

## Personality Differences between Dog People and Cat People

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Understanding the relationship between human personality and preferences for pet species is important for bettering human-animal relationships, supporting animal welfare, and supporting pet therapy. The present study examined personality differences between dog people and cat people with the objective of addressing some discrepancies in previous research that could be traced to the use of broadly defined versus narrowly defined traits. Participants were 418 undergraduates who completed the Sixteen Personality Factors Questionnaire (16PF) and a Pet Survey that classified them as dog or cat people. The 16PF contains 15 narrowly defined primary personality traits, a brief measure of general intelligence, and 5 global factors that are comparable in meaning to those of the Five Factor Model. The principal differences were that the 352 dog people scored higher on warmth, liveliness, rule consciousness, and social boldness compared to the 66 cat people. The latter scored higher on general intelligence, abstractedness, and self-reliance. Overall, primary traits corresponded to a pattern known to be associated with creative personalities and produced better discrimination between the two groups than traits corresponded to the Five Factor Model. Some traits were more salient for females than they were for males.

*Keywords:* cat, dog, personality, pet owner

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### Introduction

In the United States, about 70-80 million dogs and 74-96 million cats are owned as pets. Approximately 37-47% of all households in the United States own a dog and 30-37% own a cat (American Society for the Prevention of Cruelty to Animals [ASPCA], 2016; American Veterinary Medical Association [AVMA], 2016). Pets allegedly provide numerous benefits to their owners. Most notably, pets can help their owners to love and feel loved, contributing to the owner's mental health and emotional wellbeing (Kidd & Kidd, 1980). Compared to non-owners, pet-owners have lower scores on depression and

loneliness and higher scores on social interaction (Connell & Lago, 1984; Goldmeir, 1986; Garrity, Stallones, Marx, & Johnson, 1989; Zasloff & Kidd, 1994). Additionally, Paden-Levey (1985) concluded that the negative correlation between pet-ownership and neuroticism indicates that emotional stability could be supported by pet ownership. Given the numerous psychological benefits associated with pet ownership, it appears that pets may be an important coping mechanism for millions of people, although the causative relationship between the two variables is not conclusive.

Unfortunately, many human-animal relationships end in failure. Every year,

7.6 million pets enter shelters in the US, and 2.7 million pets are euthanized (ASPCA, 2016). Understanding the relationship between human personality and preferences for pet species is important for selecting a pet that could provide physical and psycho-social benefits, for limiting the number of surrendered or abandoned animals, and ensuring animal welfare (Gosling, Sandy, & Potter, 2010; Kidd & Kidd, 1980).

### *Pet Owners*

The general population subscribes to the idea of there being cat people and dog people who differ on basic personality characteristics, and many people are generally comfortable categorizing themselves by these groups (Alba & Haslam, 2015; Gosling et al., 2010; Woodward & Bauer, 2007). Some specialists in human-animal relationships assert that the preferences for dogs or cats, and particular breeds of dogs, are associated with underlying human personality differences (Coren, 1998). Unfortunately, the current body of research is disjointed and occasionally contradictory, as is the case for research pertaining to pet ownership generally. For example, Cameron and Mattson (1972) found that pet owners liked other people less than non-owners did, tended to prefer their pets to other people, and thought themselves as less well-regarded by others. However, Joubert (1987) found that pet owners reported spending more time with other people, and Miller and Lago (1990) noted a positive correlation between friendliness of pet dogs and the friendliness of their owners. As another example, Hyde, Kurdek, and Larson (1983) found that college-aged pet owners tend to have higher empathy and interpersonal trust scores than non-pet owners, but Johnson and Rule (1991)

found no significant difference between pet owners and non-owners, and they concluded that pet-owners and non-owners may be victims of stereotyping.

Other studies have examined a variety of personality variables and their relationship to self-identification as a cat person or a dog person (Gosling et al., 2010; Reevy & Delgado, 2015). For instance, it has been found that self-identified dog people rated themselves as significantly less hostile and less submissive than cat people (Woodward & Bauer, 2007). Additionally, dog people were higher on social dominance orientation and competitiveness (Alba & Haslam, 2015). These results are similar to those of Bagley and Gonsman (2005) who found that dog-loving men were high in dominance and aggression, and dog-loving women were high in dominance but low in aggression. A sample of male and female dog people also rated themselves as more masculine on the abbreviated Bem Sex-Role Inventory than cat people. Dog people also rated themselves as more independent than did cat people (Perrine & Osbourne, 1998). Dog people are reportedly more extroverted (Gosling et al., 2010; Reevy & Delgado, 2015), and agreeable (Reevy & Delgado, 2015; Zasloff, 1996). Gosling, Sandy, and Potter (2010) found that dog people scored higher on conscientiousness (i.e., self-discipline) than cat people, but Reevy and Delgado (2015) did not support that finding. Finally, people who indicated a dog as their favorite pet tended to express a stronger attachment than those who reported a cat to be their favorite pet (Johnson, Garrity, & Stallones, 1992).

