

A Correlational Study: Ambiguity Tolerance and Religiosity

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ABSTRACT

Research indicated that individuals with low tolerance to ambiguity tend to have specific characteristics that may offer some measure of predictability in their decision making (Frenkel-Brunswik, 1951). They tend to come to premature conclusions and stick with them, have a greater need for certainty, inability to allow for the possibility of both good and bad traits in the same person, and show preference for black-white type attitudes, to name a few (Meadow, 1984). Individuals with these characteristics may be more drawn to religion as religious beliefs, though non-evidentiary, can more thoroughly meet their increased need for certainty, and provide a comforting cognitive framework which helps make sense of the world. As 54% of Americans say that religion is very important to them (PEW Research, 2014), insight to this population's cognitive processes and decision making is of significant interest. This study asked the question; do high or low religiosity individuals think differently as measured by ambiguity tolerance? 314 adults participated in an online survey answering questions about their ambiguity tolerance, religiosity, and need for cognition. The data showed a significant negative correlation between religiosity and ambiguity tolerance, indicating that individuals reporting high religiosity are less tolerant of ambiguity. These results provided initial evidence that cognitive processes may be either involved or motivational in religiosity.

A CORRELATIONAL STUDY: AMBIGUITY TOLERANCE AND RELIGIOSITY

The Oxford Dictionary defines religion as “the belief in and worship of a superhuman controlling power, especially a personal God or gods” and also, “a particular system of faith and worship” (OxfordDictionaries.com). Religion has existed, in some form, in all cultures and America is no exception; the majority of U.S. adult citizens identify as religious (77%) according to PEW Research Center’s 2014 U.S. Religious Landscape Survey. Though the fastest growing religious group in America are the “nones” (Americans who identify with no religion), 54% of Americans say religion is very important in their lives, and 24% say it is somewhat important according to the same PEW survey. Religion offers many compelling benefits to its followers. It soothes human fears and meets many of our human needs in a multitude of ways; it eases fear of death, offers structure to aid in improving self-esteem and relationships, for those feeling powerless when considering their relative position in the universe they are able to obtain power and status within the church community, it adeptly meets the extremely strong human need for conformity and affiliation (Meadow & Kahoe, 1984). Belief also serves as a powerful mechanism that helps humans make sense of complex and ambiguous information in order to aid in their decision making. Due to the fact that religious beliefs are not based on any physical evidence, and the majority of the population subscribe to some version of religious belief, make their impact on our decision making of significant interest (Smith, 2014).

Ambiguity tolerance is a psychological construct of personality which describes a person's attitude towards stimuli that has more than one interpretation. Persons low in ambiguity tolerance will interpret the ambiguous stimuli as a threat whereas persons high in ambiguity tolerance will find the stimuli desirable (Furnham, p.718). To those low in ambiguity tolerance “the lack of information makes it difficult to assess risk and correctly make a decision. These situations are perceived as a threat and source of discomfort. Reactions to the perceived threat are stress, avoidance, delay, suppression, or denial” (Furnham, p.718). Ambiguity tolerance reveals insight to preferences on thinking and decision

making. Frenkel-Brunswik identified common characteristics of ambiguous intolerant people, such as; need for certainty, inability to allow for the possibility of good and bad traits in the same person, acceptance of black-white attitudes about life, the early selection and maintenance of one solution in a perceptually ambiguous situation, preference for rigid and fixed categories, premature closure and remaining closed except to familiar characteristics of stimuli. These characteristics offer some measure of predictability in the decision making of ambiguity intolerant people.

