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SEÇÃO: ARTIGO

## Fatores de personalidade, depressão, ansiedade e estresse em proprietários de animais

*Personality factors, depression, anxiety, and stress in pet owners*

*Personalidad, depresión, ansiedad y factores de estrés en propietarios de animales*

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**Resumo:** O presente estudo compara fatores de personalidade, sintomas de depressão, ansiedade e estresse entre proprietários e indivíduos que não possuem animais de estimação. Participaram 145 adultos, entre 18 e 78 anos (M = 30,96, DP = 12,10). Os participantes foram divididos de acordo com a espécie do animal de estimação: (a) cães, (b) gatos, (c) cães e gatos. Os resultados sugerem que pessoas sem animais de estimação apresentaram mais sintomas de ansiedade do que aquelas que possuem. Proprietários de cães e gatos apontaram maiores escores no fator de personalidade conscienciosidade do que os participantes que não possuíam nenhum animal de estimação. Desta forma, há diferenças em possuir um animal. Contudo, novos estudos na área, utilizando análises de variáveis mediadoras, bem como pesquisas longitudinais que possam explorar a possível relação causal entre diferentes características de pessoas que possuem animais de estimação e bem-estar, fazem-se necessárias.

**Palavras-chave:** animais, personalidade, depressão, ansiedade, estresse

**Abstract:** The study compares personality factors, symptoms of depression, anxiety and stress between owners and non-pet owners. A total of 145 adults participated, between 18 and 78 years (M = 30.96, SD = 12.10). Participants were divided according to the type of pet they had: 1) dogs, 2) cats, 3) dogs and cats. The results suggest that people who do not have pets showed more anxiety symptoms than those who have pets. Dogs and cats owners showed higher scores of conscientiousness personality factor than participants who did not have any pets. The results reveal differences between animals owners and non-owners. There is a need for studies using mediating variables analyzes, as well as longitudinal research that can explore the feasible causal relationship between different characteristics of people who own pets and well-being.

**Keywords:** pets, personality, depression, anxiety, stress

**Resumen:** El estudio compara factores de personalidad, síntomas de depresión, ansiedad y estrés entre propietarios y no propietarios de animales. Participaron 145 adultos de 18 a 78 años (M = 30,96, SD = 12,10). Los participantes se dividieron según el tipo de mascota: 1) perros, 2) gatos, 3) perros y gatos. Los resultados sugieren que las personas que no tienen mascotas mostraron más síntomas de ansiedad que las que tienen mascotas. Los dueños de perros y gatos presentaron puntuaciones más altas del factor de conciencia de la conciencia que los participantes que no tenían ninguna mascota. Los resultados revelan diferencias entre propietarios de animales y no propietarios. Hay una necesidad de estudios que utilicen análisis de variables mediadoras, así como encuestas longitudinales que puedan explorar la posible relación causal entre las diferentes características de las personas que tienen mascotas y el bienestar.

**Palabras clave:** animales, personalidad, depresión, ansiedad, el estres



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Human life, shared with animals, is established as a new form of existence that fulfill the current needs of particular groups of people. This interaction can bring benefits to the human being over special situations and important moments of life, such as childhood, adolescence, divorce, widowhood, and old age (Almeida *et al.*, 2009). The relationship between men and animals is one of the strongest interspecific relationships that exist and provides a lot of benefits to human physical and mental health (Almeida, 2015). The bond developed between animals and your tutors is one of the first reasons why several people have pets and explain how the animal with the past years to closed are human (Holbrook *et al.*, 2001). In addition, dogs play an important role in social relations between humans, as demonstrated in the pioneer study of Robins *et al.* (1991). In this study, the researchers observed that dogs helped their owners to start conversations with strangers in a public park, facilitating social communication. Today, is common see people sharing their lives with their pets. A study showed that 92% people view their pets as family members because pets provide opportunities for involving experiences; like to appreciate nature and wildlife, inspiration, to be playful, to be altruistic and nurturing (Lancendorfer *et al.*, 2008).

