

## The effects of dog-owner relationship on perceived stress and happiness

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The purpose of this study was to evaluate the role of the pet-owner relationship on the perceived stress and subjective happiness of the owner, using structural equation modeling. A sample of 483 residents of Mexico, men and women, owners of at least one dog participated in this study. Data collection included The Monash Dog Owner Relationship Scale, the Perceived Stress Scale, the Subjective Happiness Scale and some questions regarding the daily dog-owner interaction. Within its primary results, this study showed a higher level of interaction in dyads and adequate relationships according to owners' perception. The structural model revealed the owner-dog interaction as a predictor of the owner's perception of their relationship; stressors and the dog-owner relationship as predictors of the owner's perceived stress, and stress on subjective happiness. It is concluded that the benefits of the human-animal bond are mediated by the dog-owner relationships' quality and this relationship is determined by their shared activities.

*Keywords:* pet-effect, human-animal bond, dog-owners, stress, happiness.

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Human-animal bond research includes the study of its social, psychological and physiological effects. These effects may

Some researches show evidence about positive effects of pet's companionship to the human health (Gutiérrez, Granados & Piar, 2007). To a social and psychological level, it is also suggested the decline of depressive symptomatology and negative feelings; as well as the enhancement of self-esteem, physical workout, social interaction and the perception of its support (Meléndez, 2014).

Guastello, Guastello & Guastello (2017) indicates that, the benefits of human-animal bonding had also been compared between non-owners and pet owners. These authors found lessen levels of depression and loneliness in pet owners and higher levels of social interaction compared to non-owners. Other studies that also compared pet owners and non-owners have found differences in both positive and negative emotions; as well as with life's satisfaction; but not in happiness (Bao & Schreer, 2016). In Mexico, it was also found that dog owners perceived themselves as healthier and less stressed; but not happier than non-owners (González-Ramírez y Landero-Hernández, 2014).

The type of pet that a person owns also contributes to these results and, according to Bao & Schreer (2016) having a dog is associated to a higher well-being compared to having a cat. Rehn (2013) in the other hand, concludes that, it is not the dog per se, but the type and quality of relationship hold with it. Thus, people that considers the dog as a family member, shown better scores in their perceived health than those that considers them as guardians or pets (González-Ramírez y Landero-Hernández, 2011). In Mexico, the most common pet is the dog (84%) and nearly six out of 10 households (58%) report having at least one pet (dog, cat, birds, fish, turtles or rodents) (Campos & Hernández, 2011), consequently it would be

come from the contact with different species of animals; or of the ownership and bonding with a pet (Meléndez, 2014).

expected that many people perceive this pet-effect.

Explaining pet-effect it has not been an easy research, different variables such as personality, emotional regulation styles and basic needs have been considered to understand the owner-dog relationship benefits (Bao & Schreer, 2016). Perceived needs support by a pet has been other variable considered to understand the pet-effect. Kanat-Maymon, Antebi & Zilcha-Mano (2016) found perceived needs support by a pet significantly predicted higher well-being but did not predict level of psychological distress.

Considering all these factors, the present research focused in some activities shared by humans and their dogs to evaluate its influence in the quality of their relationship. Perceived stress and happiness were measured, both variables are commonly included in the human-animal bond field and are related; also, avoidance of negative situations that produce stress is one of these mechanisms involved in happiness (Moyano-Díaz, Páez y Torres, 2016). Finally, this research's purpose is to evaluate the role of the dog-owner relationship on the perceived stress and subjective happiness of the owner; the main hypothesis was that dog-owner relationship has an effect over happiness and perceived stress, while perceived stress would be a mediator between the stressors' effect on subjective happiness.

## **Method**

### *Participants*

For this research, participants were recruited among dog owners with residency in Mexico, being this the solely criteria of inclusion. Surveys were distributed on line, via SurveyMonkey®; on social media and following a snow ball sampling method.

Incomplete surveys were discarded. All surveys were voluntary and anonymous.

A total sample of 483 persons, with a mean age of 31.5 years ( $SD=8.8$ ) participated in this research. The majority of them were women (82.2%, and 17.8% men). Slightly above the half of the sample identified themselves as single (51.6%), 33.3% as married, 11.8% in a relationship and the rest as separated or divorce. Of them, 47.2% reported to have only one dog, 26.9% two dogs, 14.3% three dogs and the rest between 4 and 9 dogs. For meeting this research purpose, people were asked to respond the questions thinking only in the dog with which they spend more time.

