The Power of Belief and its Effects on Health
By Daniel S. Hinshaw

Assignment Description: Construct an arguable claim which will help provide an organizational structure to the paper. The final paper should include at least 5-6 reliable research sources that clearly support an academic argument. The assignment was originally completed for Dr. Stephen Neaderhiser’s College Writing II. The version of the essay appearing here was completed for Dr. Julie Cremains-Smith’s Individual Investigation.

There is little doubt that religion and spirituality play a role in physical and mental health, as there have been more than enough studies that have consistently confirmed these relationships. A meta-analysis of hundreds of peer-reviewed academic studies on this subject found that about 80% of the studies show a positive correlation between religiosity/spirituality and overall health (Koenig, 2012). A related study that examined religious coping and health behaviors among African Americans (who are traditionally a more highly religious group that also shows disparate health complications with regards to the general American population) found that religious behaviors (when paired with a positive view of God) were directly associated with some positive health behavior, such as eating more fruits and vegetables. However, with regards to the population of the religious with negative religious views of God (feelings of abandonment, punishment, unjust etc.) this study came up empty handed, possibly because the specific group being studied did not want to admit to any “spiritual struggle” as it could socially alienate them (Holt, Clark, Debnam, & Roth, 2014). Fortunately, others have studied this “spiritual struggle” aspect.

Kenneth Pargament examined this more negative view of God by believers, and found that those who believe in a God but also hold a negative view toward said deity may also experience higher mortality rates. This phenomenon was observed in a study conducted with a sample of 596 elderly (and chronically ill) inpatients at Duke University Medical Center (Pargament, Koenig, Tarakeshwar, & Hahn, 2001). The participants in the study who believed that God had abandoned them, was punishing them, or the devil was responsible for the illnesses they suffered from had an increased mortality rate of 6% to 10% (Pargament et al., 2001). But the most notable effect was seen in those who believed that God did not love them or had alienated them. This group of “negative” believers had a 19% to 28% increased risk of death over the approximate two-year time frame of the study (Pargament et al., 2001). Among the many possible explanations of these results, Pargament and colleagues (2001) suggested the possibility that religious struggle could cause poor physical health with depressed mood, anxiety, social alienation, or any combination of the aforementioned variables. It is worth noting however, that all of the participants within this study were religious and mostly mainline Christian, so there were no internal comparisons to any nonbeliever groups such as atheists or agnostics. However, this is one of the first studies to examine negative religious views toward God in such a delicate group, namely, the sick and dying.

Another aspect of belief that may play a role in its effects on health is the strength or certainty of belief. In fact, the strength of ones beliefs not only applies to those who believe in God, but strength of belief has also been shown to be important to atheists.
and their well-being. For example, Galen and Kloet (2011) examined this relationship by conducting a survey to compare certainty in belief between members from a Christian church, a non-denominational church and local branch of Center for Inquiry (a secular organization). The results of this research showed support for a curvilinear relationship between mental health and certainty of belief (Galen & Kloet, 2011). Participants were asked to respond to a series of Likert scale questions on mental health and life satisfaction such as “I am relaxed most of the time”, or “In most ways my life is close to ideal”; they were then asked how certainly they believed in the existence or non-existence of God. The highest scoring participants were those at polar opposite ends of the belief spectrum; those who believed with absolute certainty that God exists and those who believed with absolute certainty that God does not exist scored the highest on both emotional stability and life satisfaction, while those with less certainty in their beliefs fell in the intermediate ranges on both constructs (Galen & Kloet, 2011).

The previously mentioned studies are just a few examples of research on the topic of religious belief and health. However, it is worth noting that these studies include very specific predictors of mental and physical health (e.g. mortality and chronic illness, negative religious views, members of religious or non-religious organizations), which appears to be very common within this field. What has been largely ignored however is whether simply belief, uncertainty of belief, or nonbelief in any supernatural being(s)/higher power is related to mental and physical health. In other words, does mental/physical health have a relationship with belonging to theist, agnostic, or atheist groups exclusively (the three main overarching categories of belief)?

