How Religion Predicts Pet Ownership in the United States

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Over 60 percent of Americans have some sort of family pet. Although studies have explored the personality and demographic correlates of pet ownership, none have considered whether religious characteristics may influence not only pet ownership, but the kind of pet Americans own. Drawing on data from the 2018 General Social Survey, we examine the religious antecedents of pet ownership in general as well as owning a cat or a dog, taking into account factors previously associated with owning certain pets (e.g., urban vs. rural residence, political affiliation). Although religious tradition and biblical literalism generally do not predict pet ownership, frequent worship attendees and the most conservative evangelicals report owning fewer pets. Religious characteristics also predict Americans' ownership of particular pets. Most notably, we find a strong, negative association between worship attendance and cat ownership. We theorize potential mechanisms. On the one hand, certain personality types might simultaneously attract some Americans toward religious participation and away from pets, and cats in particular. Alternatively, to the extent that pet ownership is a partial substitute for human bonding and interaction, Americans more deeply embedded within a religious community may have less need (or time) for pets generally, and specifically more independent "roommate pets," like cats.

Keywords: church attendance, pets, pet ownership, cats, dogs.

INTRODUCTION

Although owning a house pet is a common practice around the world, the United States stands alone in terms of pet ownership as an institution. The dog population in the United States, for example, is nearly 70 million, roughly 2.5 times larger than the closest competitor, China. The United States also dwarfs other nations in cat ownership and fish ownership (American Veterinary Medical Association 2012; Pet Secure 2019). In terms of pet owners themselves, the 2018 General Social Survey shows the vast majority of Americans (60.9% percent or roughly 153 million adults) own at least one family pet and the average adult owns 1.7 pets. Yet not only is pet ownership popular in the United States, it is consequential. In 2018, for example, Americans spent over 72 billion dollars on their pets, more than they spent on *all* sporting events combined (American Pet Products Association 2019; Kutz 2017). And numerous studies have documented how pet ownership contributes to positive outcomes in mental health and companionship, and potentially even improved physical health (Friedmann and Thomas 1985; Jennings 1997; Wells 2009).

Despite the ubiquity of pet ownership in the United States, as well as its economic and social importance, very few studies have considered how religion—an equally ubiquitous and institutionalized facet of American life—may shape the practice of pet ownership. This neglect is curious given that pet ownership often corresponds to particular regions (rural) and populations (politically conservative) for whom religion is expected to matter a great deal. Moreover, religious participation often fills significant individual and collective needs for bonding and community

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(Perry and Longest 2019; Putnam and Campbell 2010; Saroglou 2011), which may also be filled by animal companionship, and thus, the two factors might reasonably be related in meaningful ways. Addressing this gap, the current study draws on representative data from the 2018 General Social Survey, which contained a unique module on pet ownership, to examine how religious characteristics predict the number and type of pets Americans own. In the following section, we briefly survey previous research on pet ownership in order to develop expectations for the sort of role religion may play and the potential mechanisms linking the two.

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BACKGROUND

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Previous research leads us to conceive of pet ownership in general, and particular types of pets more than others, as both related to personality characteristics and as partial substitutes for human bonding and interaction. Dating back to the 1960s, studies found that, compared with nonowners, pet owners tended to be more antisocial; they were more likely to indicate they did not like people much or feel liked by others (Cameron and Mattson 1972; Cameron et al. 1966). Other studies, however, found that pets were not necessarily a sign of antisocial inclinations or personalities, but could be psychologically beneficial to those more objectively alone for longer periods, like the elderly (Garrity et al. 1989; Kidd and Feldmann 1981; Pikhartova, Bowling, and Victor 2014), rural children (Blue 1986; Triebenbacher 1998), or single women (Pikhartova, Bowling, and Victor 2014; Zasloff and Kidd 1994). Some scholars find that companion animals can reduce anxiety and depression or even increase self-esteem in adults and children (Folse et al. 1994; Triebenbacher 1998). These observed psychological benefits of pet ownership provide insight into the mechanisms that likely influence Americans to pursue either a larger number, or a certain type, of pets. Archer (1997) adopts an evolutionary perspective to propose that the tendency for humans to "love" and "attach" to their pets stems from a natural human tendency to attach to their own child. Specifically, people can attribute human-like emotions and perceptions of their interaction (e.g., "my dog is jealous of you," or "my cat is giving me the silent treatment today"). Indeed, Archer contends that these pet/human interactions can be more satisfying than interactions with actual humans, since social anxiety may be removed and relationships are less complicated.