Regarding the dogs, 51.9% of them were females and 48.1% males; and presented a mean age of 4.1 years ( $SD=3.1$ ). In average, the dogs had 3.7 years ( $SD=3.0$ ) living with their owners. According to their owners, 17.6% of the dogs were mixed breed, the rest represent 63 different pure breeds. For a better description of this sample, people were asked to respond the size that better represented their animal companion: 32.5% of them were reported as small dog (5 to 12 kilos); 25.3% as medium size (12 to 25 kilos); 17.0% as miniature size (3 to 5 kilos), 22.2% as large size (25 to 40%) and 3.1% as giant size dogs (over 40 kilos).

#### *Measures*

In this research the **Monash dog owner relationship scale** (MDORS; Dwyer, Bennett, & Coleman, 2006) in its Mexican adaptation (MDORS-M; González-Ramírez, Vanegas-Farfano & Landero-Hernández, 2017) was used. This scale is based on the Social Interchange Theory, which explain that human relationship are only held when both, costs and benefits, seems balanced or when the perception of the benefits exceeds the costs; and it is considered as the more robust instrument for the evaluation of the human-dog relationship, from the perception of the human (Payne et al., 2015). This is a

28-item Likert scale, with options from 1 to 5. Arranged in three subscales: (1) dog-owner interaction; (2) perceived emotional closeness; and (3) perceived costs. For scoring, the perceived costs scale items are reversed and summed to items of the other two subscales. The resultant score indicates the strength of the relationship according to the perception of the owner. In its Mexican adaptation, the MDORS-M scale presented a reliability of  $\alpha=.82$  in dog-owner interaction subscale;  $\alpha=.91$  in the emotional closeness subscale and  $\alpha=.81$  in the perceived costs subscale. This scale presents an adequate general reliability of  $\alpha=.88$  (González-Ramírez et al., 2017).

To obtained information regarding the dogs' routine, participants were asked about the frequency in which play with their dogs, if the dogs could enter to the house and if owner take the dog with them whenever possible. Options to these questions range from 1=less frequently to 4=more frequently.

To measure happiness, we used the **Subjective Happiness Scale** (SHS; Lyubomirsky & Lepper, 1999) in its validated version for Mexican population (Quezada, Landero-Hernández & González-Ramírez, 2016). This is a 4-item Likert-type scale, measures global subjective happiness by means of statements with which participants either self-rate themselves or compare themselves to others. Normative values of subjective happiness range from 4.55 to 6.65 in the group age of 25 to 34 years and 4.57 to 6.75 in the group age of 35 to 44 years old. The scale showed an adequate level of internal consistency by Cronbach's alpha coefficient=.77 (Quezada et al., 2016). The Cronbach's alpha was .76 for the present study.

The **Perceived stress scale** (PSS; Cohen, Kamarak & Mermelstein, 1983) was used in its mexican version (González-Ramírez & Landero-Hernández, 2007). The scale contains 14 Liker-type items with a

score ranging from 0=never to 4=very often; there are 7 items that need to be reversed due to being in negative form (items 4, 5, 6, 7, 9, 10 and 13). The score ranges from 0 to 56 points, where a higher score corresponds to higher levels of stress. Reference values were proposed by González-Ramírez, Rodríguez-Ayán, & Landero-Hernández (2013) considering mean and standard deviation of their samples; thus, scores within one standard deviation of the mean for each group serve as reference values, describing average stress or expected values in general population. Expected values of perceived stress in this scale range from 12.16 to 29.70 for people with ages between 25 to 34 years and from 15.22 to 31.48 in people with ages ranging 35 to 44 years old (González-Ramírez et al., 2013). The scale exhibited a Cronbach's alpha of .83 (González-Ramírez & Landero-Hernández, 2007). The Cronbach's alpha of the present study was .86.