Examining these categories of belief is becoming more important as the amount of religiously affiliated individuals in the world today is slowly declining. Recently the Pew Research Center found that the number of Americans who identify as “religiously unaffiliated” has grown from 15% to 20% between the years 2007-2012 (“Nones’ on the Rise”, 2012). This increase has also been observed in Canada where the number of those who identify as religiously unaffiliated has grown from 4% to 24% from 1971-2010 (Pew Research Center, 2013). In another study by the Pew Research Center, it was estimated that the religiously unaffiliated now make up approximately 16% of the earth’s population (“The Global Religious Landscape,” 2012).

One question that may be posed in light of these findings is: where do atheists and agnostics stand in this landscape of personal belief? Within many surveys that request specific religious identification, atheists are only able to identify as “non-religious”, “religiously unaffiliated” or “religious none” etc. But this “religiously unaffiliated” category (and similarly named categories) in these surveys may not provide a clear view of atheists because anyone who does not specifically identify with a certain religion may also be included in such categories. Therefore, this type of category may also include people who believe in a God or Gods (theists [monotheist, polytheist, etc.]) but do not subscribe to a particular religion. This category may also include agnostics who are simply unsure about beliefs and religion as a whole. As such, attempting to pull information on atheists from such studies is also tricky since atheists may only make up a small portion of those who identify as “religiously unaffiliated”, possibly as little as 7% (Kosmin, Keysar, Cragen, & Navarro-Rivera, 2009).
In summation, the lumping of atheists, agnostics and theists into the same category (simply because they do not identify with a specific religion) prohibits a better understanding of these groups and how their belief or nonbelief relate with their personal health, instead of just those who adhere to a major religion (Lee, 2014). Exploring this subject in a new way is especially important given the growing rate of the “religious none.” Therefore, the goal of the present study was to address the limitations of previous research and to take a look at the bigger picture of health and belief.

**The Current Study**

The present study was created to examine the relationships between physical/mental health and personal belief. Specifically, the goal was to take a step back from examining specific religions, specific belief systems or organizations, and simply examine the root belief groups that they stem from. To accomplish this, the study exclusively examines the mental and physical health of those who identify as atheist, agnostic, or theist (or the “AAT” category). Based upon prior research that has studied relationships between spirituality/religion/atheism and health it was hypothesized that there would be significant differences between AAT groups in mental-health (M/H), physical health (P/H), and overall health (O/H).

**Method**

**Procedure**

The Institutional Review Board of Kent State University approved the following procedures. Data was collected by means of an anonymous survey distributed and collected online. Utilizing social networks allowed access to niche religious/theist/atheist and agnostic virtual communities. Online dispensation also opened up the opportunity to reach out to participants from all over the globe. Kwiksurreys.com was the site that was utilized as a host and initial data compiling/analysis engine along with SPSS v22 for further in-depth statistical analysis.

Eight surveys were filled out by face-to-face transmission when the researcher was invited to administer the survey in a classroom setting. The vast majority of survey responses came from Facebook and Reddit. Using Reddit to distribute the questionnaire allowed the researcher to focus on members of specific groups and online communities, especially religious groups such as /r/Christianity or /r/Theist. In total this survey was posted on over 50 different subreddits (or groups).

**Sample**

The total number of participants who identified as atheists composed 47% percent of respondents (n=1747) followed by theists at 27% (n=980), and agnostics at 26% (n=968). The average age registered for all participants (and each individual AAT group) fell in the “19-30” years-old range. This age range was expected since the survey was mostly administered through social-networking Internet sites.

**Measures**

The questionnaire was completely anonymous and contained one question to control for age, eleven four-point Likert scale questions for self-assessment of mental and physical health, one question regarding substance use, and a final question asking participants which category of personal belief (AAT) they most identified with. The eleven Likert type questions were composed of the two constructs M/H and P/H. The
combination of these two groups formed the larger O/H construct, and all questions were created from the main aspects of overall personal health described in *Improving Emotional Health* (Smith, Segal, & Segal, 2015). The survey was open for a total of 7 days and the total amount of survey respondents at the time of the surveys close was 3,695 (N=3,695) with a 100% completion rate of the questionnaire by participants.

