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RESEARCH NOTE

Health Differences Between Religious and Secular Subgroups in the United States: Evidence from the General Social Survey

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Abstract

Religious nonaffiliates who have high certainty in the existence of God or a higher power (theistic nones) have grown rapidly in size in the U.S. in the last 30 years, and are now the fourth largest American religious or secular category. This subgroup has been overlooked in prior research on religion, secularism, and health. We build on recent work on religion and health by distinguishing between atheists, agnostics, and nonafflliated theists when examining the link between religious or secular identification and self-rated health. Specifically, we advance research on the heterogeneity of secular individuals and health by splitting nonaffiliated theists into two subgroups: those who report certainty in their beliefs about God or some higher power (i.e., theistic nones), and those who are less certain about their beliefs in God (i.e., doubting nones). We analyze 13 waves (1988–2018) of pooled data (N = 15,349) from the General Social Survey (GSS), a large, recurring, and nationally-representative sample of U.S. adults conducted on a periodic basis. Using the GSS, we assessed self-rated health across religious and secular categories in a well-controlled model. When compared with conservative Protestants, theistic nones and atheists had significantly higher levels of self-rated health, whereas agnostics and low-certainty nonaffiliated theists (doubting nones) did not report significantly higher levels of self-rated health. This study adds to previous research by differentiating between theistic and doubting nones among nonaffiliated theists in relation to overall health differences. The results suggest that the level of certainty in beliefs about God or a higher power are an important factor among religious nones for predicting health outcomes. These findings highlight the necessity of analyzing heterogenous subgroups within secular populations in studies of health and well-being.

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Introduction

Extensive research has examined the connections between religiosity and health. Researchers have found that different aspects of religiosity can be both positively and negatively tied to mental and physical health (see Koenig et al. 2012 for an overview). Religious involvement tends to have a salutary association with a variety of health outcomes, including psychological well-being, depression, obesity, chronic inflammation, cognitive function, and life expectancy (Cline and Ferraro 2006; Ferraro and Kim 2014; Hill et al. 2006a, b; Hill and Mannheimer 2014; Upenieks et al. 2019; VanderWeele and Tyler 2017). Increasingly, prospective cohort studies have added to this research using longitudinal data and methods (e.g., Chen and VanderWeele 2018; Childs 2010; Cline and Ferraro 2006; Croezen et al. 2015; Ferraro and Kim 2014; Fletcher and Kumar 2014; Idler et al. 2017; Li et al. 2016; Strawbridge et al. 2001). Religious involvement may have positive links to health through social support provision, promoting health behaviors, reducing risk behaviors, and providing systems of meaning (Ellison and George 1994; Ellison and Levin 1998; Hill et al. 2006a, b; Idler et al. 2017; Stroope et al. 2013).

Researchers have also found that certain aspects of religious involvement, particularly in the form of religious and spiritual struggles, are deleteriously tied to health outcomes, including psychopathology, sleep quality, and self-rated health (Abu-Raiya et al. 2015; Ellison et al. 2011; Ellison and Lee 2010; Galek et al. 2007; Hill and Cobb 2011; Krause and Ellison 2009). Religious involvement may harm health in these instances through threats to valued identities, negative interpersonal relationships, religious demands, and spiritual abuse (Ellison and Levin 1998).

While religious participation is frequently associated with salutary health outcomes (Koenig et al. 2012), it does not necessarily follow that religious individuals generally have better health than secular individuals, a point evidenced by recent scholarship. A key limitation in most previous research on religion and health is that treating religious nonaffiliates as a single group masks important heterogeneity amongst secular identities and orientations. For instance, a recent study that distinguished between atheists, agnostics, and nonaffiliated theists found that atheists and agnostics generally had similar or better health compared to religious individuals, and nonaffiliated theists had worse physical and mental health outcomes (Baker et al. 2018).