A question adapted from Sandin and Chorot's (1987) Life events questionnaire were also included. In its original form, the questionnaire includes 65 stressful situations; in this research only a question about its subscales: work (job), health, love, partner, family, children, social, legal, finance (economic), residence (for example, change of address or city), and academic. The following question was: In the last months, have you dealt with a difficult situation which you considered negative or that caused you stress, anxiety, or depression? In this research only those people that affirmative respond to this question were included. It was also solicited to indicate to which of the areas correspond their answers and the number of stressful situations was the variable "number of stressors" included in the analysis.

### *Statistical Analysis*

Descriptive analysis of the variables was performed. The normal distribution was contrasted with the Kolmogorov-Smirnov test, indicating that scores of all variables were not normally distributed ( $p < .05$ ). Spearman correlational analysis evaluated associations between ordinal and interval variables. To identify group differences, Mann-Whitney U test was used. IBM®SPSS® Statistics 20 was used for the statistical analyses. Structural equation modeling was conducted in SPSS AMOS 18 (IBM Inc.). For the parameters in the model to be considered statistically significant, a  $p$  value of less than .05 was considered. To test the model fit, we followed the threshold levels recommended by Hooper, Coughlan, & Mullen (2008) with the following performance measures: for  $\chi^2$  divided by degrees of freedom [ $\chi^2/df$ ], values less than 3; for goodness of fit index, adjusted goodness of fit index, normed fit index, Tucker-Lewis index, and comparative fit index, values  $\geq 0.95$ ; and for root mean square error of approximation, values less than 0.07.

## **Results**

### *Descriptive*

Table 1 presents the means and standard deviations of each observed variable. As observed, the daily routine of the participants and their dogs showed a high level of interaction: the participants as a group play with their dogs frequently, let them stay in the house when the owner is in home and take them out whenever possible. No statistical differences were found between sexes. The MDORS-M score presented differences between men and women ( $p < .01$ ) the female subsample perceived a better relationship with their dogs. No differences were found in gender comparisons of number of stressors, stress or subjective happiness.

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Table 1

*Descriptive statistics and group differences according to the owner sex.*

	Dog-owner daily shared activities			Dog-owner relationship		Stressors	Stress	Subjective happiness	
	Play with the dog	Allow the dog to stay in the house	Take the dog out as a companion when possible	MDORS-M total score	MDORS-M average scores	Number of stressors	Perceived stress scale (PSS) total score	SHS total score	SHS average scores
Total sample (n=483)									
Mean	2.84	3.49	2.60	110.01	3.93	1.72	19.97	21.31	5.33
Median	3.00	4.00	3.00	113.00	4.04	1.00	20.00	22.00	5.50
SD	0.87	0.84	1.01	14.58	0.52	1.19	7.67	3.86	0.97
Men (n=86)									
Mean	2.74	3.34	2.50	104.19	3.72	1.76	18.90	20.92	5.23
Median	3.00	4.00	2.50	107.00	3.82	1.00	18.00	22.00	5.50
SD	0.90	0.93	1.00	14.69	0.52	1.39	8.04	4.62	1.16
Women (n=397)									
Mean	2.86	3.53	2.62	111.27	3.97	1.71	20.20	21.40	5.35
Median	3.00	4.00	3.00	114.00	4.07	1.00	20.00	22.00	5.50
SD	0.86	0.82	1.01	14.27	0.51	1.40	7.58	3.68	0.92
Differences between men and women	Z=-1.151; p=.250	Z=-1.980; p=.048	Z=-1.019; p=.308	Z=-4.278; p=.001		Z=-0.596; p=.551	Z=-1.698; p=.090	Z=-0.626; p=.531	

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Table 2

*Spearman correlations between the daily dog-owner routine and the scales.*

	Play with the dog	Allow the dog to stay in the house	Take the dog out as a companion when possible	MDORS-M scale	Number of stressors	Perceived stress scale (PSS)
Allow the dog to stay in the house	.351**					
Take the dog out as a companion when possible	.371**	.353**				
MDORS-M scale	.509**	.481**	.542**			
Number of stressors	.037	.131**	-.097*	-.056		
PSS scale	-.090*	.013	-.150**	-.211**	.372**	
SHS scale	.117*	.055	.051	.133**	-.208**	-.509**

\*\* Correlation is significant at the .01 level (2-tailed).

\* Correlation is significant at the .05 level (2-tailed).