Conversely, cat people were high in autonomy and low in dominance and nurturing (Kidd & Kidd, 1980). Higher

ratings of neuroticism were associated with cat people rather than dog people (Gosling et al., 2010; Reevy & Delgado, 2015). Finally, males and females who disliked cats rated themselves lower in femininity on the abbreviated Bem Sex-Role Inventory (Perrine & Osbourne, 1998).

### *Personality Constructs*

Gosling et al. (2010) proposed that some of the disagreement and holes in the current body of literature are the result of: (a) the studies using a broad range of concepts and scales that make it difficult to compare findings across studies, and (b) the studies failing to systematically chose traits that represent the breadth of the personality spectrum. To resolve these issues, Gosling et al. (2010) advocated the use of the Big Five or Five Factor Model (FFM; McCrae & Costa, 1985) to evaluate personality factors.

The FFM resulted from factor analyzing trait terms from numerous personality tests that were thought to contain primary traits. The procedure isolated five traits: neuroticism, extroversion, openness, agreeableness, and conscientiousness. The FFM personality traits are broadly defined, and each trait encompasses several facets of personality. Although useful for understanding general patterns, relying only on the broadly defined FFM traits may obscure other important individual differences. For instance, if two individuals have the same extroversion score, one might assume that the two individuals interact with their social environment in similar ways. However, this assumption may be premature.

The Sixteen Personality Factor Questionnaire (16PF; Cattell, 1994; Cattell, Eber, & Tatsuoka, 1970) offers an alternative taxonomy of primary traits

that are more narrowly defined than the FFM traits. The primary traits are hierarchically organized into global traits that are similar in meaning to those of the FFM. On the 16PF, the global trait of extroversion is composed of narrowly defined primary traits including warmth and social boldness. Someone who scores high on warmth but low on social boldness may have the same extroversion score as someone who scores low on warmth and high on social boldness. The first person is more likely to be experienced by others as warm, modest, and concerned for others, while the second person is more likely to be viewed as bold, talkative, and attention seeking. Thus the ways these two individuals interact with their environments are qualitatively different (Cattell & Mead, 2008). Additionally, some studies have found null or only small predictive relationships between FFM traits and behavior, but have found stronger predictive relationships between narrowly defined traits and the same behaviors. Such findings are noteworthy because it is possible that important predictive relationships could be overlooked if research only examines the FFM traits (Dudley, Orvis, Lebiecki, & Cortina, 2006; Guastello, 2009; Guastello, Guastello, & Guastello, 2014; Szymura, 2010). The advantages for detecting meaningful relationships and interpreting findings are possible because the 16PF primary factors were constructed to be factorially independent, but potentially correlated, which was not the case with the development of the FFM (Cattell & Mead, 2008).

The present study seeks to incorporate the recommendation by Gosling et al., but also to improve predictive accuracy, by using the 16PF (Cattell, Cattell, & Cattell, 1994) to

measure personality factors. The 16PF makes use of narrowly defined personality traits and measures 16 primary factors of personality including: warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, emotional sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism, and tension. The reasoning factor is a brief measure of general intelligence. Although general intelligence is not usually considered a personality trait, Cattell et al. (1970) argued that one must know the general intelligence level of a person in order to interpret the personality profile in a meaningful way. The 16PF primary factors can be interpreted in a profile, used individually in a prediction model, or used to calculate secondary factors that are similar to FFM personality traits. The 16PF is unique because it ensures the precision of the primary personality traits but also allows researchers to investigate the FFM traits and compare the results to other studies that have used FFM traits (Cattell & Mead, 2008).

### *Gender*

There is reason to consider that gender is related to preferences for either cats or dogs. Several studies found that gender moderates the relationship between personality factors and pet preferences (Bagley & Gonsman, 2005; Kidd & Kidd 1980; Perrine & Osbourne 1998). Additionally, men and women in the general population differ on the FFM traits (Schmitt, Realo, Voracek, & Alik, 2008). Gender differences are also observed on two of the primary traits of the 16PF; women tend to score lower than men on dominance (Factor E) and higher than men on emotional sensitivity (Factor

I) (Conn & Rieke, 1994, p. 45). Therefore, evaluating gender differences in the analysis is important for determining the generalizability of the findings (Hergovich, Maurer, & Riemer, 2011).

The following hypotheses were investigated in the present study:

- *Hypothesis 1:* There are global factor personality trait differences (consistent with the FFM) between self-identified cat people and dog people. Previous research suggests that dog people would be more extroverted, agreeable, and possibly more conscientious, and that cat people would be more neurotic and show greater levels of openness.
- *Hypothesis 2:* There are primary personality trait (of the 16PF) differences between self-identified cat people and dog people. The factors that were most likely to be important, as indicated by previous research, were friendliness (16PF Factor F), dominance (Factor E), emotional sensitivity (Factor I), rule-consciousness (Factor G), and self-sufficiency (autonomy, Factor Q2).
- *Hypothesis 3:* The differences in the primary or global personality differences of cat people and dog people are moderated by gender. It is possible that some traits could be relevant for one gender but not the other.