Indeed, research has shown that secular populations have considerable heterogeneity (Lim et al. 2010). Generally, secularity is measured as a residual category, based on responses to survey items designed to measure religiosity or religious affiliation. As a result, various secular groups, orientations, and identities are often lumped into a single, catch-all category. In addition to health, atheists, agnostics, and nonaffiliated theists have been found to vary across other social outcomes, such as civic engagement (Frost and Edgell 2018). Different forms of non-theism and nonaffiliation are analytically and empirically distinct across a wide range of domains (Baker and Smith 2015). Nonaffiliated theists in particular constitute a variety of circumstances, belief systems, and orientations toward faith communities and the divine.

The current study builds on recent work in both religion and health and the study of secularities in several ways. First, we distinguish between atheists, agnostics, and nonaffiliated theists when examining the association between self-rated health and religious or secular identity using a more expansive set of data covering a longer time period than has been used in prior research. We analyze 13 waves (1988–2018) of pooled data (N = 15,349) from the General Social Survey (GSS), a large, recurring, and nationally-representative sample of U.S. adults conducted on a periodic basis.[1] Second, we use self-reported overall health—a health outcome not previously used in national research on different categories of secularity and health. Third, we advance research on the heterogeneity of secular individuals by splitting nonaffiliated theists into two subgroups: those who report certainty in their beliefs about God or some higher power (i.e., theistic nones), and those who are less certain about their beliefs in God (i.e., doubting nones).

Data and Methods

Outcome Variable

To examine the relationship between health and different religious and secular identifications, we use self-rated health as our outcome (Jylhä 2009).[2] *Self-rated health* is measured on a four-point ordinal scale (1 = poor, 2 = fair, 3 = good, 4 = excellent).

Key Independent Variable

Our measure of *religious tradition* is based on a modified version of the RELTRAD classification scheme (Steensland et al. 2000) that separates the "none" category into atheists, agnostics, and nonaffiliated theists (Baker and Smith 2009). Respondents were classified according to their answers regarding belief in God. Those reporting "I don't know whether there is a God and I don't believe there is any way to find out" were classified as agnostics. Those reporting "I don't believe in God" were coded as atheists. A separate question on the GSS asked respondents: "What is your religious preference?" Respondents reporting no religious affiliation while also reporting that

[1] The GSS was administered on a yearly basis (with the exception of 1979, 1981, and 1992) until 1994. Between 1994 and 2018 it was conducted every other year. Since the "belief in God" question was not included in the 1989, 1990, 1996, 2002, and 2004 GSS questionnaires, these waves of data are not included in our analytical sample. The GSS is not without its weaknesses, and the current study's findings should be replicated using more targeted samples of underrepresented groups in the U.S., as well as samples from other countries.

[2] Although self-rated health clearly involves some level of subjectivity, research suggests that it is an important health outcome because it is indicative of an individual's global sense of physical well-being. Self-rated health has been shown to be predictive of mortality (Mossey and Shapiro 1982; Kaplan and Camacho 1983; see DeSalvo et al. 2006; Benyamini and Idler 1999 for reviews), because it serves as an indicator of other health problems as well as having an independent effect on mortality (Fried et al. 1998; Jylhä et al. 2006).

either "I know God really exists and I have no doubts about it" or "I don't believe in a personal God, but I do believe in a Higher Power of some kind" were recoded as *theistic nones*. Respondents reporting no religious affiliation while answering the God question with either "I find myself believing in God some of the time, but not at others," or "While I have doubts, I feel that I do believe in God" were recoded as *doubting nones*. Other respondents were assigned a religious affiliation in keeping with Stetzer and Burge's (2016) application of the RELTRAD classification scheme to the GSS. Resultant religious tradition categories were: conservative Protestant, mainline Protestant, Black Protestant, Catholic, Jewish, other faith, atheist, agnostic, theistic nones, and doubting nones. Because conservative Protestants were the largest group, they were set as the reference category in analyses. Consistent with prior research (Baker et al. 2018), belief in God served as the overriding factor in the instances of religiously affiliated agnostics or atheists.

