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STRESS AND ANXIETY LEVELS IN DOGS AND CATS IN URBAN HOUSEHOLDS: A QUANTITATIVE STUDY

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Abstract
This study examined the relationship between stress and anxiety in companion animals and compared these experiences between dogs and cats living in an urban environment. A sample of 89 pet owners from New York City, who were at least 18 years old and had owned their pet for at least six months, completed online surveys regarding their pets' behavioral and emotional well-being. The findings revealed a clear connection between stress and anxiety in both cats and dogs, indicating that when pets experience higher levels of stress, they are also more likely to show signs of anxiety. Furthermore, notable differences were observed between the two species. Dogs were found to experience both higher stress and higher anxiety levels compared to cats, suggesting that dogs may be more vulnerable to the challenges associated with urban living. These results highlight the importance of recognizing species-specific needs in urban environments. Ensuring adequate physical activity, social interaction, and environmental enrichment may help support the psychological well-being of companion animals, particularly dogs, in cities.

Keywords: *stress, anxiety, dogs, cats, urban households, animal welfare, United States, quantitative study*

Introduction

Companion animals such as dogs and cats play important roles in urban households, providing emotional support and companionship (McClaskey, 2019; Scoresby et al., 2021). In the United States, millions of households include pets, which are increasingly recognized as integral members of family systems (Aruah et al., 2019; McConnell et al., 2019; Peršolja et al., 2022).

Urban environments pose unique challenges for pets, including high population density, limited living space, noise exposure, and restricted access to outdoor environments (Koohsari et al., 2022; Shingne & Reese, 2022; Tarsitano, 2006). These factors may influence behavioral and emotional well-being. Stress in animals reflects physiological and behavioral responses to environmental challenges, while anxiety represents a persistent emotional state associated with anticipation of potential threats (Boissy, 1995; Campos et al., 2013).

Dogs and cats respond differently to urban stressors. Dogs often require exercise, outdoor exploration, and social interaction; insufficient opportunities can lead to excessive barking, restlessness, and destructive behavior (Veitch et al., 2019; Westgarth et al., 2014; Pirrone et al., 2015). Cats are more territorial and may experience stress from environmental changes, limited vertical space, or insufficient enrichment (Bergamini et al., 2024; Foreman-Worsley & Farnworth, 2019). Both species may display anxiety-related behaviors as a response to stressors, which can also relate to broader physiological changes (Camps et al., 2019; Landsberg et al., 2011). Previous research, including a Ukrainian cross-sectional study, found elevated cortisol and glucose levels

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and increased leukocytes in dogs and cats under stress. Behavioral indicators such as anxiety, hiding, and altered social interactions were observed, with dogs showing stronger immune modulation (Prykhodchenko et al., 2024).

In the U.S., urban pets are often indoor-living, and limited owner interaction or restricted outdoor opportunities may exacerbate stress and anxiety. Despite veterinary attention to behavioral problems, quantitative research on stress and anxiety in urban pets using standardized assessment tools remains limited. The present study aims to assess stress and anxiety levels among dogs and cats in urban U.S. households using owner-reported behavioral scales and to examine environmental and lifestyle factors contributing to psychological distress.

Hypotheses

H1: There is a significant relationship between stress and anxiety levels in cats and dogs.
H2: There is a significant mean difference between cats and dogs in variables such as stress and anxiety levels.

Method

Research Design

The study employed a quantitative cross-sectional research design to examine and compare stress and anxiety levels between dogs and cats living in urban households.

Participants

The initial sample consisted of pet owners residing in New York City. Participants were recruited through online pet communities, social media groups, and local veterinary clinic networks. To meet the inclusion criteria for this analysis, owners were required to be at least 18 years old and have owned their pet for a minimum of six months to ensure familiarity with their pet's behavioral patterns.

The final sample for this analysis comprised 89 pet owners who met all criteria and for whom complete data were available. As detailed in Table 1, the sample consisted of 44 cat owners and 45 dog owners. The mean age of the owners was 39.87 years (SD = 17.32), with the majority being men (70.8%). The length of ownership varied, with 36.0% of participants owning their pet for 6 to 12 months, 28.1% for 1 to 3 years, and 36.0% for more than 3 years.

Measures

Stress Level

Stress level was measured using the Pet-Related Stress Scale (PRSS) developed by Angela Matijczak and colleagues (2024). The final validated version of the scale consists of 19 items measuring three dimensions of pet-related stress: economic, psychological, and social. Items are rated on a 5-point Likert scale ranging from 1 (never) to 5 (all of the time), with higher total scores indicating greater levels of perceived pet-related stress. The scale has demonstrated good internal consistency, with a Cronbach's alpha of .86 in the validation study.