## **Methods**

### *Participants*

The 600 participants in the study were undergraduate students who were enrolled in psychology courses at a small, private, Midwestern US University. The sample was 25.8% male and 74.2% female. Self-reported racial/ethnic

identities are as follows: 89.8% White, 7.3% Hispanic, 1.8% African American, 0.7% Asian, and 0.3% reported belonging to another racial or ethnic identity. Their ages ranged from 18 to 22 years.

### *Materials*

**16PF.** The 16PF measures 16 primary factors and 5 global factors of personality. The 16 primary factors are: warmth (Factor A), reasoning (Factor B), emotional stability (Factor C), dominance (Factor E), liveliness (Factor F), rule-consciousness (Factor G), social boldness (Factor H), emotional sensitivity (Factor I), vigilance (Factor L), abstractedness (Factor M), privateness (Factor N), apprehension (Factor O), openness to change (Factor Q1), self-reliance (Factor Q2), perfectionism (Factor Q3), and tension (Factor Q4). Factor B contains 15 items, Q1 contains 14 items, and the other primary scales contain 10 or 11 items each. The five global factors are calculated as weighted combinations of primary scales: introversion/extroversion, low anxiety/high anxiety, receptivity/tough-mindedness, accommodation/independence, and lack of restraint/self-control (Cattell, 1994, p. 16). All 16PF scales are normed and calibrated with means of 5.5 and standard deviations of 2.0.

The 16PF measurements have high construct validities and strong test-retest reliabilities (Conn & Rieke, 1994). Two general population samples ( $N = 820$  and  $2500$ ) and one sample of college undergraduates ( $N = 1340$ ), yielded internal consistency reliability coefficients for the 16PF primary factors ranging from .68 to .87 (Conn, 1994, p. 81), and from .70 to .86 when all three samples were combined. In a sample of undergraduate students ( $N = 159$ ), two-

month test-retest reliability coefficients ranged from .64 to .79 (Conn, 1994).

The correspondence between the 16PF global factors and the FFM was determined by a factor analysis of global traits and FFM facets (Conn & Rieke, 1994). There is a direct relationship between three of the 16PF global factors and three of the FFM traits. The global factor of introversion/extroversion corresponds with the FFM trait extroversion (factor loading = .67). The global factor of anxiety corresponds to the FFM trait neuroticism (factor loading = .85). The global factor of self-control corresponds to the FFM trait of conscientiousness (factor loading = .72). The other two global factors of the 16PF are inversely related to the FFM traits. The global factor of tough-mindedness is inversely related to the FFM trait openness: higher scores in tough-mindedness correlate to lower scores in openness (factor loading = -.70). The global factor of independence is inversely related to the FFM trait agreeableness: higher scores on independence correlate to lower scores on agreeableness (factor loading = -.72; Conn & Rieke, 1994, p. 134).

**Pet Survey.** The Pet Survey was a researcher-designed questionnaire, which assessed participants' history of pet ownership, liking of specific types of pets, and attitudes regarding pet ownership. Demographic information (i.e., gender and racial/ethnic identity) was also collected on the Pet Survey. Examples of history of pet ownership questions include: "Did you have a pet growing up?" and "If you answered yes, check all that apply: dog, cat, rabbit, bird, fish, ferret, tortoise, snake, horse, pig, lizard, turtle, duck, frog, hamster/gerbil, other."

For the questions assessing the liking of specific types of pets, participants were asked to rank their liking of different types of pets on a 1-5 Likert scale ranging from “dislike very much” to “like very much.” Sample items include: “cats,” “dogs,” and “tortoise.” Participants were also asked to rate on a scale from 1 (strongly disagree) to 5 (strongly agree) the amount that they agreed with the statements: “I am a cat person,” and “I am a dog person.”

For the questions assessing attitudes regarding pet ownership, participants were asked to select their response on a 1-5 Likert scale ranging from “strongly disagree” to “strongly agree.” Sample items include: “I would like to own a pet in the future,” “a pet requires a lot of work and care,” and “the benefits of owning a pet outweigh the drawbacks.”

#### *Procedure*

The study was approved by the Institutional Review Board before any data collection began. Participants were given about five minutes to review and sign an informed consent form. Participants who signed the informed consent form then completed the 16PF and the pet survey, which also collected demographic information. The questionnaires were completed in a small group setting and took about 45 minutes to complete by paper and pencil administration. No identifying information was collected on the surveys. Additionally, the informed consent forms and the surveys were collected and kept in separate locked cabinets to ensure confidentiality. Participants were given course credits for participation in psychology research studies, including this study; however, other study options and alternative assignments were also available for equivalent course credit.