How might pet ownership in general be connected to religion? The issue is only rarely and obliquely touched on in the pet ownership literature. Cameron and Mattson's (1972) study of Americans across regional units reported that pet owners tended to find religion of less value than nonowners. This could be due to the fact that churchgoers tend to be higher on extroversion (Lim 2016) and the ownership of particular pets is linked with introversion and neuroticism (Gossling, Sandy, and Potter 2010). This finding might also be explained by conceiving of pet ownership as a partial substitute for human bonding and interaction, which is often structurally and saliently met by religious participation (Saroglou 2011). Although not writing about religion specifically, Martinez and Kidd (1980:318) argue, "The animal/human bond fills the needs for companion, friend, servant, scapegoat, team-mate, confidant, defender, and, [in institutionally-connected adults] these needs may already be satisfied by human/human bonds. Pet ownership would be less beneficial than it is to other groups and, in some cases, a liability, subtracting time and energy from human interactions." Building on this idea, because "religion is an eminently social thing" (Durkheim 1995 [1912]) that effectively binds humans within a moral community, we expect Americans' connection to institutional religion as indicated through worship attendance would be negatively associated with the number of pets they own.

To our knowledge, no studies have explored how religious tradition and theological conservatism are associated with general pet ownership. Data from the American Veterinary Medical Association (2018) show that pet ownership tends to be higher in rural areas and Republican-dominated states versus urban areas or solidly Democratic states. Because religious conservatism

overlaps so strongly with rural/urban as well as Republican/Democratic dichotomies (Putnam and Campbell 2010; Smidt et al. 2010), and is an important contributor to the cultural differences between those regions, it is reasonable to expect that evangelicalism and theological conservatism would predict a higher likelihood of pet ownership net of political or regional factors, and despite the expected negative association between religious service attendance and pet ownership.

Might some pets be more closely connected with religious characteristics than others? This would be expected because some animals encourage more prosocial behavior than others. For instance, research suggests that owning a dog provides occasion for owners to get out of the house on walks or go to dog parks where they may interact with other owners (McNicholas and Collis 2000; Wells, 2004, 2009). Dogs are also more likely to be owned by larger families with children (Murray et al. 2010), which is also associated with religious participation. To be sure, these links are largely explained by self-selection. Studies of personalities across dog and cat owners show that dog owners tend to be higher on extraversion and agreeableness, which is why they were attracted to dogs in the first place (Gossling, Sandy, and Potter 2010). Cats, on the other hand, are notoriously independent and their ownership is associated with greater social isolation (Hanauer, Ramakrishnan, and Seyfried 2013). Moreover, in studies of personalities, cat owners scored lower than nonpet owners and dog owners on extraversion, agreeableness, conscientiousness, and higher on neuroticism, suggesting cat owners may be more introverted and comfortable alone (Gossling, Sandy, and Potter 2010). Although no studies have explored how religiosity may be associated with pet ownership, we anticipate that institutional religious participation in the form of worship attendance would be positively associated with dog ownership and negatively associated with cat ownership.

Theorizing the potential influence of religious conservatism, analyses have shown that cat owners tend to reside in urban settings as well as regions dominated by the Democratic party. Dog owners, in contrast, are more likely to live in rural areas and reside in Republican-dominated states (American Veterinary Medical Association 2018; Blake 2014; Murray et al. 2010).[1] Following the reasoning stated earlier that rural/Republican areas are strongly characterized by conservative Christianity, we would predict that Americans connected to conservative Protestantism by affiliation or belief would be less likely to own cats and more likely to own dogs. Other studies focusing more explicitly on religion lend support to this expectation for different reasons. Researchers find that conservative Protestantism, because it maintains a discontinuity between humans and animals based on literalist readings of Genesis 1 and 2, is associated with higher tolerance toward animal cruelty and skepticism toward animal rights (Bowd and Bowd 1989; DeLeeuw et al. 2007; Driscoll 1992). Other data sources indicate Protestants are less likely than Catholics or people of "Other" religious faiths or no religious faith to favor laws protecting the use of animals for fur, scientific experiments, or meat products (Hunter and Bowman 1990), which also suggests a potential connection between theological conservatism and instrumental views of animals. Based on this idea, we would expect that Christian conservatism–as indicated by evangelical affiliation and more literalist interpretations of the Bible–would predict the ownership of family pets that have more practical utility such as dogs, but not necessarily cats.[2]

Finally, to provide an additional layer of nuance, we consider the potential influence of corporate religious participation and theological conservatism across faith traditions, and specifically among evangelicals, mainline Protestants, and Catholics, the three largest religious groups.