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Anxiety Level

Anxiety level was measured using a 10-item owner-reported behavioral scale, applied identically to both dogs and cats. The items were adapted from the anxiety-related sections of the canine C-BARQ (Hsu & Serpell, 2003) and feline Fe-BARQ (Duffy et al., 2008). Owners rated the frequency of each behavior on a 5-point Likert scale (1 = Never, 5 = Always). An overall anxiety score was calculated for each pet by averaging the scores of the 10 items, with higher scores indicating higher levels of anxiety.

Procedure

Data were collected through an online survey platform. Pet owners completed the self-reported questionnaires based on their observations of their pets' behaviors. Participation was voluntary, and informed consent was obtained from all respondents before participation. The study followed ethical standards for research involving human participants reporting on animal behavior.

Data Analysis

Data were analyzed using statistical software. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated for the demographic characteristics of the owners and their pets, as well as for the main study variables (stress and anxiety scores). To examine the relationship between stress and anxiety within each species, Pearson correlation coefficients were calculated separately for the cat and dog groups. Finally, to test for differences between species, independent samples t-tests were conducted to compare the mean stress levels and mean anxiety levels of dogs and cats. Effect sizes (Cohen's d) were calculated for each t-test to determine the magnitude of the observed differences.

Results

Table 1

Demographic Characteristics of Pet Owners and Their Pets (N = 89)

Characteristic	Category	Frequency	Percentage	Mean (SD)
Age of Owner (years)				39.87 (17.32)
Gender of Owner	Male	63	70.8	
	Female	26	29.2	
Educational Level	High School	10	11.2	
	Bachelor	50	56.2	
	Master	11	12.4	
	Doctorate	18	20.2	
Employment Status	Full Time	36	40.4	
	Part Time	29	32.6	
	Unemployed	24	27	
Type of Pet	Cat	44	49.4	
	Dog	45	50.6	
Age of Pet	6 months	5	5.6	
	1 year	14	15.7	
	1.5 year	27	30.3	
	2 years	8	9	

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	2.5 years	20	22.5
	3 years	5	5.6
	More than 3 years	10	11.2
Gender of Pet	Male	47	52.8
	Female	42	47.2
Length of Ownership	6 to 12 months	32	36
	1 to 3 years	25	28
	More than 3 years	32	36
Owner-Pet Interaction	Less than 1 hour/day	42	47.2
	1 to 2 hours/day	21	23.6
	2 to 3 hours/day	11	12.4
	More than 3 hours/day	15	16.9

Note. SD = Standard Deviation

The demographic characteristics of the 89 pet owners and their pets are presented in Table 1. The mean age of the owners was 39.87 years (SD = 17.32). Most participants were men (n = 63, 70.8%), while women represented 29.2% of the sample (n = 26). Regarding educational level, the majority held a bachelor's degree (n = 50, 56.2%), followed by participants with a doctorate (n = 18, 20.2%) and master's degree (n = 11, 12.4%), while 10 participants (11.2%) had completed high school. In terms of employment status, 36 participants (40.4%) were employed full-time, 29 (32.6%) worked part-time, and 24 (27.0%) were unemployed. The pets' ages varied, with 27 pets (30.3%) being 1.5 years old, 20 pets (22.5%) 2.5 years old, 14 pets (15.7%) 1 year old, 10 pets (11.2%) older than 3 years, 8 pets (9.0%) 2 years old, and 5 pets (5.6%) each at 6 months or 3 years. Regarding type of pet, 44 pets (49.4%) were cats and 45 (50.6%) were dogs. In terms of pet gender, 47 pets (52.8%) were male and 42 (47.2%) were female. Regarding length of ownership, 32 pets (36.0%) had been owned for 6 to 12 months, 25 pets (28.1%) for 1 to 3 years, and 32 pets (36.0%) for more than 3 years. Finally, regarding owner-pet interaction, 42 owners (47.2%) spent less than 1 hour per day interacting with their pets on the bed, 21 owners (23.6%) spent 1 to 2 hours per day, 11 owners (12.4%) spent 2 to 3 hours per day, and 15 owners (16.9%) spent more than 3 hours per day. These demographics provide a comprehensive overview of the owners and pets included in the study.