Other studies suggest favorable consequences from human-animal interaction (Allen, *et al.*, 2002; Allen *et al.*, 1991; McCabe *et al.*, 2002; Motomura *et al.*, 2004). It was also found that having a pet is associated with less chance of developing depression, a greater sense of comfort, safety, and enjoyment (Holbrook *et al.*, 2001), and reduction of stress symptoms (Allen *et al.*, 2002; Allen *et al.*, 1991). Scholars also observed better socialization of pet owners with severe mental disorders (McCabe *et al.*, 2002, Motomura *et al.*, 2004) and improved physical and psychological elderly quality of life (Enmarker *et al.*, 2015; Friedmann, *et al.*, 1980). On the other way, there are contradictory results from studies that assess the relationships between owning pets and well-being (Islam & Towell, 2013). There are some researches indicating that caring for pets can increase symptoms of depression and

stress levels in the elderly, and decrease women physical health (Islam & Towell, 2013; Müllersdorf *et al.*, 2010; Parslow *et al.*, 2005). One of the reasons for this contradiction between studies may be the selection of different designs, samples, and instruments, making it difficult to compare results (Islam & Towell, 2013).

The studies of Gosling *et al.* (2010) and Reevy & Delgado (2015) evaluated the personality of pets owners. For them, there are some differences in the personality traits of people who prefer dogs or cats. When comparing dogs and cats owners, it is clear that dog owners have high traits of extraversion, agreeableness, and conscientiousness, and lower rates of neuroticism and openness to experience. That is, they are sociable, altruistic, compassionate, more confident, and persistent individuals (Costa & McCrae, 2007). On the other hand, those who have both dogs and cats also show high levels of extraversion and agreeableness, but they score high in openness to the experience (Reevy & Delgado, 2015), making them generally sociable, altruistic, compassionate as well, but more creative and open to new experiences and intellectual interests (Costa & McCrae, 2007).

Understanding how dogs can represent an attachment figure for people, and how human-animal relationship occurs to establish attachment, especially when distancing from pets can trigger anxiety and anguish. While the close presence of pets makes tutor more thinking about future goals, relationships and more confident (Savalli & Mariti, 2020), there are social constructions regarding the characteristics of dogs and cats perceived by the guardians, which can guide the choice of the pet considering the expected behavior of each species. For example, humans perceive dogs as more playful, affectionate, friendly, available and social while cats are perceived as more independent and distant. However, this data does not reflect reality given the limitations of studies that assess the behavior of cats (Menchetti *et al.*, 2018).

Studies that evaluate the results of human-animal interaction still provide controversial findings, indicating the need of further investigation. Apart from this study, there are only a few attempts to

identify the relationship between having a pet and the personality of its owner. Therefore, future studies are needed to explore the personality factors associated with pet owners. The present study aimed to compare personality factors, symptoms of depression, anxiety and stress, and levels of empathy between pet owners and non-pet owners, specifically in the following populations: 1) dogs owners, 2) cats owners, 3) owners of both species, and 4) individuals who do not live-in with animals.

## Method

### Design

This is a cross-sectional study.

### Participants

The participants consisted of 145 adults, recruited using convenience sampling, aged between 18 and 78 years ( $M = 30.96$ ;  $SD = 12.10$ ), 107 women (74%) and 38 men (26%), most had higher education ( $n=133$ ). Regarding marital status, 103 (71%) were single, 31 (21%) married, seven (4.80%) divorced and four (2.8%) widows. The criteria for inclusion were: (1) to be over 18 years old, (2) to be literate and (3) to accept participating in the research. The sample were divided according to the type of pet they had: only dogs ( $n = 72$ ), only cats ( $n = 21$ ), dogs and cats ( $n = 21$ ), and none ( $n = 31$ ).

### Instruments

The following instruments were applied, complying the order below.