[1]While this would also likely be the case among owners of horses, pigs, and goats, which are asked about in the 2018 General Social Survey, the owners of these animals are so few that we could not run meaningful regression analyses predicting their ownership.

[2]Cats are an ambiguous case in this regard because cats may serve practical functions on a farm catching rodents, but less so in urban/suburban contexts. Our models control for urban context and thus we think the connection between religious conservatism and cat ownership will be null, all else being equal.

Church attendance and beliefs about the Bible often predict social behavior differently across Christian traditions (e.g., Perry and Schleifer 2019) and thus we consider how these factors might between differentially associated with pet ownership in meaningful ways for these three groups. Because the literature does not necessarily lead us toward specific expectations in this regard, we introduce this analysis to explore a general research question.

DATA AND METHODS

Data

The General Social Survey has been conducted on at least a biannual basis since its inception in 1972. The 2018 wave of the GSS consisted of a total of 2,348 respondents who answered a wide variety of core demographic and religion questions with subsamples being included in specific batteries related to a number of distinct areas.

Measures

Outcome variables include measures about the number and type of pets Americans own. The 2018 GSS had an ownership module that asked respondents, "How many pets does your family have?" Answers ranged from 0 to 20 or more total pets. This question was answered by exactly half the sample, with the mean number of pets being 1.72. We predict this numerical outcome with negative binomial regression models.[3]

The GSS also asked if respondents owned: a dog, cat, horse, pig, goat, fish, bird, reptile, and small mammal. We concluded that the number of respondents who owned reptiles, horses, pigs, goats, fish, birds, or small mammals was too small for any meaningful analyses and thus we focused on ownership of dogs and cats. Each question had the response options: has = 1, does not have = 0. These questions were only posed to 699 respondents, representing 29.7 percent of the total 2018 GSS sample. Of these respondents, 74.9 percent own dogs and 40.3 percent own cats. Here, we use binary logistic regression to estimate our models.

Religion measures included religious service attendance, views of the Bible, and religious tradition. Religious service attendance was measured as a continuous variable from 1 = never to 8 = more than once a week. Beliefs about the Bible were operationalized by creating two dichotomous variables. The first dummy variable is coded as 1 = the Bible is the actual word of God and is to be taken literally word for word and the other is coded 1 = the Bible is a book of fables. That means that the reference category is the middle option: the Bible is inspired by God and should not be taken literally. The religious tradition variable is based on a modified version of the RELTRAD classification scheme first proposed by Steensland et al. (2000) with the coding published by Burge and Stetzer (2016) employed to operationalize the categories. Evangelicals are the reference category.

The analyses also include controls theorized to predict pet ownership: age, income, years of education, male, and number of kids, Republican party identification, and urban residence. Table 1 presents descriptive statistics for all variables included in models.[4]

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[3]Negative binomial regression was chosen over Poisson because there are many cases in the data where an individual indicates they have zero pets. Negative binomial is better suited to data with this type of overdispersion.

[4]Because pet ownership and religious participation might both be associated with mental or physical health, we included measures of mental and physical health from the GSS in supplementary models. None of these measures were significant or impacted our substantive findings and thus we opted to leave these out of the final analysis for greater parsimony.

Table 1: Descriptive statistics

Variables	Mean or %	Min	Max
Outcomes			
Mean number of pets	1.72	0	20
Animal ownership (%)			
Cat	40.3%		
Dog	74.9%		
Predictors			
Age	49.00	18	89
Income	10.95	1	12
Republican ID	2.74	0	6
Education	13.73	0	20
Number of children	1.86	0	8
Church attendance	3.12	0	8
Male	44.8%		
White	72.1%		
Literalism	30.1%		
Written by humans	21.0%		
Urban	8.3%		

Source: 2018 General Social Survey.

FINDINGS

To begin Model 1 in Table 2 presents a negative binomial regression predicting the number of pets Americans own, while accounting for a number of demographic and religious factors.[5] A number of variables are statistically significant in this analysis. The control variables that predict a greater number of pets include household income, identifying as Republican, and identifying as white. Two other control variables: age and education predict owning fewer pets, however. It is noteworthy that income and education, two variables that often positively correlated, have opposite effects on owning pets. It may be that many individuals with lower levels of education and higher levels of income work in agriculture or possibly construction, two industries that afford a great deal of space and freedom to have pets.[6] It is also notable that gender is not statistically significant, nor is living in an urban area.