Table 2

Correlational Analysis (N= 89)

Group	Variables	Stress Level	Anxiety Level
Cats	Stress Levels	-	.69**
	Anxiety Level		-
Dogs	Stress Level	-	.73**
	Anxiety Level		

Note. $^{**}p < .01$

Table 2 presents the correlations between stress and anxiety levels separately for cats and dogs. Among cats, stress and anxiety were significantly positively correlated, $r = .69$, $p < .01$, indicating that as stress levels increase, anxiety levels tend to increase as well. Similarly, among dogs, stress and anxiety were also significantly positively correlated, $r = .73$, $p < .01$, showing a slightly stronger association than in cats.

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Table 3

Mean Differences in Stress and Anxiety Between Cats and Dogs (N = 89)

Variables	Cats (n = 44)		Dogs (n = 45)				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's d
Stress Level	48.47	13.44	55.80**	13.85	-2.53	.01	0.56
Anxiety Level	25.65	9.33	30.44**	7.15	-2.70	.008	0.57

Note. **$p < .01$, *M* = Mean, *SD* = Standard Deviation

Table 3 shows the mean differences in stress and anxiety levels between cats and dogs. Dogs had significantly higher stress levels (M = 55.80, SD = 13.85) than cats (M = 48.47, SD = 13.44), t(87) = -2.53, p = .01, d = 0.56, and significantly higher anxiety levels (M = 30.44, SD = 7.15) than cats (M = 25.65, SD = 9.33), t(87) = -2.70, p = .008, d = 0.57. The negative t-values reflect the subtraction order (Cats – Dogs). These results support the second hypothesis, indicating that dogs experience higher stress and anxiety than cats in urban households, with medium effect sizes suggesting that these differences are meaningful in practical terms and highlighting the importance of species-specific behavioral and environmental considerations.

Discussion

The present study examined stress and anxiety levels among cats and dogs living in urban households in the United States of America. The first hypothesis of the study was supported, as the correlational analysis revealed a strong positive relationship between stress and anxiety among cats and dogs. This finding suggests that as stress levels increase, anxiety levels also tend to increase in pets. Such a relationship is consistent with behavioral research indicating that stress-related environmental factors, such as unfamiliar surroundings, noise exposure, and limited stimulation, may trigger anxiety-related behaviors in companion animals (Bremhorst et al., 2024; Grigg et al., 2021; Riemer, 2023; Rigterink, 2022).

Another factor that may influence pet well-being is the level of interaction between owners and their pets. In this study, a large proportion of owners reported spending less than one hour per day interacting with their pets on the bed. Limited daily interaction may reduce opportunities for bonding, play, and behavioral stimulation, which could potentially influence stress and anxiety levels, particularly among dogs.

The second hypothesis of the study was also supported, as the results indicated significant differences between cats and dogs in terms of stress and anxiety levels. Dogs showed significantly higher stress and anxiety scores compared to cats. One possible explanation is that dogs generally require more physical activity, outdoor exposure, and social interaction. Urban environments, which often include limited living space, restricted outdoor opportunities, and increased environmental noise, may therefore affect dogs more strongly. When dogs do not receive sufficient exercise or stimulation, they may display behaviors associated with stress and anxiety (Bednarski, 2015; Haq et al., 2024; Prykhodchenko et al., 2024; Schwartz, 2003; Tynes et al., 2015).

In contrast, cats are generally more independent and adaptable to indoor environments. However, they may still experience stress and anxiety due to environmental changes, lack of environmental enrichment, or unfamiliar situations. Previous studies have also highlighted behavioral and physiological differences between cats and dogs in their responses to stress and fear-related stimuli (de Rivera et al., 2017).

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Limitations and Recommendations

Several limitations should be considered when interpreting the findings of this study. First, the sample size was small (N = 89) and recruited through convenience sampling in New York City, which limits the generalizability of the results to all urban households in the United States. Second, the study relied solely on owner-reported measures of stress and anxiety, which may introduce reporting bias and does not include objective physiological or behavioral observations. Third, the cross-sectional design prevents conclusions about causality or the direction of the relationship between stress and anxiety. Fourth, potential confounding variables, such as pet breed, age, neuter status, prior medical conditions, household composition, and owner experience, were not controlled, which could influence the observed differences between cats and dogs. Fifth, the anxiety scale was adapted from canine and feline BARQ questionnaires and applied identically to both species, potentially overlooking species-specific behavioral differences, while the Pet-Related Stress Scale included broader human-focused dimensions that may not fully capture pet-specific stress.