The M/H section of the survey consisted of eight questions. Participants were asked to rate how strongly they agreed or disagreed with statements pertaining to contentment, zeal for life, resilience, meaning or purpose, mental flexibility, balance, relationships, confidence and self-esteem.

The P/H section consisted of four questions. Three of the four questions were Likert type where participants were asked to rate how strongly they agreed or disagreed with statements pertaining to rest, nutrition, and physical exercise. The last question in the P/H section asked participants to answer yes or no to the use of alcohol, tobacco or drugs for self-medicating purposes.

In the last question of the survey participants were asked which type of personal belief they most identified with. There were three options: theist, agnostic, and atheist. The definitions and qualifiers beside each answer read as such to all participants:

- Theist (Believe in a God, multiple Gods, or spiritual)
- Agnostic (Don’t know/aren’t sure)
- Atheist (Don’t believe in any god, gods or supernatural powers)

The reasoning behind creating a four-point scale (which consisted of Strongly Agree [SA=4], Agree [A=3], Disagree [D=2] and Strongly Disagree [SD=1] response options) was to try and avoid the neutral option that many people revert to with these types of surveys (no reverse coded questions, SA=4 was always the “healthiest” choice). The neutral option is often overused when participants are hesitant to choose a side or when they simply do not want to respond to the question. With this set-up, participants had to choose one side of the scale or the other. However, there were still four responses to choose from, so participants were not simply asked to say “yes” or “no”, in this way they could still rate how strongly they agreed or disagreed with each statement to some degree.

The survey was also designed to be short and easy for the respondents to use. This simplicity was used in an effort to maximize responses and encourage full completion of the survey. To accomplish this, the Likert type questions were framed in an all-encompassing manner. For example, the question regarding the P/H aspect of physical rest simply asked participants to rate how much they agree with the statement, “I get an adequate amount of sleep on most nights”. This generalized type of question was used instead of asking a multitude of questions that (when combined) pose essentially the same question, such as how many hours they sleep per night, how rested they feel upon waking or how often they might nap etc.

Another important note in the design of the survey was that the web-link (that connected participants to the survey) included in its description that the survey was studying the links between personal belief and well-being. In this way those who clicked on the link to take the survey did not enter blindly, but rather they went in with a basic idea of the subject matter to which they were contributing to and participating
in. However, because of this information being displayed in the link, the decision was made to place the AAT grouping question last. This set-up was an effort to elicit more honest responses and also try to avoid people trying to make the particular AAT group that they most identified with look better than another.

Results

Tests

Cronbach’s alpha test was run on all Likert type questions to determine the reliability of each construct (O/H, M/H, and P/H). Once reliability was confirmed, a one-way ANOVA test was performed on each construct. Tukey post-hoc testing was then used to determine where significant differences were displayed between AAT group responses. All tests used α=.05 significance level.

P/H Construct Analysis.

A Cronbach’s alpha test assigned this construct an alpha level of .587, thus determining it was an unreliable construct to use on its own. No further tests were performed on this subgroup, though it was used in combination with the M/H construct to compose the O/H construct.

M/H Construct Analysis.

The Cronbach’s alpha test assigned an alpha value score of .835 to the M/H construct and the one-way ANOVA test determined that there was a significant difference in responses by AAT groups (F [2, 3692] = 39.782 p<.05). The Tukey post-hoc test revealed that theists scored the highest significantly (M=24.81), followed by agnostics (M=22.82), then atheists (M=22.81) with no statistically significant difference between the latter two.

Overall Health Analysis.