*Correlations*

Most of the evaluated variables presented significant correlation. The correlation between the *dog-owner relationship* with *play frequency* ( $r_s=.509$ ;  $p=.001$ ); with *allow the dog to be inside the house* ( $r_s=.481$ ;  $p=.001$ ); and with *take the dog with them whenever possible* ( $r_s=.542$ ;  $p=.001$ ) were among the strongest. Additionally, a negative and significant relationship was found between the perceived stress and the subjective happiness ( $r_s=.509$ ;  $p=.001$ ).

*Structural Equation Model*

Based on the theoretical model of González-Ramírez and Landero-Hernández (2006) to explain perceived stress and its consequences from transactional stress theory, and also taking into account the correlations presented in Table 2, a hypothetical model was evaluated presenting number of stressors as an exogenous and predictor variable of the perceived stress. In this model, we used the perceived stress as a mediator between the stressors' effect on subjective happiness. While this model also

evaluated the dog-owner relationship over the stress; due to the weak correlations between the MDORS-M scale with the stressors and with subjective happiness, no other effects were tested. Thus, the present model includes the three questions concerning the dog-owner routine as predictor variables of the dog-owner relationship.

Standardized parameters (standardized regression weights and correlations) and its significance values are showed in table 3. It is worth noticing that, by including the whole sample in this model, all regressions weights presented significant values; however, no significant correlations were found between the number of stressors and the play-time frequency.

The model showed that the routine questions explained 47% of the dog-owner variance, that is, their *play frequency*, to *allow the dog to be inside the house* and to *take the dog with them whenever possible* fully mediates the dog-owner relationship. Also, the direct effects of the dog-owner relationship and the number of stressors represented a 15% of the perceived stress'

variance. The influence of number of stressors on perceived stress had a significant value on these participants: while incrementing this variable a standard deviation, the perceived stress variable incremented .384 standard deviations. The pet-owner relationship represented a negative effect over the perceived stress variable (an increment of one standard deviation of the dog-owner relationship represent a decrement of .184 standard deviations of perceived stress); which suggest that when the respondents experienced higher levels of dog-owner relationship, they experience much less perceived stress in their life. However, perceived stress represented a direct negative effect on happiness, which presented an explained variance of 29%; indirect effects over this last variable also margin from -.186 to .098.

This study's aim was to evaluate the role of the dog-owner relationship on the perceived stress and subjective well-being of the owner. Considering the presence of statistically significance differences between men and women respondents (Table 3), two independent models were also tested. Table 4 presents selected goodness of fit indices of the whole sample, and men and women subsamples separately. As can be seen in this table, the three versions of this model present a reasonable fit to the data.

While the three versions of the model showed a good fit, only in the women's model the paths in the effect of the dog-owner relationship over the perceived stress was statistically significant (Table 3).

A new model was tested to understand if this difference in the effect of the dog-owner relationship over the perceived stress was explained by respondents' gender or by the quality of the dog-owner relationship. This fourth model included both, respondents with the best and

worst relationship (highest and lowest scores in the MDORS-M). Three groups were made considering, as cut-off points, means and standard deviations from study where Monash scale was translated and analyzed for Mexico (MDORS-M; González et al. 2017). Groups resulted are presented in Table 5. Thus, a hundred and thirty-two participants presenting the highest and lowest scores in the MDORS-M scale, those with score values falling over a standard deviation or above it ( $M=112$ ,  $SD=14.1$ ), were included in model 4.

As can be seen in Table 3, the explained variance of the dog-owner relationship and the perceived stress increased in model 4. Figure 1 shows the model supported by the data of the participants with the highest and lowest scores on the MDORS-M scale showed an adequate goodness of fit (Table 4). Models 1 to 4 remain essentially unchanged. Routinely activities have a positive influence on the dog-relationship. Dog-owner relationship and the number of stressors have a direct and negative effect on the perceived stress. The more perceived stress experienced by participants, the less subjective happiness they reported.

Finally, differences of the perceived stress and subjective happiness values between men and women were evaluated on each MDORS-M subgroup. As seen in Table 5, the equivalency in most of their values supported that men and women were considered as a single group. Mann-Whitney U test was used to compare both, men and women; while Kruskal-Wallis test was used to compare the three MDORS-M dog-owners' quality of relationship, which confirms that both perceived stress and subjective happiness vary according to the dog-owner relationship.