Control Variables

To account for sociodemographic differences across religious and secular groups that might confound the relationship between religious/secular group affiliation and self-rated health, we control for a wide range of social characteristics. Given the documented relationship between religious service attendance and health (Ellison et al. 2009; Strawbridge et al. 2001), we control for *religious service attendance,* which was measured on a nine-point scale ranging from never to more than one time per week. Further, race, gender, and age are all associated with health outcomes (e.g., Brondolo et al. 2009; Read and Gorman 2010; House et al. 2013) and various aspects of religion, including spirituality and religiosity (Maselko and Kubzansky 2006), church-based social support (Krause 2002), and religious practices, beliefs and affiliations (Schwadel 2011). *Race* is a categorical variable measured as white (reference category), Black, and other races. *Sex* is measured using an indicator variable (1 = female). *Age* is measured in years. To account for the curvilinear relationship between age and self-rated health, we include a quadratic term for age in our models. *Marital status* categories are: married (reference category), widowed, divorced/separated, and never married. *Number of children* is measured as the count (from 0 = no children to 8 = eight or more) of the number of children a respondent has ever had. *Political party* is measured using a series of dummy variables, including "strong Democrat," (reference category), "not strong Democrat," "independent, near Democrat," "independent," "independent, near Republican," "not strong Republican," "strong Republican," and "other party."

Given the well-documented relationship between social class and health (Mirowsky and Ross 2003; Evans and Kantrowitz 2002; Johansson et al. 2020), as well as socioeconomic patterns in religious affiliation (Pyle 2006; Davidson 2008), we control for multiple aspects of socioeconomic status. *Employment status* was measured using the categories of working full time (reference category), working part time, temporarily not working/unemployed or laid off, not in the labor force, and other. *Occupational prestige* is measured using the GSS occupational prestige variable (PRESTG105PLUS) split into quintiles (1st quintile = reference category).

Income is measured by splitting income into quintiles (1st quintile = reference category) and including individuals who are missing data on income (≈ 10% of the sample) as a category.[3] *Education* is measured in attainment categories of: "less than high school" (reference category), "high school," "junior college," "bachelor's degree," and "graduate degree."

To account for potential differences in health and religious affiliation based on location, we control for urbanicity and region of residence. *Urbanicity* is a categorical variable measured as urban (reference category), suburban, and rural locations of residence. *Region* of residence is a categorical variable: Northeastern (reference category), Midwestern, Southern, and Western regions of the U.S. Finally, the year of survey is included as a series of dummy variables, with 1988 as the reference category (coefficients not shown). All analyses use GSS survey weights.

Results

Table 1 shows descriptive statistics for the variables used. Notably, theistic nones constitute a relatively large group. Theistic nones (7.9%) are the fourth largest "religious tradition," after conservative Protestants (25.9%), Catholics (24.5%), and mainline Protestants (14.9%). With respect to overall levels of self-reported health, the majority of respondents reported good health or higher (76.1%), with just over a quarter of the sample reporting excellent health (28.5%) and just under half of the sample reporting good health (47.6%). Slightly less than a quarter of the sample reported fair (19.0%) or poor health (4.9%).

Figure 1 shows the results from contingency tables between religious or secular identity and self-rated health. Notably, doubting nones and Black Protestants were the least likely to report excellent health (both 22.2%). Jewish respondents (17.2%) and agnostics (19.9%) were the least likely to report that their health was either poor or fair. On the negative side of self-rated health, the groups most likely to report poor or fair health were Black Protestants (32%), conservative Protestants (26.2%), and doubting nones (25.8%). Theistic nones (22.9%) reported poor or fair health at the same rate as Catholics (22.9%), and very similar to mainline Protestants (21.9%). This provides informative descriptive details about the general rates of health among different types of religious and secular individuals, but it is critical to account for related factors that differ across these groups, such as age, socioeconomic status, and religious service attendance.