Turning now to our religion variables, none of the religious traditions in the RELTRAD scheme were significantly different from the reference category of evangelical Protestants. In addition, the dichotomous variables for beliefs about the Bible are also statistically nonsignificant. These findings provide no support for the idea that theological conservatism–as indicated by religious tradition or belief–shape Americans' likelihood of owning fewer or more pets. However, consistent with our stated expectation, worship attendance is statistically significant and signed in the negative direction, meaning that holding all the other variables constant the more frequently one attends religious services, the fewer number of pets they own.

Figure 1 illustrates this association by graphing the predicted probabilities of the number of pets owned across frequencies of religious service attendance, while incorporating all the controls from the previous model. Although the confidence intervals are wide, the relationship as

[5]Full variable coding is available in the online appendix.

[6]While the GSS does provide occupational codes that would capture individuals working in agriculture or construction, because of small sample size ($n = 22$), accounting for this would yield limited information.

Table 2: Negative binomial regression models predicting number of pets for the full sample and across Christian traditions

Predictors	Full Sample	Evangelical	Mainline	Catholics
Church attendance	−.357[*]	−.309	−.203	−.249
	(.176)	(.298)	(.421)	(.395)
White	.791[*]	1.063[*]	−.126	1.072[*]
	(.138)	(.271)	(.460)	(.304)
Male	−.123	−.303	−.220	.038
	(.100)	(.191)	(.249)	(.237)
Income	.635[*]	.310	3.277[*]	−.806
	(.291)	(.745)	(1.314)	(.623)
Republican ID	.450[*]	.381	.336	.381
	(.164)	(.301)	(.340)	(.378)
Number of kids	.802[*]	.855	−.188	1.006
	(.264)	(.477)	(.729)	(.578)
Age	−1.201[*]	−.884	−2.509[*]	−2.341[*]
	(.281)	(.504)	(.691)	(.644)
Education	−.933[*]	−1.250	1.858	−1.837[*]
	(.376)	(.807)	(.992)	(.822)
Urban	−.057	−.038	.658	−.834[*]
	(.174)	(.435)	(.491)	(.393)
Literalism	−.013	−.509[*]	.565	.201
	(.127)	(.203)	(.309)	(.288)
Written by humans	−.061	−.743	−.605	.541
	(.137)	(.452)	(.423)	(.307)
Mainline	.178			
	(.163)			
Black Prot.	−.091			
	(.249)			
Catholic	−.281			
	(.154)			
Jewish	−.303			
	(.428)			
Other faith	.086			
	(.231)			
No religion	−.035			
	(.164)			
Constant	.443	.872	−2.376	2.201[*]
	(.384)	(.733)	(1.538)	(.744)
Observations	845	215	112	168
Log likelihood	−1,436.146	−385.697	−195.495	−246.696
Theta	.778[*] (.066)	.965[*] (.159)	1.160[*] (.273)	.899[*] (.199)
Akaike inf. crit.	2,908.291	795.394	414.991	517.392

[*]$p < .05$ (two-tailed test).
Source: 2018 General Social Survey.

Figure 1
The interaction between church attendance and number of pets

Data: GSS 2018
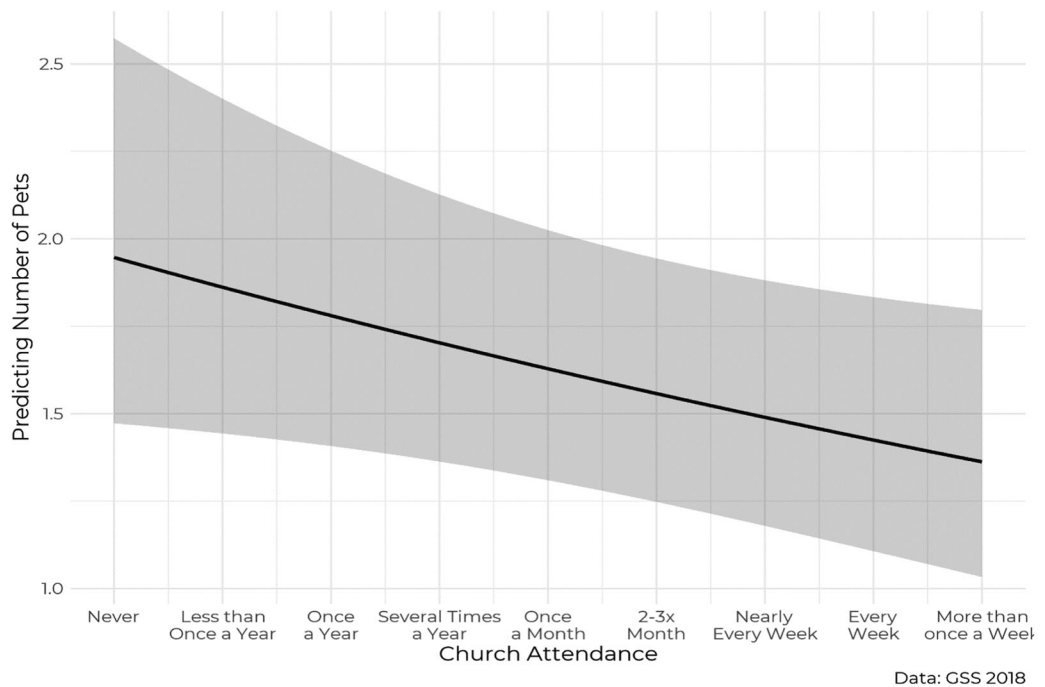
previously noted is statistically significant. To put these numbers into perspective, the estimated total number of pets owned for someone who never attends church services is 1.96, but that number then declines to 1.38 for an individual who attends church multiple times per week.