The Cronbach’s alpha test determined that the O/H construct, consisting of Q2-Q12 (minus Q5), had a reliability of .819. Since this construct was determined internally reliable, a one-way ANOVA test was performed and it revealed that there was a statistically significant difference between the means of AAT group responses (see Table 1). A Tukey post-hoc test showed that in the O/H responses, theists had the highest mean followed by atheists, then agnostics (29.06, 28.8, and 28.45 respectively). Theists scored significantly higher than agnostics, while atheists were not significantly different from either agnostic or theist group means, rather, they were somewhat similar to both (see Table 2). These results also appear to show evidence for a relationship between O/H and personal belief (see Figure 1).
### Table 1. One-way ANOVA on AAT groups for O/H.

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>181.494</td>
<td>2</td>
<td>90.747</td>
<td>3.985</td>
<td>.019</td>
</tr>
<tr>
<td>Within Groups</td>
<td>84072.859</td>
<td>3692</td>
<td>22.772</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>84254.353</td>
<td>3694</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2. Tukey Post Hoc of AAT group means for O/H.

<table>
<thead>
<tr>
<th>Q14</th>
<th>N</th>
<th>Subset for alpha = 0.05</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Agnostic</td>
<td>968</td>
<td>28.4504</td>
</tr>
<tr>
<td>Atheist</td>
<td>1747</td>
<td>28.8048</td>
</tr>
<tr>
<td>Theist</td>
<td>980</td>
<td>29.0571</td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td>.178</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 1142.476.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
The Removal of Question 5: Meaning in Life

Initial analysis of the questionnaire data found that there was a substantial difference in responses between theist and atheist responses to Q5 (which read “I feel there is a meaning and purpose for my existence”). This question was initially intended to be used in the M/H construct (and in turn the O/H construct as well). However, multiple atheist respondents (on the sites and subreddits that this survey was posted on) pointed out that this was a loaded question and essentially begged the question of belief in an afterlife, God or some other “higher power”. This question was, admittedly, very poorly worded and should have been phrased differently. The real purpose of this question was to see whether respondents felt purpose for their life (not “existence”), whether the said “purpose” was internally (personally) or externally (higher power) assigned should not have been implied, as it was not relevant to what the question was intended to measure. The use of the word “existence” in this question brought on confusing implications for many respondents. The skew in the responses to this question between atheists and theists was very apparent from initial analysis, which showed that only 2.3% of theists responded “Strongly Disagree” as opposed to 19.1% of atheists. Thus, because of being poorly worded combined with the survey participant feedback, Q5 was disregarded.

Question Specific Testing

To analyze the AAT group responses question by question, a one-way ANOVA was performed on each individual Likert type question and categorized by the responses to Q14 (AAT). A Tukey post-hoc test revealed significant differences between AAT groups on Q2 (contentment with life), Q3 (enthusiasm for life), and Q8 (relationships) where the theist group scored
significantly higher than both atheists and agnostics. Q10 (sleep/rest) was particularly notable as it was the only question where the atheist group mean was shown to be significantly higher than the theist group (scoring the lowest of the three) while agnostics were similar to both theist and atheist scores (atheists with the highest mean). On Q4 (mental resilience) the theist group mean was the significantly higher than the agnostic group, and the atheist group was not significantly different than either other group. However, with Q6 (flexibility), the atheist group scored significantly higher than the agnostic group, and the theist group mean was in between agnostics and atheists, statistically similar to both. On Q9 (self-confidence/esteem) the theist and atheist group means were similar and significantly higher than the agnostic group. For Q7 (life balance), Q11 (nutrition) and Q12 (physical exercise) the AAT group means were not significantly different at the p<.05 level (see Table 3).

Table 3. ANOVA on individual O/H questions.