#### *Data Analysis*

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS). For all significance testing, an alpha of .05 or greater was used to designate an effect as not statistically significant.

Data were analyzed in three steps. First, personality differences between cat people and dog people were examined including gender as a covariate in a series of ANCOVAs. The five global traits and the 16PF primary traits were entered as the independent variables and the categorical variable as a cat person or a dog person was the dependent variable. The ANCOVA analyses treated gender as a variable that could obscure or confound differences between dog and cat people if the males and females in the study scored differently on the traits for reasons other than pet preference.

The second step used a stepwise discriminant analysis to identify the smallest number of traits that could maximally distinguish dog people and cat people. Separate analyses were conducted for primary and global traits. Males and females were included together in these analyses. The third step repeated the stepwise discriminant analyses for males and females separately. These analyses would determine whether traits that distinguish cat and dog people apply to both genders or just one.

#### **Results**

The responses from the Pet Survey were analyzed to assess whether participants were cat people or dog people. On the Pet Survey participants were asked to rate on a scale from 1 (strongly disagree) to 5 (strongly agree) the amount that they agreed with the

statements: “I am a cat person,” and “I am a dog person.” People who ranked themselves as a 4 (agree) or 5 (strongly agree) for either “I am a cat person” ( $N = 352$ ) or “I am a dog person” ( $N = 66$ ) were classified in the corresponding category for subsequent analyses. People who rated themselves as a 4 or 5 for both questions were classified as “both” ( $N = 140$ ) and were eliminated from subsequent analyses because the overlap between dog people and cat people could obscure differences between the two primary groups. Participants who ranked themselves as 1 (strongly disagree), 2 (disagree), or 3 (neutral) for both questions were classified as “neither” ( $N = 42$ ) and were eliminated from subsequent analyses. A total of 418 participants were retained in the subsequent analysis: 84.2% of whom self-identified as dog people, and 15.8% of whom self-identified as cat people.

Construct validity for self-report of dog person or cat person was established as follows. Participants who reported a strong liking for cats identified themselves as a cat person ( $r = .815$ ,  $p < .001$ ) whereas, participants who reported a strong liking for dogs identified themselves as a dog person ( $r = .780$ ,  $p < .001$ ).

The majority of dog people (81.8%) had a dog as a family pet while growing up, and many reported having a cat or other type of pet (e.g. gerbil, bird, fish). A similar majority of cat people (80.3%) had a cat as a family pet while growing up and also reported having dogs or other pets. A breakdown of previous and current pet ownership at the family or permanent residence, current residence, or both places appears in Table 1.

**Table 1:** Number and Percentages of Participants Reporting Previous and Current Pet Ownership.

Owned a pet		Cat People Number (%)	Dog People Number (%)
While growing up	Total	64 (97.0)	331 (94.0)
	Dog	36 (54.5)	288 (81.8)
	Cat	53 (80.3)	102 (29.0)
	Other pet	50 (75.8)	261 (74.1)
Current ownership	At family or permanent residence only	34 (51.5)	184 (52.8)
	Current residence only	7 (10.6)	14 (4.0)
	Both of above	3 (4.5)	67 (19.0)
	Neither	14 (21.2)	86 (24.4)
Pet at family residence	Dog	11 (16.7)	224 (63.6)
	Cat	39 (59.0)	44 (12.5)
	Other	16 (24.2)	78 (22.2)
Pet at current residence	Dog	2 (3.0)	39 (11.0)
	Cat	15 (22.7)	14 (3.9)
	Other	7 (10.6)	49 (13.9)

*Cat People versus Dog People:  
Identifying differences*

The ANCOVA analyses identified two statistically significant differences among the global traits: dog people were more extroverted and more tough-minded than cat people. There were statistically significant differences between cat people and dog people on eight primary personality factors: warmth (Factor A), reasoning (Factor B), liveliness (Factor F), rule-consciousness (Factor G), social boldness (Factor H), emotional

sensitivity (Factor I), abstractedness (Factor M), and self-reliance (Factor Q2); see table 2. The effect sizes for the statistically significant variables were small, with dog versus cat people accounting for 1-4% of the variance in a single personality trait. The covariate for gender was not significant ( $p > .05$ ) for any of those variables.