Although religious tradition had been included in Model 1 as a control variable, Models 2–4 present three separate negative binomial regression models that include only respondents from the three largest faith traditions in the United States: evangelicals, mainline Protestants, and Catholics. The results complicate our previous findings presented in Model 1 with the full sample. In terms of controls, neither the number of children, gender, party identification or urban status significantly (save for Catholics) predict pet ownership. However, there are some demographic variables that work in different ways. For instance, white evangelicals and Catholics own a larger number of pets, however, the same cannot be said for white mainline Protestants. Also, older mainline Protestants and Catholics own fewer pets, but there is no relationship between age and number of pets for evangelicals. Education also works in an inconsistent way, with more educated Catholics owning fewer pets but there is no relationship between education and pet ownership for the two Protestant groups. Finally, higher levels of income lead to significantly more pets owned for mainline Protestants but income has no bearing on the number of pets for evangelicals or Catholics.

The religion variables, view of the Bible and church attendance are also interesting. It is especially noteworthy that church attendance, despite being significant in the full sample, does not reach statistically significant levels for any of the three religious traditions in this regression model. Because the coefficient is signed in the same direction for each of the Christian traditions and the size of the coefficient is roughly similar as for the full sample (especially for evangelicals), it is likely that sample size is the primary issue here. Biblical literalism is statistically significant for only one of three religious groups: evangelical Protestants, but does not reach significance for mainline Protestants or Catholics. What maybe more interesting is that biblical literalism works in a negative way for evangelicals. For this group, a biblical literalist owns .51 fewer pets than

an evangelical who believes that the Bible is inspired but should not be taken literally, *ceteris paribus*.

Now we turn to consider how religion shapes which type of pets Americans are more likely to own. Table 3 presents the results of a logistic regression analysis predicting cat or dog ownership with the same control variables as in Table 2, except we also introduce owning a dog (when predicting cat ownership) or cat (when predicting dog ownership) to account for the possibility that someone is a lover of *both* cats and dogs. Across all models, many of the predictors work in the same way for both cats and dogs. For instance, neither race, Republican identification, number of children, nor age were statistically significant predictors of cat or dog ownership. However, other demographic variables do show some divergence in pet ownership. For instance, education and being male are negatively associated with dog ownership, but not cat ownership, while income (Model 4) is positively associated with owning a dog, but not a cat. Urbanism in Models 2–4 is negatively associated with owning either a cat or a dog.

Many of the religion measures tapping theological affiliation or belief are also statistically nonsignificant as well. For instance, neither variable tapping the respondent's view of the Bible is statistically significant. There are a few instances when the religious tradition variables attain statistical significance. For instance, compared to evangelical Protestants, mainline Protestants are more likely to own a dog, and Catholics are more likely to own a cat. However, more frequent churchgoers, whether we hold constant owning a dog (Models 1–2) or owning a cat (Models 3–4) are less likely to own a cat, but there is no association between worship attendance and dog ownership. In fact, when we take dog ownership into consideration, the negative association between attendance and cat ownership becomes even stronger, suggesting that is a more fundamental link between attendance and cat ownership beyond the presence of other pets or pets in general.