[3] Income was missing on 9.90% of all responses. Additionally, occupational prestige had 4.83% missing data and religious affiliation was missing 4.83%. All other variables had less than one percent missing data. Additional analyses using multiple imputation (not shown) revealed the same substantive findings.

Table 1 Descriptive statistics. *Source*: General Social Survey (1988–2018)

	Mean/Pct.	SD
Self-rated health		
Poor	4.89	
Fair	18.90	
Good	47.58	
Excellent	28.63	
Race		
White	77.58	
Black	13.26	
Other	9.16	
Female	53.24	
Age	46.19	
Marital status		
Married	56.69	
Widowed	5.92	
Div./Sep.	14.36	
Never Mar.	23.03	
Number of children	1.91	1.68
Religious service attendance	3.68	2.77
Employment status		
Full Time	53.25	
Part Time	12.12	
Unemployed	6.01	
Out of labor force	26.56	
Other	2.06	
Occupational prestige		
1st Quantile	20.07	
2nd Quantile	20.09	
3rd Quantile	19.27	
4th Quantile	20.79	
5th Quantile	19.78	
Urbanicity		
Urban	58.05	
Suburban	30.85	
Rural	11.10	
Region		
Northeast	21.45	
Midwest	23.34	
South	17.46	
West	37.75	
Income		
Missing	9.93	
1st Quantile	13.99	
2nd Quantile	15.55	

Table 1 (continued)

	Mean/Pct.	SD
3rd Quantile	15.93	
4th Quantile	19.64	
5th Quantile	24.96	
Education		
Less than high school	13.74	
High school	51.73	
Junior college	7.25	
Bach. degree	17.76	
Graduate	9.52	
Political party		
Strong Democrat	15.48	
Not strong Democrat	17.61	
Independent, near dem	12.22	
Independent	16.75	
Independent, near rep	9.54	
Not strong Republican	15.37	
Strong Republican	10.96	
Other party	2.07	
Religious/secular affiliation		
Conservative Prot.	25.94	
Main. Prot.	14.89	
Black Prot.	7.33	
Catholic	25.50	
Jewish	1.38	
Other faith	5.58	
Atheist	3.07	
Agnostic	5.34	
Theistic nones	7.95	
Doubting nones	3.02	

N = 15,237

Table 2 shows the ordered logistic regression estimating self-rated health after taking sociodemographic characteristics and religious participation into account.[4] The results largely mirror previous research on demographic trends in health outcomes. Respondents reporting older age ($p < .001$), being divorced or separated ($p < .05$), and unemployment ($p < .001$) have lower odds of reporting higher

[4] A multilevel model allowing for random intercepts by year yielded substantively identical results. For ease of interpretation, we present the single-level ordered logistic regression. Additional analyses including religious affiliation by survey year interaction terms were not significant, suggesting that the relationship between religious/secular identification and self-rated health has not changed significantly over the time period covered in this study.