**Table 2:** ANCOVA for the 16 Primary and 5 Secondary Factors.

	Mean (SD) Cat People	Mean (SD) Dog People	F	Partial Eta Squared
<i>Primary Factors</i>				
Warmth (A)	5.73 (2.01)	6.18 (1.64)	6.54*	0.02
Reasoning (B)	5.89 (1.66)	5.05 (1.49)	16.47**	0.04
Emotional Stability (C)	4.38 (1.52)	4.72 (1.60)	2.22	0.01
Dominance (E)	4.59 (1.61)	4.95 (1.77)	2.00	0.01
Liveliness (F)	5.83 (1.97)	6.59 (1.79)	9.00**	0.02
Rule-Consciousness (G)	4.15 (1.61)	4.76 (1.39)	11.21**	0.03
Social Boldness (H)	4.86 (1.81)	5.60 (2.02)	7.64**	0.02
Emotional Sensitivity (I)	6.20 (1.54)	5.42 (1.74)	10.36**	0.02
Vigilance (L)	6.33 (1.54)	6.43 (1.65)	0.109	0.00
Abstractedness (M)	6.44 (1.61)	5.71 (1.66)	13.37**	0.03
Privateness (N)	5.52 (1.83)	5.55 (1.88)	0.01	0.00
Apprehension (O)	6.52 (1.37)	6.25 (1.55)	1.02	0.00
Openness to Change (Q1)	5.62 (1.90)	5.33 (1.84)	1.56	0.00
Self-Reliance (Q2)	5.86 (1.67)	5.22 (1.72)	8.07**	0.02
Perfectionism (Q3)	4.85 (1.75)	5.05 (1.82)	0.94	0.00
Tension (Q4)	5.88 (1.63)	5.74 (1.46)	0.34	0.00
<i>Secondary Factors</i>				
Introversion/ Extroversion	5.43 (1.92)	6.12 (1.75)	9.62**	0.02
Low Anxiety/ High Anxiety	6.71 (1.52)	6.44 (1.53)	1.29	0.00
Receptivity/ Tough-mindedness	4.81 (1.47)	5.48 (1.66)	7.99**	0.02
Accommodation/ Independence	4.97 (1.57)	5.33 (1.72)	2.24	0.01
Lack of Restraint/ Self-control	4.30 (1.58)	4.70 (1.43)	5.23*	0.01

\* $p < .05$ , \*\* $p < .01$



*Cat People versus Dog People: Predictive Models*

A stepwise discriminant analysis was conducted to determine if the five global traits of the 16PF could predict group membership of cat people and dog people without separating males and females. The difference between dog people and cat people was statistically significant (Wilks  $\Lambda = .952$ ,  $\chi^2 = 20.631$ ,  $df = 2$ ,  $p < .001$ ). The model accounted for 4.8% of the variance between groups (canonical correlation = .22). The model correctly classified 84.0% of cross-validated cases. The stepwise model revealed that dog people scored higher than cat people on tough-mindedness versus receptivity and extroversion versus introversion (Wilks  $\Lambda = .98$ ,  $F(1, 416) = 9.22$ ,  $p < .001$ ; Wilks  $\Lambda = .95$ ,  $F(2, 415) = 10.58$ ,  $p < .001$ ); see table 3.

A stepwise discriminant analysis was conducted to determine if the 16 primary personality factors of the 16PF could predict group membership of cat people

and dog people. The difference between dog people and cat people was statistically significant (Wilks  $\Lambda = .90$ ,  $\chi^2 = 42.43$ ,  $df = 4$ ,  $p < .001$ ). The model accounted for 9.7% of the variance between groups (canonical correlation = .312). Using the leave-one-out cross-validation function in SPSS, the model correctly classified 84.9% of cross-validated cases. The stepwise model revealed that reasoning (Factor B), liveliness (Factor F), rule consciousness (Factor G), and emotional sensitivity (Factor I) were driving the differences between cat people and dog people. Cat people scored higher on reasoning (Factor B) and emotional sensitivity (Factor I) than dog people (Wilks  $\Lambda = .96$ ,  $F(1,416) = 17.02$ ,  $p < .001$ ; Wilks  $\Lambda = .90$ ,  $F(4, 413) = 11.14$ ,  $p < .001$ ). Dog people scored higher on liveliness (Factor F) and rule consciousness (Factor G) than cat people (Wilks  $\Lambda = .92$ ,  $F(3, 414) = 12.63$ ,  $p < .001$ ; Wilks  $\Lambda = .94$ ,  $F(2, 415) = 13.10$ ,  $p < .001$ ); see table 3.

**Table 3:** Significant Factors for Both Genders on the Discriminant Function.

	Mean (SD) Cat People	Mean (SD) Dog People	F	Wilks' Lambda
<i>Primary Factors</i>				
Reasoning (B)	5.89 (1.66)	5.05 (1.49)	17.02**	0.96
Rule-Consciousness (G)	4.15 (1.61)	4.76 (1.39)	13.10**	0.94
Liveliness (F)	5.83 (1.97)	6.59 (1.79)	12.63**	0.92
Emotional Sensitivity (I)	6.20 (1.59)	5.42 (1.74)	11.14**	0.90
<i>Secondary Factors</i>				
Receptivity/ Tough- Mindedness	4.81 (1.47)	5.48 (1.66)	9.22**	0.98
Introversion/ Extroversion	5.43 (1.92)	6.12 (1.75)	10.58**	0.95