DISCUSSION

Despite the ubiquity of pets in the United States and the considerable role they play in the emotional, relational, and even financial lives of many Americans, researchers have yet to consider how religious factors shape Americans' likelihood of owning pets, and, just as important, which pets. Using data from the 2018 GSS module on pet ownership, we have shown that Americans who attend religious services more often are less likely to own pets, and in particular, they are less likely to own cats. By contrast, when we predicted pet ownership across religious tradition, though we did not find substantial differences in the type of pets being owned, evangelical Protestants who were more theologically conservative were less likely to own pets than evangelicals who hold a more progressive view of the Bible.

How do we interpret these trends? In light of the finding that biblical literalism and religious affiliation were not significant predictors of owning more pets in the full sample, the negative association between worship attendance and the number of pets Americans own likely may reflect either a *personality* mechanism or *social* mechanism at work. Because previous research has found pet ownership to be more common among those who are predisposed to self-isolate and these persons also tend to select out of church participation, it could be that more introverted persons exchange human interaction for pets. The explanation could also be more social. Worship attendance fulfills important needs for social bonding among humans (Saroglou 2011), which would no longer need to be filled by other social relationships. Moreover, a corollary of greater social connectedness is that frequent churchgoers often have additional expectations on their time and relational capacities. Taken together, is likely that Americans who attend church more often either do not have the need or the time for more pets (Martinez and Kidd 1980).

Why were literalist evangelicals predicted to own fewer pets than other evangelicals, all else being equal? This may be indicative of some theological differences shaping pet ownership.

Table 3: Binary logistic regression models predicting cat or dog ownership

Predictors	Cat Ownership		Dog Ownership	
	Model 1	Model 2	Model 3	Model 4
Church attendance	−.758[*]	−1.012[*]	−.140	−.609
	(.373)	(.416)	(.421)	(.477)
White	.556	.672	−.076	.088
	(.310)	(.347)	(.348)	(.400)
Male	−.070	−.342	−.524[*]	−.626[*]
	(.202)	(.227)	(.230)	(.254)
Income	.537	1.456	1.250	1.796[*]
	(.651)	(.772)	(.684)	(.753)
Republican ID	.087	.104	.030	.005
	(.328)	(.362)	(.364)	(.405)
Number of kids	.048	.386	.733	.944
	(.531)	(.587)	(.609)	(.687)
Age	.168	−.147	−.486	−.387
	(.595)	(.657)	(.673)	(.749)
Education	1.021	.203	−2.283[*]	−2.113[*]
	(.790)	(.884)	(.897)	(.988)
Urban	−.396	−1.005[*]	−.811[*]	−1.260[*]
	(.375)	(.442)	(.375)	(.426)
Literalism	−.459	−.435	.211	.034
	(.267)	(.292)	(.311)	(.350)
Written by humans	.186	−.016	−.488	−.499
	(.265)	(.296)	(.292)	(.320)
Mainline	.367	.018	−.932[*]	−.908[*]
	(.310)	(.349)	(.345)	(.389)
Black Prot.	−.786	−.993	.029	−.513
	(.710)	(.787)	(.688)	(.753)
Catholic	−.784[*]	−.863[*]	.223	−.158
	(.329)	(.358)	(.399)	(.444)
Jewish	−15.831	−16.792	−1.078	−2.663[*]
	(571.301)	(503.808)	(.911)	(.936)
Other faith	.300	−.044	−.850	−.881
	(.447)	(.491)	(.476)	(.547)
No religion	−.109	−.165	−.085	−.220
	(.318)	(.346)	(.384)	(.415)
Owns dog		−2.376[*]		
		(.287)		
Owns cat				−2.309[*]
				(.281)
Constant	−1.634	.253	2.366[*]	3.213[*]
	(.859)	(.978)	(.945)	(1.052)
Observations	491	491	491	491
Log likelihood	−303.563	−260.420	−251.548	−209.516
Akaike inf. crit.	643.125	558.841	539.096	457.031

[*]$p < .05$ (two-tailed test).
Source: 2018 General Social Survey.

The most fundamentalist evangelicals, prone to view creatures as inferior to humans and with a more utilitarian lens (Bowd and Bowd 1989; DeLeeuw et al. 2007; Driscoll 1992), may simply have less need for pets compared to evangelicals who adopt a less literalistic view of the Bible and thus view pets closer to the way the majority of Americans do, namely, as close companions and even members of the family. Additionally, in contrast to evangelicals, biblical literalism among mainline Protestants or Catholics may lack the same sort of dominionist conservative content or meaning and thus does not influence those groups toward animal subjugation.