*Sociodemographic data questionnaire.* Used to collect the following information: age, sex, marital status, educational level and economic classification criteria (ABEP, 2008).

*Big Five Inventory (IGFP-5) - The IGFP-5 (John et al., 1991).* It is a brief self-report measure composed of 44 items investigating personality dimensions based on the Big Five Personality factors model. The participant must answer to statements that contain personality features using a Likert scale ranging from 1 to 5 (1 = totally disagree and 5 = totally agree). The big five dimensions evaluated are: openness to experience, conscientiousness, extraversion, agree-

ableness, and neuroticism. The applied version was translated, adapted and validated by Andrade (2008) for research and psychological screening purposes in the Brazilian context. In the version adapted for Brazil, internal consistency of factors ranged from .65 to .75. While in the present study the subscales presented Cronbach's alpha values ranging between .39 and .81.

*Depression, Anxiety and Stress Scale (DASS-21).* Developed by Lovibond & Lovibond (1995) to measure and distinguish as much as possible the symptoms of anxiety, depression, and stress. Participants should indicate the extent to which they experience each of the symptoms during the last week (previous week), using a 4-point Likert scale (0 = does not apply to me, until 3 = applies to me a lot or most of the time). the depression, anxiety and stress outcomes are determined by adding up the 21 items scores. In Brazil, this scale was adapted and validated by Machado and Bandeira (2013). The DASS-21 version used in this study was an adaptation of the Vignola and Tucci (2014) version, used for Brazilian adults. In the Brazilian version, internal consistency of the Depression subscale was equivalent to .92, for the Stress subscale was equivalent to .90, and for the Anxiety .86. In this study, Cronbach's alpha values were, respectively, .88, .83 and .84.

*Empathy Inventory (I.E.)* (Falcone et al., 2008). It is a Brazilian self-report instrument composed of 40 items, which must be answered using a five-point Likert scale (1 = never until 5 = always). The items measure the cognitive, affective and behavioral components of empathy and are distributed in four subscales: Perspective, Interpersonal Flexibility, Altruism, and Affective Sensitivity. In the original study, the factors had internal consistency indices ranging from .72 to .85, while in the present study the subscales presented Cronbach's alpha values ranging between .72 and .86.

## Procedures

### Data collection

The data used for the development of this research came from a research project approved by an ethical research committee, recognized by the

National Health Council (CNS) under the number 22090113.2.0000.5347, which comply with ethical aspects that guarantee the integrity of the participants. The data and information about the animal's owners were obtained through a survey fulfilled online, with a time average response of 20 to 30 minutes. Confidentiality was assured concerning the participant's identity, who voluntarily agreed to sign down the free and informed consent (TCLE).

### Data analysis

Data were analyzed using SPSS statistical package for Windows, version 22. Data distribution was verified using the Kolmogorov-Smirnov test (considering normal distribution  $p$ -values  $> 0,05$ ). Descriptive statistics (mean, standard deviation and percentage) and inferential statistics were used. Chi-square test was used for comparison between groups in categorical variables. Results from IGFP-5 (openness, neuroticism, extraversion, conscientiousness and kindness), from DASS-21 (depression, anxiety and stress) and from empathy inventory

(perspective, interpersonal flexibility, altruism and affective sensitivity) were compared by ANOVA with post hoc Bonferroni. Cohen's  $d$  was used to investigate effect size: values  $< 0,10$  (small),  $0,30$  (moderate), and  $> 0,50$  (large) (Rosnow & Rosenthal, 2003).  $P$ -values  $< 0,05$  were considered significant.

### Results

The characteristics of the sample are presented on Table 1, and no significant differences were found regarding educational level, sex, and marital status between the four groups. Table 2 presents the comparison between the personality factors, mood symptoms, and empathy between the groups. Regarding the IGFP-5 scores, participants who had dogs and cats showed significantly higher levels of conscientiousness than participants who did not have any pets ( $F = 3,055, p = .028$ ), large effect size. There were no significant differences between the groups concerning the other four personality factors.