\*\*p < .01

**Table 4:** Significant Factors for Men Only on the Discriminate Function.

<i>Primary Factors</i>	Mean (SD) Cat People	Mean (SD) Dog People	<i>F</i>	Wilks' Lambda
Rule-Consciousness (G)	3.56 (1.37)	4.50 (1.29)	7.26**	0.95
Emotional Sensitivity (I)	5.06 (1.29)	4.05 (1.54)	7.09**	0.90

\*\* $p < .01$

*Males Only:* The stepwise discriminant analyses were repeated examining only the male participants' responses. There were 127 male participants: 87.4% reported being dog people and 12.6% reported being cat people. For the analysis with the five global factors, the difference between the two groups was not statistically significant (Wilks  $\Lambda = .97$ ,  $\chi^2 = 3.78$ ,  $df = 1$ ,  $p > .05$ ). For the analysis with 16 primary personality factors, the difference between the two groups was statistically significant (Wilks  $\Lambda = .897$ ,  $\chi^2 = 13.42$ ,  $df = 2$ ,  $p < .001$ ). The model accounted for 10.2% of the variance between groups (canonical correlation = .32). Using the leave-one-out cross-validation function in SPSS, the model correctly classified 85.8% of cross-validated cases. The stepwise model revealed that rule consciousness (Factor G) and emotional receptivity (Factor I) comprised the differences between cat people and dog people. As in the model for both genders, cat people scored higher on emotional sensitivity (Factor I) than dog people (Wilks  $\Lambda = .90$ ,  $F(2, 124) = 7.09$ ,  $p < .01$ ). Dog people scored higher on rule consciousness (Factor G) than cat people (Wilks  $\Lambda = .95$ ,  $F(1, 125) = 7.26$ ,  $p < .01$ ); see table 4.

*Females Only:* The stepwise discriminant analyses above were repeated examining only the female participants' responses. There were 291 female participants: 82.8% reported

being dog people and 17.2% reported being cat people. For the analysis with the five global factors using only the female participants, there were statistically significant differences between the cat and dog groups (Wilks  $\Lambda = .94$ ,  $\chi^2 = 18.54$ ,  $df = 2$ ,  $p < .001$ ). The model accounted for 6.3% of the variance between groups (canonical correlation = .25). Using the leave-one-out cross-validation function, the model correctly classified 82.5% of cross-validated cases. As in the model for both genders, the stepwise model revealed that dog people scored higher than cat people on tough-mindedness versus emotional sensitivity and extroversion versus introversion (Wilks  $\Lambda = .96$ ,  $F(1, 289) = 12.69$ ,  $p < .001$ ; Wilks  $\Lambda = .94$ ,  $F(2, 288) = 9.58$ ,  $p < .001$ ); see table 5 (following page).

For the analysis with the 16 primary personality factors, the difference between the two groups was statistically significant (Wilks  $\Lambda = .893$ ,  $\chi^2 = 32.58$ ,  $df = 3$ ,  $p < .001$ ). The model accounted for 10.7% of the variance between groups (canonical correlation = .33). Using the leave-one-out cross-validation function, the model correctly classified 84.5% of cross-validated cases. The stepwise model revealed that reasoning (Factor B), rule consciousness (Factor G), and self-reliance (Factor Q2) were driving the differences between cat people and dog people. As in the model for both genders, cat people scored higher on reasoning (Factor B) (Wilks'  $\Lambda = .94$ ,  $F(1, 289)$

=18.65,  $p < .001$ ), and dog people scored higher on rule consciousness (Factor G) (Wilks'  $\Lambda = .89$ ,  $F(3, 287) = 11.48$ ,  $p < .001$ ). In the women-only model, cat people also scored higher on self-reliance (Factor Q2) than dog people (Wilks'  $\Lambda = .91$ ,  $F(2,288) = 14.91$ ,  $p < .001$ ); see table 5.

**Discussion**

*Global Factors*

As predicted in the second hypothesis, there were several differences between cat people and dog people on the secondary factors of the 16PF: introversion/extroversion, receptivity/tough-mindedness, and impulsivity/self-control. These secondary factors corresponded to the FFM traits of extroversion, openness, and conscientiousness respectively. Consistent with previous findings (Gosling et al., 2010; Reevy & Delgado, 2015), dog people were more extroverted. Dog people were higher in self-control (higher on FFM trait conscientiousness) than cat people, which Gosling et al. (2010) found, but Reevy and Delgado

(2015) did not find. Dog people scored higher on tough-mindedness (lower on FFM trait openness) than cat people, which was consistent with Gosling et al. (2010) and Reevy and Delgado (2015). There were no significant differences between cat people and dog people on anxiety (i.e., FFM trait neuroticism), which contradicts previous findings (Gosling & Bonnenburg, 1998; Reevy & Delgado, 2015).

The results for the secondary factors are also consistent with the interpretation that cats may be more appealing to creative people. The FFM trait openness is often positively associated with creative behavior, and the FFM trait conscientiousness is negatively correlated with creative behavior (Feist, 1998; Guastello, 2009). This same pattern of results was observed here in the personality profile of cat people.