Based on these limitations, future research should employ larger, more geographically diverse samples, include objective behavioral and physiological measures of stress and anxiety (e.g., cortisol levels, direct observations), control for breed and other confounding factors, and use validated, species-specific assessment tools to improve reliability. Such improvements would provide a more comprehensive understanding of stress and anxiety in urban companion animals.

Implications

The findings have important implications for pet welfare and urban pet management. Owners and animal welfare professionals should prioritize environmental enrichment, sufficient exercise, and regular social interaction to reduce stress and anxiety in companion animals. Understanding how urban living affects pet well-being can help inform strategies for responsible pet ownership, behavioral interventions, and urban housing policies that promote the psychological health of both dogs and cats.

References

Aruah, D. E., Ezeh, V. O., & Tom, C. I. (2019). Relationship between pet ownership, pet attachment and decision to have children among single people in the United States: a need for flexible child care facilities in the United States. *Open Journal of Social Sciences*, *7*(9), 15-30.

Astuti, Y., Orhan, B. E., Setyawan, H., Karacam, A., & Susanto, N. (2024). Explorando la Conexión entre la Salud Física y Mental en Mujeres y la Tenencia de un Perro (Exploring the Connection between Physical and Mental Health in Women and Dog Ownership). *Retos*, *58*, 190.

Bednarski, R. M. (2015). Dogs and cats. *Veterinary anesthesia and analgesia: the fifth edition of Lumb and Jones*, 817-826.

Bergamini, S. M., Pierantoni, L., & Mengoli, M. (2024). Cats Living Together: How to Cope with a Multi-cat Household. *Advances in Small Animal Care*, *5*(1), 21-30.

Bjerke, T., & Østdahl, T. (2004). Animal-related attitudes and activities in an urban population. Anthrozoös, 17(2), 109-129.

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ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
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CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
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Boissy, A. (1995). Fear and fearfulness in animals. The quarterly review of biology, 70(2), 165-191.

Bremhorst, A., Loftus, L., & McPeake, K. (2024). Noise-related fear in dogs. *Companion Animal*, *29*(5), 2-11.

Campos, A. C., Fogaça, M. V., Aguiar, D. C., & Guimaraes, F. S. (2013). Animal models of anxiety disorders and stress. Brazilian Journal of Psychiatry, 35, S101-S111.

Camps, T., Amat, M., & Manteca, X. (2019). A review of medical conditions and behavioral problems in dogs and cats. *Animals*, *9*(12), 1133.

de Rivera, C., Ley, J., Milgram, B., & Landsberg, G. (2017). Development of a laboratory model to assess fear and anxiety in cats. *Journal of feline medicine and surgery*, *19*(6), 586-593.

De Silva, L. (2025). *Cat vs. dog people: perceived well-being of companion animals as a function of species preferences and documented interest* (Doctoral dissertation, University of Prince Edward Island).

Didehban, N., Borujeni, M. P., Avizeh, R., & Mosallanejad, B. (2020). Problematic behaviors in companion dogs: A survey of their prevalence and associated factors. *Journal of Veterinary Behavior*, *39*, 6-13.

Duffy, D. L., Hsu, Y., & Serpell, J. A. (2008). Development and validation of a questionnaire for measuring behavior and temperament traits in domestic cats. *Journal of the American Veterinary Medical Association, 233*(11), 1902–1908. https://doi.org/10.2460/javma.233.11.1902.

Foreman-Worsley, R., & Farnworth, M. J. (2019). A systematic review of social and environmental factors and their implications for indoor cat welfare. *Applied Animal Behaviour Science*, *220*, 104841.

Grigg, E. K., Chou, J., Parker, E., Gatesy-Davis, A., Clarkson, S. T., & Hart, L. A. (2021). Stress-related behaviors in companion dogs exposed to common household noises, and owners' interpretations of their dogs' behaviors. *Frontiers in veterinary science*, *8*, 760845.

Haq, A. U., Malik, H. U., Randhawa, S. S., El-Shazly, M., & Chandran, D. (2024). Behavioural Disorders in Dogs and Cats: A Review. *Agricultural Reviews*, *45*(3).

Hsu, Y., & Serpell, J. A. (2003). Development and validation of a questionnaire for measuring behavior and temperament traits in pet dogs. *Journal of the American Veterinary Medical Association*, *223*(9), 1293-1300.

Koohsari, M. J., Yasunaga, A., McCormack, G. R., Nakaya, T., Nagai, Y., & Oka, K. (2022). The design challenges for dog ownership and dog walking in dense urban areas: The case of Japan. Frontiers in public health, 10, 904122.