Table 3

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*Parameter comparisons of the estimated models.*

		Total sample (n=483)		Men (n=86)		Women (n=397)		Extreme values (n=132)	
		S	p	S	p	S	p	S	p
Dog-owner relationship	↔ Take the dog out as a companion when possible	.321	.001	.399	.001	.308	.001	.492	.001
Dog-owner relationship	↔ Allow the dog to stay in the house	.307	.001	.212	.020	.323	.001	.197	.002
Dog-owner relationship	↔ Play with the dog	.281	.001	.261	.005	.289	.001	.269	.001
Perceived stress	↔ Number of stressors	.348	.001	.411	.001	.349	.001	.351	.001
Perceived stress	↔ Dog-owner relationship	-.184	.001	.040	.691	-.256	.001	-.356	.001
Subjective happiness (SHS average score)	↔ Perceived stress	-.534	.001	-.645	.001	-.511	.001	-.552	.001
Take the dog out as a companion when possible	↔ Allow the dog to stay in the house	.371	.001	.398	.001	.362	.001	.554	.001
Take the dog out as a companion when possible	↔ Play with the dog	.361	.001	.432	.001	.343	.001	.570	.001
Allow the dog to stay in the house	↔ Play with the dog	.345	.001	.472	.001	.310	.001	.495	.001
Number of stressors	↔ Take the dog out as a companion when possible	-.097	.035	-.351	.002	-.030	.547	-.083	.346
Number of stressors	↔ Allow the dog to stay in the house	.122	.008	.101	.353	.130	.010	.153	.083
Number of stressors	↔ Play with the dog	.028	.542	-.041	.704	.048	.343	-.001	.990
		Total Sample		Men		Women		Extreme scores	
Explained variance	Dog-owner relationship	47%		48%		47%		67%	
	Perceived stress	15%		17%		18%		25%	
	Subjective happiness	29%		42%		26%		27%	

S=Standardized estimates.

p=Statistical significance.

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Table 4

*Goodness-of-Fit Statistics of Estimated Models.*

	X <sup>2</sup>	Df	p	Absolute Fit Index			Incremental Fit Index		
				X <sup>2</sup> /df	GFI	AGFI	RMSEA	NFI	CFI
Total sample	20.717	9	.014	2.302	.988	.963	.052	.973	.984
Men (n=86)	12.617	9	.181	1.402	.962	.881	.069	.934	.979
Women (n=397)	12.088	9	.208	1.343	.991	.973	.029	.980	.995
Extreme values (n=132)	11.280	9	.257	1.253	.976	.924	.044	.968	.993

Table 5

*Participant's distribution according to the dog-human relationship, and differences of perceived stress and subjective happiness.*

MDORS-M subgroups		n	Subjective Happiness (SHS)				Perceived Stress (PSS)			
			Median	Mean	SD	Mann-Whitney U test	Median	Mean	SD	Mann-Whitney U test
Less than one SD	Men	27	22.00	20.96	4.34	Z=-0.526; p=.599	18.00	19.30	7.78	Z=-2.691; p=.007
	Women	63	21.00	20.60	3.44		22.00	23.03	6.75	
	Total	90	21.50	20.71	3.71		21.00	21.91	7.23	
Within one SD	Men	58	22.00	21.02	4.73	Z=-0.264; p=.792	18.00	18.55	8.19	Z=-1.606; p=.108
	Women	293	22.00	21.34	3.69		20.00	20.24	7.58	
	Total	351	22.00	21.28	3.88		20.00	19.96	7.7	
Over one SD	Men	1	14.00			Z=-1.711; p=.087	28			Z=-1.614; p=.106
	Women	41	22.00	23.07	3.51		14.00	15.59	6.62	
	Total	42	22.00	22.86	3.74		14.40	15.88	6.81	
Kruskal-Wallis test			H=9.058; p=.011				H=16.456; p=.001			

### Discussion

The main purpose of this research was to contribute to the explanation of the pet-effect, exploring its effect on the human happiness and stress; to achieve it, a model that included the variables of dog-owner relationship, stressors, perceived stress and happiness was performed. Testing this model is also a contribution in happiness study field, as Moyano-Diaz et al. (2016) indicates, is relevant to identify predictor variables of happiness that could be changed, in this study, perceived stress is an important predictor of happiness.