Several stepwise discriminate analyses were conducted to see which factors were the most prominent personality differences and which factors could be eliminated due to overlap in variance explained. The primary factors that were retained were: reasoning, rule-

**Table 5:** Significant Factors for Women Only on the Discriminate Function.

	Mean (SD) Cat People	Mean (SD) Dog People	<i>F</i>	Wilks' Lambda
<i>Primary Factors</i>				
Reasoning (B)	6.08 (1.63)	5.08 (1.46)	18.65**	0.94
Self-Reliance (Q2)	6.16 (1.53)	5.12 (1.74)	14.91**	0.91
Rule-Consciousness (G)	4.34 (1.65)	4.88 (1.42)	11.48**	0.89
<i>Secondary Factors</i>				
Introversion/ Extroversion	5.35 (1.84)	6.34 (1.77)	12.69**	0.96
Receptivity/ Tough-mindedness	4.68 (1.24)	5.19 (1.61)	9.58**	0.94

\*\* $p < .01$

consciousness, liveliness, and emotional sensitivity. The direction of each relationship remained the same as described above. The secondary factors that were retained were tough-mindedness and extroversion. Again, the direction of each relationship remained the same as described above. These results show that, although cat and dog people differ on a variety of personality factors, only a few constructs are needed to predict group membership as a cat person or a dog person. It is important to eliminate factors that overlap in variance explained in order to develop parsimonious interpretations of our findings. In this case, the findings suggest that people who score higher on rule consciousness and liveliness tend to prefer dogs and people who score higher on reasoning and emotional sensitivity tend to prefer cats.

#### *Primary Factors*

As predicted in the first hypothesis, cat people and dog people differed on several of the primary factors of the 16PF, some of which had not been identified in previous research: warmth (Factor A), reasoning (Factor B), liveliness (Factor F), rule-consciousness (Factor G), social boldness (Factor H), emotional sensitivity (Factor I), abstractedness (Factor M), and self-reliance (Factor Q2). Cat people scored higher on self-reliance indicating that they tend to be more solitary, individualistic, and self-sufficient than dog people, according to the standard interpretation of 16PF factors (Cattell, 1994). This finding would be consistent with Kidd and Kidd (1980) who found that cat people tend to be more autonomous than dog people, and consistent with Reevy and Delgado (2015) who found dog people to be more

agreeable than cat people. Cat people also scored lower on warmth and social boldness, and thus tend to be more impersonal, detached, and shy than dog people. Cat people scored lower on rule-consciousness indicating that they tend to be nonconforming and disregarding of social conventions compared to dog people, according to the standard interpretations of 16PF traits (Cattell, 1994). Additionally, cat people scored lower on liveliness, suggesting that they are more serious and restrained than dog people, who are more animated and expressive. Finally, cat people scored higher than dog people on abstractedness and emotional sensitivity, which suggests that cat people may be more imaginative and sentimental than dog people, who tend to be more grounded and pragmatic. The foregoing implications from the 16PF trait constructs could open new avenues of research on dog and cat people.

Taken together, these findings describe the personalities of the average cat person as shy, solitary, impersonal, serious, and nonconformist, but also creative, sentimental, independent, and self-sufficient. Conversely, these findings describe dog people as grounded, pragmatic, and dutiful, as well as warm, outgoing, sociable, expressive, and group oriented. According to Coren (1998) people tend to have better relationships with dog companions that have personalities similar to their own. It is not known whether the principle of personality matching extends to pets other than dogs; this speculation would need to be verified in future research efforts, which would also need to take into account individual differences in the pets themselves.

Surprisingly, cat people scored higher on reasoning (i.e., general

intelligence) than dog people by a margin of 0.42 SD. A possible interpretation of the results is that dogs are more appealing to a broader range of the population, meaning that dogs appeal to people across the reasoning continuum, while cats appeal mainly to people on the higher end of the reasoning continuum. Another interpretation may be that when the reasoning results are combined with the results for the other primary traits, it appears that the personality profile of cat people is similar to the personality profile of creative people. The 16PF profile of creative people includes: higher reasoning, greater self-reliance, greater abstractedness, lower attention to rules (e.g., social conventions), and greater emotional sensitivity (Guastello, 2009; Rieke, Guastello, & Conn, 1994). Therefore, the personality profiles of creative people and cat people are remarkably similar, suggesting that people who are considered creative may tend to prefer cats as pets.

Personality traits only accounted for 1-4% of the variance in pet preferences when the traits were considered separately. The stepwise discriminant analysis showed that efficient combinations of primary traits accounted for 9.7-10.7% of the variance. Secondary or global traits, in contrast, only accounted for 4.8% of the variance for both genders together, 6.3% for females only, and no variance for males only. The comparative results lend further support to the principle that primary traits are more closely connected to actual behaviors, and that they should be given greater priority in pet-related and other research in which personality traits are of interest.