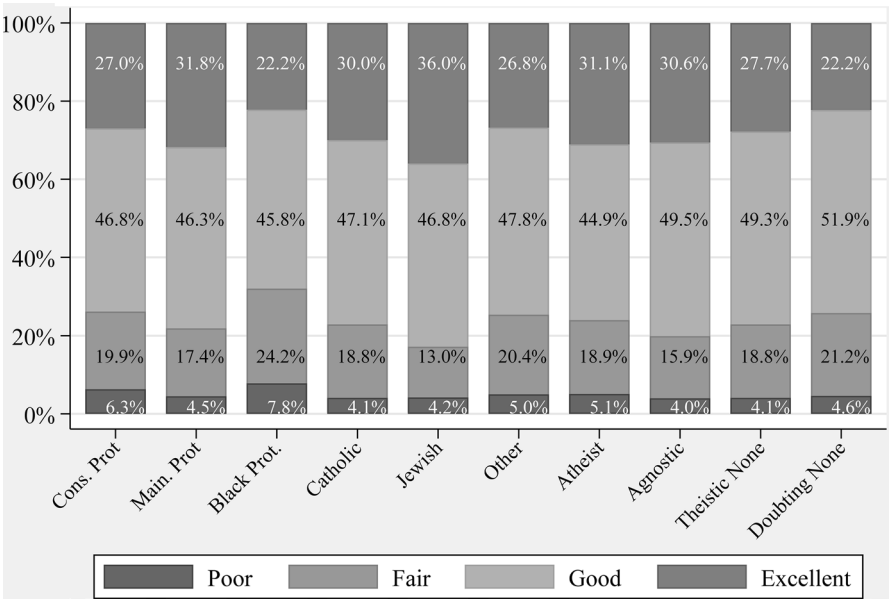

Fig. 1 Self-related health by religious or secular category

self-rated health. More frequent religious service attendance is associated with a higher likelihood of reporting better self-rated health ($p < .001$). In line with research demonstrating the link between socioeconomic status and health outcomes (e.g., Hoffmann et al. 2018), respondents reporting higher levels of education, income, and occupational prestige have significantly increased odds of reporting better self-rated health.

Table 2 also shows significant variation in self-rated health by religious and secular identification. Compared to conservative Protestants, mainline Protestants and Catholics report significantly higher levels of self-rated health ($p < .01$), while Black Protestants report significantly lower levels of health ($p < .05$). Notably, atheists report significantly higher levels of self-rated health relative to conservative Protestants ($p < .05$). Likewise, agnostics have odds ratios very similar to Catholics and mainline Protestants, but their differences compared to conservative Protestants only attain marginal significance ($p = 0.055$). Overall, the results in Table 2 highlight the importance of differentiating between high- and low-certainty nonaffiliated theists when predicting self-rated health. While the self-reported health of theistic nones is significantly higher than conservative Protestants ($p < .05$), the self-rated health of doubting nones is nearly identical to conservative Protestants, net of other controls.[5]

[5] The difference between theistic nones and doubting nones in self-rated health is not statistically significant ($p = .14$). Although we cannot definitively say that nonaffiliated theists differ in self-rated health depending on level of certainty, the difference between conservative Protestants and theistic nones would not be revealed had nonaffiliated theists been used as an undifferentiated category.

Table 2 Ordered logistic regression estimating self-rated health. *Source:* General Social Survey (1988–2018)

	Odds ratio	95% CI
Race[a]		
Black	1.123	0.961–1.311
Other	0.865*	0.754–0.993
Female	1.047	0.973–1.128
Age	0.951***	0.937–0.964
Age-squared	1.000***	1.000–1.000
Marital status[b]		
Widowed	0.957	0.815–1.124
Divorced/separated	0.903*	0.816–0.999
Never Mar.	0.876*	0.786–0.977
Number of children	0.983	0.958–1.009
Service attendance	1.053***	1.037–1.069
Employment status[c]		
Part time	0.872*	0.778–0.977
Unemployed	0.718***	0.612–0.843
Out of labor force	0.639***	0.577–0.709
Other	0.139***	0.106–0.183
Occupational prestige		
2nd Quantile	0.966	0.862–1.082
3rd Quantile	0.991	0.883–1.111
4th Quantile	1.190**	1.061–1.335
5th Quantile	1.239**	1.090–1.409
Urbanicity		
Suburban	1.096*	1.012–1.186
Rural	0.971	0.870–1.084
Region[d]		
Midwest	0.939	0.846–1.043
South	0.987	0.881–1.106
West	0.952	0.862–1.052
Income		
Missing	1.47***	1.260–1.714
2nd Quantile	1.153*	1.016–1.308
3rd Quantile	1.622***	1.425–1.846
4th Quantile	1.715***	1.500–1.961
5th Quantile	2.098***	1.819–2.418
Education[e]		
High school	1.688***	1.503–1.896
Junior college	2.127***	1.792–2.523
Bach. degree	2.510***	2.164–2.913
Graduate	3.090***	2.600–3.672
Political party[f]		
Not strong Democrat	0.894	0.792–1.008
Independent, near dem	0.968	0.849–1.103