Participants were people who reported subjective happiness and perceived stress scores within the reference values for group aging suggested by Quezada et al. (2016) and González-Ramírez et al. (2013) respectively. Thus, findings could reflect what happens in people with average scores of these variables. Although, those whom reported the highest levels of happiness and lowest levels of perceived stress, also presented the higher values in dog-owner relationship.

According to our research, men and women presented differences in their dog-owner relationship, as seen in the MDORS-

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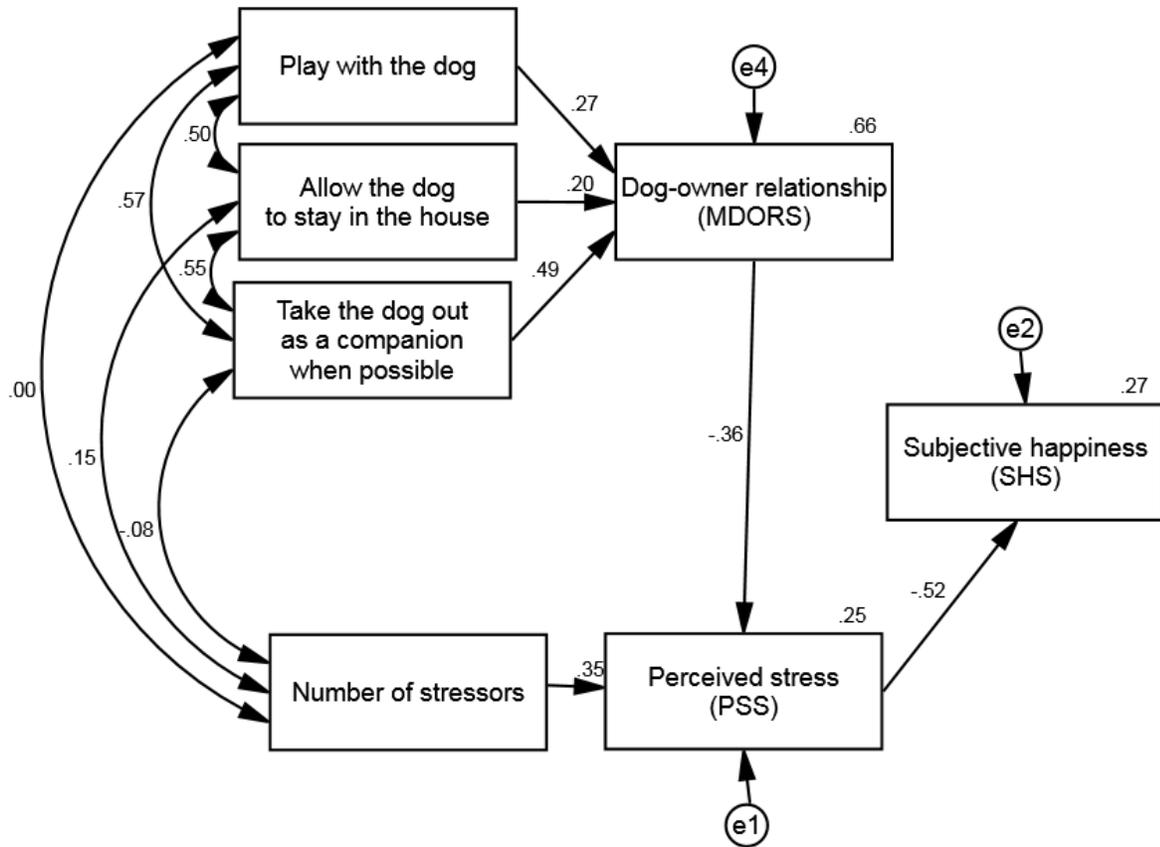


Figure 1  
 Structural model of the dog-owner relationship effect on the owner's perceived stress and subjective happiness. Model include participants with extreme values according to the MDORS-M scores ( $\pm 1$  SD).

M scale's values. In a previous research, Herzog (2007) found that responses between sexes are more similar than different; but also found that women, on average, show higher levels of positive behaviors and attitudes toward animals in many areas of human-animal interactions.