### *Gender*

The third hypothesis predicted that gender would moderate the relationship between personality factors and preference for cats or dogs. Although gender was not a statistically significant variable in the ANCOVA analyses, gender differences appeared when the stepwise discriminate analyses were conducted on men and women separately. When considering the primary factors, rule-consciousness appeared to be a salient factor for both men and women. However, emotional sensitivity was only a salient factor for men (high among cat people), and reasoning was only salient for women (higher among cat people). Liveliness, which was a salient factor when both genders were observed together, was not a salient factor for either gender when the genders were considered separately. Finally, self-reliance was not observed when both genders were observed together, but was a salient factor for the women when the genders were conducted separately.

When considering the global factors, tough-mindedness and extroversion were discovered as significant factors predicting cat people and dog people when both genders were considered together. However, when each gender was analyzed separately, none of the global factors were significant predictors for men. When women's data were analyzed separately, the same two factors, tough-mindedness and extroversion, were significant predictors. This finding suggests that differences on the global factors between cat people and dog people might only apply to women. This interpretation is consistent with findings from Bagley and Gonsman (2005) who found differences between cat people's personalities and dog

people's personalities among women but not among men.

The differences that were noticed when the data from the men and women were analyzed separately suggest that while personality differences between cat and dog people exist for both genders, the nature of these differences is not necessarily the same for both genders. Previous research has determined that in general men and women tend to differ on some personality traits (Schmitt et al., 2008) such as emotional sensitivity (Conn & Rieke, 1994). Therefore, it is important to consider gender in research examining these traits. Thus the observation above, that distinguishing emotional sensitivity between cat people and dog people was important for men but not for women, is likely related to the natural difference between men and women on the trait of emotional sensitivity. Finally, if this line of research is to be used to help individuals select companion animals, a better understanding of gender differences would be important for helping individuals choose animals that will meet their unique needs.

#### *Limitations and Future Research*

There were some limitations to this study that suggest opportunities for future research. For instance, the final sample consisted of 84.2% dog people. Although there was sufficient power for the analyses, future researchers should try to collect a more balanced sample. Additionally, this study only included people who identified as either a cat person or a dog person. People who identified as "neither" or "both" were not examined in this study; additional research is needed to understand how these individuals compare with the dog and cat people. Moreover, 89.8% of the

people in this sample identified as White. Therefore, race and ethnicity were not included as variables due to lack of statistical power. It is possible that racial or ethnic differences could be important, however. Future research should use more diverse samples to explore these differences and make the findings generalizable beyond White Americans.

The present study was confined to an undergraduate population between the ages of 18-22. It is not known how attachment needs for older adults could be different or how the connection between pet preferences and personality traits could change in later life. Future research should thus consider broader age ranges.

In this study, cat people scored higher on reasoning (i.e., general intelligence) than dog people. This is a new finding, and to our knowledge, this is the first study to examine differences in reasoning between cat people and dog people. In this study, reasoning was measured using the 16PF, which has a reasoning factor (Factor B). The reasoning factor has been found to be valid (Rieke & Conn, 1994). However, future studies may consider using more sophisticated measures of general intelligence or multi-factor measures of intelligence to add support and expand this finding further. For instance, one could explore whether non-verbal intelligence is more relevant than verbal intelligence given that animals do not communicate the way humans communicate with each other.

Previous research has shown that pets could provide physical and psychological health benefits to their owners (Connell & Lago, 1984; Garrity et al., 1989; Gold-meir, 1986; Zasloff & Kidd, 1994). Continued research into human-animal relationships is important

for optimizing the benefits of companion animals (e.g., pets, therapy animals, emotional support animals) and personality factors related to pet preferences is an avenue of such research. Further research could be influential in helping individuals who are considering getting a companion animal to choose one that would be compatible with their own personalities, following Coren (1998), and thus provide maximum benefits. Additionally, 7.6 million companion animals enter shelters in the United States every year (ASPCA, 2016), but improving the match between the companion animal and owner may limit the number of surrendered and abandoned animals and improve animal welfare.

## Conclusion

In conclusion, this study found that cat people and dog people differ on several primary and secondary personality traits. Additionally, some of the salient traits seem to differ based on gender. The most important personality factors for predicating group membership among males were rule-consciousness and emotional sensitivity. The most important personality factors for predicting group membership among females were reasoning, self-reliance, rule-consciousness, extroversion, and tough-mindedness.

The present study added to the growing list of research findings that show better predictive accuracy for primary personality traits than for secondary traits. The relative accuracy of the primary traits (percentage of variance accounted for) in the discriminant analysis with both genders was double that obtained for the secondary traits. Primary traits also offered a conceptual

advantage because it was possible to identify the creative personality configuration as the pattern distinguishing dog people from cat people. Future research is needed to replicate these findings and establish their generalizability.

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