Table 2 (continued)

	Odds ratio	95% CI
Independent	0.917	0.807–1.042
Independent, near rep	1.054	0.909–1.222
Not strong Republican	1.072	0.942–1.219
Strong Republican	1.315***	1.139–1.518
Other party	0.812	0.624–1.057
Religious/secular affiliation[g]		
Main. Protestant	1.163*	1.038–1.303
Black Protestant	0.833	0.685–1.013
Catholic	1.207***	1.090–1.337
Jewish	1.326	0.972–1.807
Other faith	0.949	0.802–1.123
Atheist	1.271*	1.027–1.571
Agnostic	1.191	0.997–1.423
Theistic nones	1.269**	1.092–1.475
Doubting nones	1.074	0.884–1.304
/cut1	−3.837	−4.253 to −3.422
/cut2	−1.829	−2.242 to −1.415
/cut3	0.53	0.117–0.942

N = 15,237 *$p < 0.05$ **$p < 0.01$ ***$p < 0.001$; Survey years were included as controls but not shown; [a]ref. = White; [b]ref. = married; [c]ref. = full time employment; [d]ref. = Northeast; [e]ref. = less than high school; [f]ref. = strong Democrat; [g]ref. = conservative protestant

Discussion

This study identifies a distinct and relatively large population straddling the line between religious and secular groups in the U.S. In a nationally representative sample, high-certainty theistic nones were the fourth largest category, trailing behind only conservative Protestants, Catholics, and mainline Protestants in size. The results show that some types of theistic nones do well on a general health metric, in accordance with scholars who note that while "higher levels of religiousness … may contribute to individual well-being, it does not follow that nonreligiousness is necessarily deleterious to [health]" (Weber et al. 2012: 84). The results are also consistent with growing research showing that the religiously nonaffiliated do not constitute a monolithic group. Specifically, this study adds to previous research by differentiating between high-certainty nonaffiliated theists (i.e. theistic nones) and low-certainty nonaffiliated theists (i.e. doubting nones), showing that there may be important differences between these sub-groups. By differentiating between high- and low-certainty nonaffiliated theists, we were able to reveal significant differences between theistic nones and conservative Protestants regarding self-rated health. High certainty of belief in God could reinforce and verify individuals' theistic identity and thus reduce psychosocial stress related to personal identities (Burke and Harrod 2005; Swann et al. 2003).

Theistic nones may report higher levels of self-rated health compared with conservative Protestants for several reasons. One possibility is that self-selection may occur in a group as seemingly complex as theistic nones. The act of self-selection may indicate a group with relatively high levels of self-efficacy, personal control, and autonomy, characteristics that have been found to be health-promoting and that may also enable people to maintain a liminal religious identity (Mirowsky and Ross 2003). Another possibility is that theistic nones may report better health due to particular spiritual behaviors (e.g., yoga, meditation) and a value for a natural approach to health and life. For example, previous research found that nonaffiliates had higher rates of breastfeeding compared to conservative Protestants (Stroope et al. 2018). Finally, in a national study of individuals with belief in the divine or a higher power, religiously nonaffiliated individuals were more likely to have a strong sense of purpose in life compared to conservative Protestants (Stroope et al. 2013). In addition to replicating the current analysis with different samples from different populations, future research should also explore the potential mechanisms linking secular individuals to health outcomes, such as health behaviors, psychological resources, and selection mechanisms.