<table>
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<td>Mean Square</td>
<td>F</td>
<td>Sig.</td>
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<td></td>
<td>Within Groups</td>
<td>1955.243</td>
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<td>.530</td>
<td></td>
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<tr>
<td></td>
<td>Total</td>
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<td>3694</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>Between Groups</td>
<td>12.206</td>
<td>2</td>
<td>6.103</td>
<td>11.996</td>
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<td>Within Groups</td>
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<td>Total</td>
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<td>Q4</td>
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<td>2.457</td>
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<td>Within Groups</td>
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<td>.531</td>
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<td></td>
<td>Total</td>
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<td></td>
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<td>Q6</td>
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<td>3.543</td>
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<td>Within Groups</td>
<td>1454.330</td>
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<td>Between Groups</td>
<td>2</td>
<td>.621</td>
<td>1.013</td>
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<tr>
<td>Q7</td>
<td>1457.873</td>
<td>1.242</td>
<td>2</td>
<td>.621</td>
<td>1.013</td>
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<td></td>
<td></td>
<td>Within Groups</td>
<td>2263.675</td>
<td>3692</td>
<td>.613</td>
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<td>Total</td>
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<tr>
<td>Q8</td>
<td>2161.632</td>
<td>9.799</td>
<td>2</td>
<td>4.900</td>
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<td>Within Groups</td>
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<td>Total</td>
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<td>Q9</td>
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<td>Within Groups</td>
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<tr>
<td>Q10</td>
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<td>Within Groups</td>
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<td>Total</td>
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<td>Q11</td>
<td>2499.070</td>
<td>1.667</td>
<td>2</td>
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<td>Within Groups</td>
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<td>Q12</td>
<td>2924.798</td>
<td>.040</td>
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<td>Within Groups</td>
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<td>Total</td>
<td>2924.798</td>
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</table>

Question 13 (on the use of drugs and alcohol) was posed as a yes/no question and so it was not included with the other Likert type questions for the ANOVA test. Chi square was used to analyze the categorical data obtained from this question. Of the
AAT groups 62.39% of the atheist group responded “yes”, followed by 62.36% of agnostics and 48.67% of theists (Table 4).

<table>
<thead>
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<th>Q14</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
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<tr>
<td>Theist</td>
<td>477</td>
<td>503</td>
<td>980</td>
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<tr>
<td>Agnostic</td>
<td>603</td>
<td>364</td>
<td>967</td>
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<tr>
<td>Atheist</td>
<td>1090</td>
<td>657</td>
<td>1747</td>
</tr>
<tr>
<td>Total</td>
<td>2170</td>
<td>1524</td>
<td>3694</td>
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**Discussion**

Although atheists and theists are on different ends of the spectrum of belief, they were actually quite similar to each other on the O/H construct. Results of the AAT groups (shown in Figure 1) within this study are comparable to the findings of Galen and Kloet (2011). Their results showed that atheists and theists (with theists scoring just below theists) who believed with more certainty, displayed higher levels of well-being and life satisfaction than those who were less certain about their beliefs (Galen & Kloet, 2011). Although certainty or strength of belief in particular were not accounted for in this survey on AAT groups, the present study may illustrate that those who identified as atheist or theist might have somewhat of a higher level of commitment to their beliefs (than those who identified as agnostics) which could also imply strength or certainty of belief. Regardless, when looking at the results, it appears that simply believing or disbelieving is related to greater levels of personal health than remaining uncertain. However, the present study was a preliminary investigation of possible differences. Therefore, the reasons behind these findings are not made completely clear. Certain explanatory variables could be at play that were not unaccounted for in this study, such as community and social support in theists that belong to religious organizations, or conversely, the social stigma or alienation felt by agnostics and atheists living as minorities in a religious majority (Fiske, 2000; Morgan, 2013; Wright & Nichols, 2014).

Another result that stood out in particular was that of Q10 (sleep/rest). Although on a few questions atheists scored similarly to theists (that is they were not significantly different at the α=.05 confidence level), Q10 was the only question where atheists scored the highest, and agnostics did not score the lowest. It was also the only question where the theists mean score was the lowest (with a statistically significant difference between each AAT group). One possible explanation for these results is that atheists and agnostics may be more prone to depression and
anxiety given their more common neurotic personality traits (Caldwell-Harris, 2012) and in turn sleep more (a symptom of depression). However, the question was posed in a qualitative, not quantitative fashion. Q10 read, “I get an adequate amount of sleep most nights,” which implies that regardless of whether one slept for twelve hours or two, they felt that the amount was adequate, or maybe at least enough for them personally.