We also found that religious factors were not particularly substantial predictors of which type of pet Americans own, with the exception of cats. Why were frequent churchgoers less likely to own cats in particular? In contrast to dogs, who tend to be extremely social and owned by humans who are more socially connected (Murray et al. 2010; Wells 2009), cat owners are more likely to be socially isolated, and even antisocial by some measures (Gossling, Sandy, and Potter 2010; Hanauer, Ramakrishnan, and Seyfried 2013). In other words, the type of Americans attracted to cats might also be the same Americans who find social situations in church unappealing. But cat owners may also find in cats, among all pets, what is the most acceptable "substitute" for human interaction. Although dogs require regular interaction and maintenance–and even other household pets like small mammals or birds require some form of daily maintenance–cats are arguably the most independent and willful of pets. Consequently, whereas living with most pets may not fulfill one's need for human interaction, living with a cat may be the closest experience to living with a human roommate, who comes and goes as it pleases, and thus, may be a closer (albeit partial) substitute for those who would otherwise participate in social functions like church.

We acknowledge several data limitations here. Although the causal ordering theorized here (religious factors influencing pet ownership) seems more plausible than the alternative (e.g., pets causing a decline in their owners worship attendance), the data are cross-sectional and thus directionality cannot be definitively determined. Related to this, while we have included a number of controls theorized to predict pet ownership in previous studies, we are unable to account for various personality characteristics that might confound the associations we observed here, such as introversion/extroversion, agreeableness, and neuroticism. Finally, while our theoretical explanation linking religious characteristics like worship attendance to pet ownership builds on previous literature, our data measures are too limited to isolate the precise mechanisms at work connecting the two. Although our analysis focuses on explicitly religious factors connected to pet ownership, future studies on this topic could benefit from examine whether other types of social participation beyond religion might correlate negatively with the ownership of pets in general or particular pets. Future research would also ideally incorporate a more exhaustive battery of controls with a large enough sample to provide more comprehensive explanations.

These limitations notwithstanding, this study extends our understanding of how two pervasive and enormously consequential American institutions–religion and pet ownership–intersect. Given our findings, it is helpful to consider how these associations may change in the future. As religious participation declines in the United States, it is possible that pet ownership (and perhaps cat ownership in particular) would rise as Americans seek partial substitutes for the human interaction they might have otherwise had in church. Future research, perhaps with future GSS waves, should thus look to track these associations over time.

REFERENCES

American Pet Products Association. 2019. *Pet Industry Market Size & Ownership Statistics*. https://www. americanpetproducts.org/press_industrytrends.asp (accessed April 23, 2019).

American Veterinary Medical Association. 2012. *U.S. Pet Ownership & Demographic Sourcebook*. https://www. avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-Pet-Ownership-Demographics-Sourcebook.aspx (accessed April 17, 2019).

———. 2018. *Where the (Not-So) Wild Things are*. https://www.avma.org/News/PressRoom/Pages/2018-top-and-bottom-states-for-pet-ownership.aspx (accessed April 17, 2019).

Archer, John. 1997. Why do people love their pets? *Evolution and Human Behavior* 18:237–59.

Blake, Aaron. 2014. What our cats and dogs say about our politics. *The Washington Post*. https://www.washingtonpost.com/news/the-fix/wp/2014/07/28/what-our-cats-and-dogs-say-about-our-politics/?utm_term=.499adf8cf0cb (accessed April 17, 2019).

Blue, Gladys F. 1986. The value of pets in children's lives. *Childhood Education* 63(2):85–90.

Bowd, Alan D. and Anne C. Bowd. 1989. Attitudes toward the treatment of animals: A study of Christian groups in Australia. *Anthrozoös* 3(1):20–24.

Cameron, Paul, Carol Conrad, Dave D. Kirkpatrick, and Robert J. Bateen. 1966. Pet ownership and sex as determinants of stated affect toward others and estimates of others' regard of self. *Psychological Reports* 19:884–86.

Cameron, Paul and Michael Mattson. 1972. Psychological correlates of pet ownership. *Psychological Reports* 30:286.

DeLeeuw, Jamie L., Luke W. Galen, Cassandra Aebersold, and Victoria Stanton. 2007. Support for animal rights as a function of belief in evolution, religious fundamentalism, and religious denomination. *Society and Animals* 15:353–63.

Driscoll, Janis W. 1992. Attitudes toward animal use. *Anthrozoös* 5(1):32–39.

Durkheim, Emile. 1995 [1912]. *The elementary forms of the religious life*. New York, NY: The Free Press.

Folse, Eileen B., Carolyn C. Minder, Melanie J. Aycock, and Ronald T. Santana. 1994. Animal-assisted therapy and depression in adult college students. *Anthrozoös* 7(3):188–94.