**Table 1** – Characteristics of the sample

Sample	Dogs	Cats	Cats•Dogs	None	$\chi^2$
	n(%)	n(%)	n(%)	n(%)	
Education level					
Elementary/High school	6(8)	2(10)	2(10)	2(7)	.973
Graduation	66(92)	19(90)	19(90)	29(93)	
Sex					
Female	53(74)	18(86)	16(76)	20(65)	.394
Male	19(26)	3(14)	5(24)	11(35)	
Marital status					
Single	47(65)	17(80)	16(76)	22(71)	.846
Married	19(26)	2(10)	4(19)	6(19)	
Divorced	4(6)	1(5)	1(5)	2(7)	
Widowed	2(3)	1(5)	0(0)	1(3)	

**Note:**  $\chi^2$  chi-square distribution

Participants who did not have any pets showed higher anxiety symptoms than those who had only dogs ( $F = 5,930, p \leq .001$ ), only cats ( $F = 5,930, p = .033$ ), and dogs and cats ( $F = 5,930, p = .015$ ), large effect size for all comparisons. However, no differences

were found regarding the intensity of the symptoms among the groups of animal owners. Finally, all groups obtained similar scores on empathy ability (Table 2).

**Table 2** – Comparison between groups: IGFBP-5, DASS-21 and Empathy Inventory Scores

	<b>Dogs</b>		<b>Cats</b>		<b>Dogs+Cats</b>		<b>None</b>		<b>ANOVA</b>		<b>Post hoc</b>	<b>Cohen's d</b>
	<b>M</b>	<b>DP</b>	<b>M</b>	<b>DP</b>	<b>M</b>	<b>DP</b>	<b>M</b>	<b>DP</b>	<b>F</b>	<b>p</b>		
<b>IGFBP-5</b>												
Openness	36.40	4.13	37.14	5.05	36.29	4.58	34.39	5.44	1.875	.137		
Neuroticism	24.68	3.46	24.24	2.34	26.19	2.79	25.00	3.35	1.553	.203		
Extroversion	28.33	3.53	29.14	3.83	29.10	2.95	27.65	2.79	1.178	.320	D+C > N*	.884
Conscientiousness	33.00	3.73	33.29	3.91	34.24	3.55	31.32	3.04	3.055	.030		
Agreeableness	32.81	3.24	33.33	3.54	33.38	2.99	32.81	3.10	.292	.831		
<b>DASS 21</b>												
Depression	4.00	4.48	4.19	4.57	4.19	4.29	6.10	5.19	1.575	.198	D<N**	.729
	2.61		2.86		2.57		5.87		5.930		C<N*	.661
Anxiety		3.34		3.55		2.27		5.37		≤ .001	D+C < N*	.800
Stress	6.79	4.18	6.38	4.12	6.33	4.35	9.06	4.06	2.862	.059		
<b>Empathy Inventory</b>												
Perspective	42.61	7.11	41.95	5.85	45.29	7.54	40.94	7.20	1.658	.179		
Interpersonal flexibility	31.08	5.38	33.00	5.81	31.62	6.91	30.16	6.65	.993	.398		
Altruism	29.64	5.59	31.71	5.67	31.10	6.07	30.52	5.53	.915	.435		
<b>Affective sensitivity</b>	<b>36.31</b>	<b>4.47</b>	<b>36.57</b>	<b>4.51</b>	<b>37.33</b>	<b>5.37</b>	<b>34.42</b>	<b>5.26</b>	<b>1.848</b>	<b>.141</b>		

**Note.** \* =  $p < .05$ ; \*\* =  $p \leq .001$ .

## Discussion

The present study aimed to compare personality factors, symptoms of depression, anxiety and stress, and levels of empathy between pet owners and non-pet owners. The main results showed that participants who didn't have any pets showed higher anxiety symptoms comparing those who had pets. Social and physical interactions often produce wellness sensations that may partially explain an anxiety decrease in humans who are in contact with pets, also providing social support in stressful situations of people's lives (Almeida, 2015; Holbrook et al., 2001). This human-animal interaction can offer significant comfort, becoming a possible protective factor for depression and loneliness (Holbrook et al., 2001).