Landsberg, G. M., DePorter, T., & Araujo, J. A. (2011). Clinical signs and management of anxiety, sleeplessness, and cognitive dysfunction in the senior pet. *Veterinary Clinics: Small Animal Practice*, *41*(3), 565-590.

McClaskey, B. (2019). Companion animals and their impact on human lives. *The Midwest Quarterly*, *60*(3), 335-351.

McConnell, A. R., Paige Lloyd, E., & Humphrey, B. T. (2019). We are family: Viewing pets as family members improves wellbeing. *Anthrozoös*, *32*(4), 459-470.

Orhan, B. E., Astuti, Y., Setyawan, H., Karaçam, A., & Susanto, N. (2024). Exploring the Connection between Physical and Mental Health in Women and Dog Ownership. *Retos: Nuevas Perspectivas de Educación Física, Deporte y Recreación*, *58*.

Peršolja, M., Benko, E., & von Humboldt, S. (2022). Pet-raising and psychological well-being. In *Encyclopedia of Gerontology and Population Aging* (pp. 3795-3803). Cham: Springer International Publishing.

Pirrone, F., Pierantoni, L., Mazzola, S. M., Vigo, D., & Albertini, M. (2015). Owner and animal factors predict the incidence of, and owner reaction toward, problematic behaviors in companion dogs. *Journal of Veterinary Behavior*, *10*(4), 295-301.

Prykhodchenko, V. O., Hladka, N. I., Denysova, O. M., Moiseienko, Y. O., Yakymenko, T. I., Zhukova, I. O., & Zhegunov, G. F. (2024). Analysis of key indicators of chronic stress in cats and dogs. *Journal for Veterinary Medicine, Biotechnology and Biosafety*, *10*(3), 17-21.

Prykhodchenko, V. O., Hladka, N. I., Denysova, O. M., Moiseienko, Y. O., Yakymenko, T. I., Zhukova, I. O., & Zhegunov, G. F. (2024). Analysis of key indicators of chronic stress in cats and dogs. *Journal for Veterinary Medicine, Biotechnology and Biosafety*, *10*(3), 17-21.

Riemer, S. (2023). Therapy and prevention of noise fears in dogs—A review of the current evidence for practitioners. *Animals*, *13*(23), 3664.

Rigterink, A. (2022). Fear, anxiety, stress behaviors in cats. *Clinical handbook of feline behavior medicine*, 129-141.

Schwartz, S. (2003). Separation anxiety syndrome in dogs and cats. *Journal of the American Veterinary Medical Association*, *222*(11), 1526-1532.

Scoresby, K. J., Strand, E. B., Ng, Z., Brown, K. C., Stilz, C. R., Strobel, K., ... & Souza, M. (2021). Pet ownership and quality of life: A systematic review of the literature. *Veterinary Sciences*, *8*(12), 332.

Shingne, M. C., & Reese, L. A. (2022). Animals in the city: Wither the human-animal divide. Journal of Urban Affairs, 44(2), 114-136.

Solhjoo, N. (2024). *Information experience within multispecies families: Understanding shared life with companion cats and dogs* (Doctoral dissertation, Open Access Te Herenga Waka-Victoria University of Wellington).

Srithunyarat, T., Höglund, O. V., Hagman, R., Olsson, U., Stridsberg, M., Lagerstedt, A. S., & Pettersson, A. (2016). Catestatin, vasostatin, cortisol, temperature, heart rate, respiratory rate, scores of the short form of the Glasgow composite measure pain scale and visual analog scale for stress and pain behavior in dogs before and after ovariohysterectomy. *BMC Research Notes*, *9*(1), 381.

Tarsitano, E. (2006). Interaction between the environment and animals in urban settings: integrated and participatory planning. Environmental Management, 38(5), 799-809.

Tynes, V. V., Sinn, L., & Koch, C. S. (2015). The relationship between physiology and behavior in dogs and cats. *Animal behavior for shelter veterinarians and staff*, 63-101.

Veitch, J., Christian, H., Carver, A., & Salmon, J. (2019). Physical activity benefits from taking your dog to the park. *Landscape and urban planning*, *185*, 173-179.

Westgarth, C., Christley, R. M., & Christian, H. E. (2014). How might we increase physical activity through dog walking?: A comprehensive review of dog walking correlates. *International Journal of Behavioral Nutrition and Physical Activity*, *11*(1), 83.