Variance in the quality of sleep between theists and their agnostic and atheist counterparts could possibly be explained by the “spiritual struggle” that has been found to have potential negative effects on health and has been receiving more and more attention in this field (Pargament & Cummings, 2010). One aspect of the spiritual struggle that could negatively affect sleep quality is religious doubt. The “religious doubt” variable was tested on a sample of the Presbyterian Church in the USA and found strong evidence for an inverse relationship between religious doubt and self-rated quality of sleep (Ellison, Bradshaqw, Storch, Marcum, & Hill, 2011). This relationship was significant in their findings even after controlling for multiple covariates and confounders such as psychological distress, exercise and the use of sleep medication (Ellison et al., 2011). But to figure out exactly why there was such a large disparity in the present study with theists (a much broader category than the religious denomination in the previously mentioned study) and sleep quality, further and more specific tests on this subject would need to be conducted. Future research could include longitudinal surveys to test how sleep and doubt may vary and fluctuate with each other. Tests with sleep labs could also prove useful where sleep can be more closely monitored, combined with blood work to monitor stress hormones, and combined with simultaneous assessment of spiritual struggles.

Although this study provided some interesting results there are a few limitations to its design. Choosing to do a shorter survey with more simplistic and broader value questions possibly allowed for more responses, but it also meant multiple variables went unaccounted for. Possible covariates such as gender, personality, level of education, income levels, race/ethnicity or even the different combinations of atheist, agnostic and theist that some people identify with (e.g. atheist-agnostic) were unaccounted for on the questionnaire. The fact that the survey was completely administered online also limited the sample of respondents to those with access to a computer.

While there were limitations to the survey, this study did show support for relationships between personal health and belief. The results provide evidence in agreement with prior studies on the religious (theist) having overall higher levels of health, but also showed that the group with the lowest scores overall were agnostics, not atheists as some might assume. These results seem to illustrate that simply believing in something (or anything with regards to theism and atheism) may actually be healthier than being uncertain. Although grouping by AAT is a decent starting point, future (more intricate) studies may grow from this, accounting for the different combinations of AAT (e.g. Agnostic-Atheist) along with other variables could prove to be beneficial for understanding topic in more depth.
References


Appendix

Note: Below is the full text of the survey that was administered.

1. How old are you?
   - 18 or under
   - 19-30
   - 31-40
   - 41-50
   - 51-60
   - 61 or over

2. In general, I feel content with my life
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

3. In general, I approach life with anticipation, excitement, enthusiasm and energy.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

4. When I feel depressed or stressed out I can usually pull myself out of it.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

5. I feel there is a meaning and purpose for my existence.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree


6. I am flexible and can work around most problems that presented to me with ease.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

7. I maintain good balance with activities in my life such as work and play or rest and activity.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

8. Even though it is sometimes hard, I build and maintain healthy and fulfilling relationships with friends and family.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

9. I am confident and think of myself with high regard.
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree

10. I get an adequate amount of sleep on most nights.
    - Strongly Agree
    - Agree
    - Disagree
    - Strongly Disagree

11. Nutrition is important, so I pay attention to how much, how often and what I eat.
    - Strongly Agree
    - Agree
    - Disagree
    - Strongly Disagree

12. I usually get some type of physical exercise on a regular basis.
    - Strongly Agree
    - Agree
    - Disagree
    - Strongly Disagree

13. Do you use alcohol, tobacco or any other drugs recreationally or to self-medicate?
    - Yes
    - No

14. When it comes to personal beliefs I am...
    - Theist (Believe in God, multiple Gods or spiritual)
    - Agnostic (Don’t know/aren’t sure)
    - Atheist (Don’t believe in any god, gods or supernatural powers)