionalized as "therapy" animals. This research study suggests that it is time to widen the circle of natural

helpers to include pets, and to reframe the conversation for low-income individuals to "pets are a support and activator for self-care" rather than "they should not have a pet because they cannot afford one." However, data will be needed to change the conversation: in one pantry, when we explained our purpose to the volunteers, one commented, "I certainly hope they don't have animals since they can't afford a pet if they are here". If one wants to have a companion animal, it should be possible to have sufficient food and experience the self-care activation and emotional benefits from having a pet. However, empirical evidence will be needed to change public and professional attitudes.

This study did identify financial concerns and potential health risks in having pets. That individuals were willing to put their pet's food needs before their own could create health risks for the humans, particularly for older adults and those with chronic health problems. The pet-food provided to the Chow Wagon associated pantries is the result of individual and corporate donations to Animal Friends. Getting food to pantries is an ongoing challenge because donations are unpredictable and there is no low-cost sourcing available for the Greater Pittsburgh Community Food Bank to purchase, as there is for human food. Thus, the chow wagon delivery to a pantry depends upon donation rather than pantry/community need. Although Animal Friends and Chow Wagon are experimenting with new ways of getting food (Amazon Wish list; "Round Up" App for purchases), it will be difficult for the program to expand into high need areas (Rauktis et al., 2017). A federal option is changing the policies governing SNAP, allowing for the purchase of pet-food, or finding ways of increasing cash assistance to allow owners to purchase food, or purchase at a reduced price. However, these policies are not likely to change.

Future Work

This study is consistent with other research from Occupational therapy (Slater et al., 2012), and medical and veterinary science (Hodgson et al., 2015) on the potential health activation of companion animals. An internal grant to pilot test a health motivation curriculum utilizing companion animals in the home has been submitted. A poster at the local aging conference generated interest from a blogger and a "PittWire" story. We will continue to publish results in a variety of mediums, opening a space for conversation about the value of pets in low-income owners' lives.

Appendices

Infographic

Poster

Survey & Interview

Grant Submission

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