This research differs from recent research that found nonaffiliated theists reported significantly higher rates of mental and physical health problems compared to other religious and secular groups (e.g., Baker et al. 2018). Differences in health and religion measurement may provide possible reasons for these divergent findings. First, the two studies have potentially overlapping but distinct dependent variables. Whereas the current study uses self-rated health as the outcome, Baker et al. (2018) used outcomes that take a "healthy days" approach to measuring health, which asks respondents to report the number of days in the past month that (1) their physical health was not good, (2) pain made it difficult to perform usual activities, and (3) they felt healthy and full of energy. Self-rated health is considerably more expansive and may include a variety of aspects of health (e.g., social health, health optimism) (Boardman 2004). A second possible source for difference between our current findings and those in Baker et al. (2018) is the variation in how religion is measured, as Baker et al. used the Baylor Religion Survey and utilized a more inclusive approach to categorizing respondents as religiously affiliated, in part due to question wording and religious affiliation measurement granularity (Dougherty et al. 2007). Improving the specificity of previous research, our findings suggest that it may be nonaffiliated theists who are uncertain about the divine that are more at risk for adverse health outcomes.

Limitations

Although this research is the first to distinguish between theistic nones and doubting nones in relation to health outcomes, we are unable to demonstrate causal ordering due to our use of cross-sectional data. Consequently, we are unable to discern the role of certainty and health in trajectories of affiliation and disaffiliation from religious groups. Future research utilizing longitudinal data should be directed toward more fully understanding the mechanisms that explain differences between theistic

nones and other religious or secular groups, as well as the role that certainty of belief plays in health outcomes for nonaffiliated theists. For example, there is evidence that transition periods of disaffiliation are related to deleterious mental health, but that the mental health of individuals who leave religion may improve over time (May 2018).

A second limitation of the current study is that we have only studied U.S. adults in a general sample, which makes analyses of underrepresented groups unfeasible. In addition to more targeted samples in the U.S., the boundaries of secularity, theism, and religious affiliation may manifest differently outside of the United States, or even in different cultural contexts within the U.S., particularly in regions where secularity is less stigmatized. Similarly, recent research found that the effects of religious belonging on health may also be contingent on levels of religiosity or secularity in local communities (Stroope and Baker 2018). Future research engaging in both cross-national comparisons and contextual-level assessment is needed to improve our understanding of the processes at play in the relationship between religious-secular group affiliation, certainty of belief, and health outcomes. For example, a recent study comparing atheists to other nonreligious and religious individuals in 24 countries found that "only in religious societies, identifying as non-religious/atheist is related to lower life satisfaction" (Pöhls et al. 2019: 1). Thus, it may be that secular stigmatization plays a strong role in health differences between religious and secular individuals in highly religious contexts. Future research on different types of nonaffiliated theists should examine the contingencies of both local and societal religious cultures. Finally, an important limitation of these data are that nonreligious collective activities on par with religious service attendance are not measured in the GSS. This is an important concern for measurement in future research. Another potential limitation of the current study is whether self-rated health has comparable meanings across different religious and secular groups. While we are not aware of documented differences, this is a potentially fruitful avenue for future research.

Conclusions and Implications

Just as the relationship between religion and health is complex, so too is the relationship between secularity and health. It is important for researchers to carefully consider the diversity of nonreligious populations when examining health and well-being. Differentiating between different types of nonreligious individuals to determine if and how there are connections to health and well-being is key for advancing research on religion/secularity and health. By differentiating between nonaffiliated theists with high certainty in their belief in God (i.e., theistic nones) and nonaffiliated theists with low certainty (i.e., doubting nones), this research reveals significant differences between theistic nones and some religious individuals in self-rated health. Degrees of certainty either about disbelieving or believing in the supernatural, community participation, and identity verification can be related to consequential differences in well-being among secular individuals and communities, just as they are among religious individuals and communities. Acknowledging, exploring,

and accounting for these complexities can help make substantial advances in our understanding of religion, secularity, and health going forward.

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