Based on theory and research, we did propose and test a mediation model of dog-owner relationship, perceived stress and subjective happiness to explain the human perception over the relationship with their own dogs. Three interaction activities were measured to meet this purpose: their play frequency, whether the dog can stay in the house if supervised and; if they take the dog with them whenever possible. These independent variables did not show significant differences between sexes, although showed significant correlation with dog-human relationship. This finding is not too surprising. In previous research, time spent as a dyad was related with emotional closeness or activities that require more owner engagement with the dog, like dog sports (Meyer & Forkman, 2014; Payne et al., 2015). Thus, routine interaction was likely to be perceived as a similarly positive experience that triggers emotional closeness responses.

The three independent variables used to measure the dog-owner quotidian interaction explained a 47% of the total variance of MDOR-S, and reach a 67% in the last model. In previous research where the variance in MDORS scores has been investigated, variables included in structural models have only predicted a small proportion of it. For example, in Meyer & Forkman (2014) research, were owner characteristics appeared to influence the dog-owner relationship more than the dog's personality traits, their estimated models could only explain 8% of the emotional closeness variance, and the 6% of the total variance of the perceived cost using this same

scale. Supported in this research and our data, it is possible to conclude that shared activities is the best predictor of the human perception of their pets' relationship. This idea has similarities to Dotson & Hyatt's (2008), whom suggested that quantity and quality of time shared with the dog have a strong impact on the experience of the underlying dog-companionship dimensions.

A major contribution of our study is differences in explained variance of happiness between sexes. Men's subjective happiness reached a 42% of explained variance, while in women this value only represented a 26%. This finding is relevant because it suggests the important role of the stress' perception as predictor of male subjective happiness; and that future research should add other variables to explain its difference to females.

This study found different effects of the human-dog relationship over the perceived stress, related to gender. While in the men's model this effect did not reach a statistic significance, the women's one did. As mentioned early, in this research women had higher MDORS-M scores than men, which may possible relate to the quality of their relationship, and not to gender differences. Considering this possibility, a fourth model was tested including only those participants with extreme score values in their MDORS-M ( $\pm 1$  SD). This model confirmed the observed effects of the previous three proposals and an increment in the explained variance of the perceived stress and dog-human relationship. It is necessary to notice that, in this model, the group that presented a better relationship with their dog only included one male respondent; a common occurrence in these kinds of studies where most of the participants are women (e.g., Bennett & Rohlf, 2007; González-Ramírez & Landero-Hernández, 2011).

According to the results, initial hypothesis was partially supported.

Perceived stress is a mediator between the stressors' effect on subjective happiness. Dog-owner relationship has an effect over perceived stress, but not a direct effect on subjective happiness.

The resulting models and the differences shown in Table 5, suggest altogether that benefit of owning a dog, over perceived stress and subjective happiness, is determined by the quality of the dog-owner relationship. In other words, for achieving the pet-effect, having a pet is not enough; dog ownership must include quality and constancy in their interaction.

### Conclusion

Dogs that spend more time with their owner in their house, as a company in daily activities or playing, not only present a better relationship, they are also linked to a lesser perception of stress in the owners. According to social support theory, one of the theories commonly used to interpret the positive humans' health effects of pets, animals are considered a source of social support (Beck & Katcher, 2003). This perception of support provided by pets could explain that the dog-owner interaction helps human to relax, contributes to a lesser perception of stress, and the recognition of subjective happiness. This research results also support the notion that, what affects people are not the quantity of stressors they face, basic proposal of transactional stress theory (González-Ramírez & Landero-Hernández, 2006); but how they perceive those situations, and how this cognition influences subjective happiness.

As limitations of the study we have, most of the participants are women. Also, it should be considered that to perform this research, the main inclusion criteria was to be a dog-owner. Sampling method could influence that people participating were those who had best dog-owner relationship. A biasing effect of this restriction could make it unrepresentative of the population: the

participants' desirability to report a high level of interaction with their dogs may threaten the generalizability of this data.

The present study concludes that the benefits of the human-animal bond are mediated by the quality of the relationship with the dog and, that this relationship is determined by the activities shared with the dog.

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