Friedmann, Erika and Sue Thomas. 1985. Health benefits of pets for families. *Marriage & Family Review* 8(3–4):191–203.

Garrity, Thomas F., Lorann Stallones, Martin B. Marx, and Timothy P. Johnson. 1989. Pet ownership and attachment as supportive factors in the health of the elderly. *Anthrozoös* 3(1):35–44.

Gossling, Samuel D., Carson J. Sandy, and Jeff Potter. 2010. Personalities of self-identified "dog people" and "cat people." *Anthrozoös* 23(3):213–22.

Hanauer, David A., Naren Ramakrishnan, and Lisa S. Seyfried. 2013. Describing the relationship between cat bites and human depression using data from an electronic health record. *PLoS One* 8(8):e70585.

Hunter, James Davison and Carl Bowman. 1990. *Life Choices Survey*. http://www.thearda.com/Archive/Files/Descriptions/LIFECHCS.asp (accessed April 17, 2019).

Jennings, Lea B. 1997. Potential benefits of pet ownership in health promotion. *Journal of Holistic Nursing* 15(4):358–72.

Kidd, Aline H., and Bruce M. Feldmann. 1981. Pet ownership and self-perceptions of older people. *Psychological Reports* 48:867–75.

Kutz, Steven. 2017. $100 billion–that's how much Americans spent on sports over the past 12 months. *Market Watch*. https://www.marketwatch.com/story/heres-how-much-americans-spend-on-sports-in-one-chart-2017-09-11 (accessed April 23, 2019).

Lim, Chaeyoon. 2016. Religion, time use, and affective well-being. *Sociological Science* 3:685–709.

Martinez, Robin L. and Aline H. Kidd. 1980. Two personality characteristics of pet-owners and non-owners. *Psychological Reports* 47:318.

McNicholas, June and Glyn M. Collis. 2000. Dogs as catalysts for social interactions: Robustness of the effect. *British Journal of Psychology* 91:61–70.

Murray, Jane K., W. J. Browne, M. A. Roberts, A. Whitmarsh, and T. J. Gruffydd-Jones. 2010. Number and ownership profiles of cats and dogs in the UK. *Veterinary Record* 166(6):163–68.

Perry, Samuel L. and Kyle C. Longest. 2019. Examining the impact of religious initiation rites on religiosity and disaffiliation over time. *Journal for the Scientific Study of Religion* 58(4): 891–904.

Perry, Samuel L. and Cyrus Schleifer. 2019. Are the faithful becoming less fruitful? The decline of conservative Protestant fertility and the growing importance of religious practice and belief in childbearing in the US. *Social Science Research* 78:137–55.

Pet Secure. 2019. *A Guide to Pet Ownership*. https://www.petsecure.com.au/pet-care/a-guide-to-worldwide-pet-ownership/ (accessed April 17, 2019).

Pikhartova, Jitka, Ann Bowling, and Christina Victor. 2014. Does owning a pet protect older people against loneliness? *BMC Geriatrics* 14:106.

Putnam, Robert D. and David E. Campbell. 2010. *American grace: How religion divides and unites us*. New York, NY: Simon & Schuster.

Saroglou, Vassilis. 2011. Believing, bonding, behaving, and belonging. The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology* 42(8):1320–40.

Smidt, Corwin E., Kevin R. Den Dulk, Bryan T. Froehle, James M. Penning, Stephen V. Monsma, and Douglas L. Koopman. 2010. *The disappearing God gap? Religion in the 2008 Presidential election*. New York: Oxford University Press.

Steensland, Brian, Jerry Z. Park, Mark D. Regnerus, Lynn D. Robinson, W. Bradford Wilcox, and Robert D. Woodberry.
       2000. The measure of American religion: Toward improving the state of the art. *Social Forces* 79(1):291–318.
Stetzer, Ed and Ryan P. Burge. 2016. Reltrad coding problems and a new repository. *Politics and Religion*, 9(1):187–90.
Triebenbacher, Sandra Lookabaugh. 1998. Pets as transitional objects: Their role in children's emotional development.
       Psychological Reports 82(1):191–200.
Wells, Deborah L. 2004. The facilitation of social interactions by domestic dogs. *Anthrozoös* 17:340–52.
——— 2009. The effects of animals on human health and well-being. *Journal of Social Issues* 65(3):523–43.
Zasloff, R. Lee and Aline H. Kidd. 1994. Loneliness and pet ownership among single women. *Psychological Reports*
       75:747–52.