Effects of human-animal interaction have been reported in studies since the 1990s: decreased heart rate and blood pressure, and greater release of pleasure-related and well-being hormones (Friedmann et al., 2003; Garrity & Stallones, 1998).

These outcomes indicate that there may be reduced loneliness and increased self-esteem in adults pet owners. Thereby, it is understood that increasing self-esteem and reducing loneliness may result in benefits for individuals, such as decrease of anxiety and depression symptoms. Owning a pet is associated with a reduced chance of depression, a greater sense of comfort, security, and entertainment (Holbrook et al., 2001).

Studies indicate that pets offer benefits to their owners' life, providing companionship, protection, loyalty, unconditional acceptance, health care, and peacefulness. When this bond continues until old age, it also has a positive effect on levels of satisfaction with life and personal safety (Enmarker et al., 2015; Friedmann et al., 1980; Holbrook et al., 2001; Ownby et al., 2002; Pachana et al., 2011). Elderly, especially those who live alone, consider the animal their family (Pachana et al., 2011). The results of a Portuguese study (Reis et al., 2017) showed that having a dog was associated with a

better perception of well-being, more satisfaction with life and less psychopathological symptoms.

Participants who had dogs and cats showed significantly higher scores on the conscientiousness factor comparing to those who had no pets. This personality factor is characterized by greater organization, planning, initiative, and focus to reach objectives, making easier the completion of obligations and duties. Individuals with higher levels of this factor are more organized, responsible and self-disciplined (Andrade, 2008). One hypothesis of explanation for this finding would be to understand that dog and cat owners have higher requirements for the daily and domestic arrangement because they have two different types of animals. Thus, they need higher levels of planning and responsibility, characterizing greater conscientiousness. Some studies point conscientiousness as one of the central features of pets owners' personality (Gosling et al., 2010; McConnell et al., 2011).

McConnell et al. (2011) investigated personality factors among people who owned pets and others who did not and found positive correlations between measures of well-being (such as self-esteem and subjective happiness) and personality factors, especially conscientiousness. When analyzing the differences between the two groups, pet owners scored higher on conscientiousness but did not show significant differences in well-being measures.

According to Almeida (2015), pet owners perform different behaviors and attitudes in relation to their animal, and this interaction provides a high emotional load, varying according to each individual's personality. The animals are part of their owners' lives and can arouse feelings of happiness, companionship, nutrition, tranquility, security, and responsibility in their owners (Reis et al., 2017). In this way, it can be inferred that human life, shared with animals, is established as a new form of existence, meeting the current needs of certain groups of people (Almeida et al., 2009).

The reduced size of the sample, especially the owners of only cats, it is pointed as a limitation of this study. The authors suggest future studies including bigger samples, and cross-cultural studies that assess sociodemographic and personality features,

the presence of psychopathology and social skills in order to investigate if there is a personality profile associated with owners of different types of animals.

Despite the limitations, the results of the present study suggest that individuals who do not have any pets showed more anxiety symptoms compared to those who have pets. Thus, it is recognized that regardless of the species, dog or cat, the interaction with these animals is beneficial. It was also found that owners of both species (dogs and cats), showed higher scores of conscientiousness comparing to the participants who had no pets, characterizing them as people with greater capacity of planning, organization, and fulfillment of duties.

The present research can indeed inform and help us to understand human-animal relations (Auger & Amiot, 2019). The findings reported in the present study highlight the role of pets in triggering less anxiety symptoms broadly human-animal relations. In conclusion, this results show that have pets can be beneficial to human health and wellbeing (Amiot & Bastian, 2015; Auger & Amiot, 2019; Walsh, 2009).

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