This study examined the relationship between ambiguity tolerance and religiosity. Individuals with low ambiguity tolerance have a greater need for certainty. Religious belief offers answers that science cannot provide. Though non-evidentiary, these beliefs serve the need for a non-ambiguous cognitive structure - it provides certainty in “a world-conception that has logical simplicity and serene majesty” (Meadow, 1984). Science is limited in explaining the fundamental puzzles of human existence, for instance, science can explain how a hurricane develops, but is unable to explain why that particular hurricane developed in that particular place, flooding a particular village, and killing particular people. For some, religion offers a more complete explanation; reducing ambiguity and creating a robust cognitive structure in which those with lower tolerance to ambiguity are much more comfortable. Though there are many reasons a person may be attracted to religion, those with intolerance of ambiguity can be expected to be more attracted to religion (Meadow, 1984). However, that has not been directly assessed by previous research. Thus, the purpose of this study is to determine whether individuals with stronger religious beliefs and behaviors will indicate lower tolerance for ambiguity.

Method

Participants

314 people participated in the digital survey which was shared in two venues – at University of Wisconsin Superior via email and on social media. The University of Wisconsin Superior participants consisted of both faculty and students who received the survey link via email. Some of the students may have received class credit with instructor approval. The researchers shared this link publicly on social media, on their personal pages, and was shared by many and posted in various social media groups. Of the 358 participants, 44 were excluded due to completing less than 10% of the survey, 314 participants; Atheist 20.1% ($n=63$), Agnostic 18.8% ($n=59$), Unsure 8.9% ($n=28$), Spiritual 28% ($n=88$), Religious 23.9% ($n=75$). This sample was significantly less religious than the population at large. Participant's ages ranged from 16 to 75 years old ($M=37$) with 36 (11.5%) of participants giving no answer. Participants reported their gender as follows: Female 64.9% ($n=204$), Male 22.9% ($n=72$), Transgendered .003% ($n=1$), no answer 11.7% ($n=37$). Races were reported as follows: Caucasian ($n=248$), Native American ($n=6$), Asian ($n=4$), African American ($n=3$), Hispanic ($n=3$), Mixed Race ($n=3$), Hmong ($n=1$), no answer ($n=46$).

Materials

Religious Background and Behaviors Questionnaire. The purpose of this inventory is to describe the religious background of participants as well as their religious behaviors. There are three questions to this questionnaire, with the second and third questions each consisting of six sub-questions ($\alpha = .916$). The instructions read, "Please read each question and select the choice that best describes you and your experience". Question one, "Which of the following best describes you at this present time?" offers the option to choose one of the following response scale options (with short descriptions of each): Atheist, Agnostic, Unsure, Spiritual, or Religious. Question two, "For the past year, how often have you done the following? (Check one for each row)" and lists the following sub-questions: Thought

about God, Prayed, Meditated, Attended worship service, Read-studied scriptures or holy writings, Had direct experiences of God. An 8-point Likert response scale was as follows: Never, Rarely, Once a Month, Twice a Month, Once a Week, Twice a Week, Almost Daily, and More Than Once a Day. Question three asks “Have you ever in your life:” and lists the following sub-questions; Believed in God? Prayed? Meditated? Attended worship services regularly? Read scriptures or holy writing regularly? Had direct experiences with God? A 4-point response option was provided, as follows; Never, Yes, in the past but not now, Yes, and I still do, I didn’t in the past but I do now (this last option was added by the researchers). Each item was summated with a total range of 12-77.

Five-Dimension Scale of Religiosity. This inventory is designed to determine religiosity by looking at 5 different aspects; intellectual, ritualistic, experiential, and consequential. It was developed using concepts from Charles Glock. The questionnaire originally consisted of 18 questions with 5 subscales (Faulker & De Jong, 1966). Due to the nature of the variable response scales provided, cronbach alpha is not appropriate for determining reliability of the instrument. Eight questions (including the consequential subscale) were not applicable to this research and were excluded. Response options to one question were altered to be inclusive of non-bible-using religions by adding the text (or preferred Holy Book) after each use of the term “Bible”. Instructions are as follows: “Please read each question and select the choice that best describes you and your experience”. The response scales vary: five questions use a Likert scale from -6 through 6; Strongly Disagree (-6), Disagree Somewhat (-3), Neither Agree or Disagree (0), Agree Somewhat (3), and Strongly Agree (6). Four of the questions offer a choice of one of three text options, for example: “How do you personally view the story of creation?” 1. Literally true history. 2. A symbolic account which is no better or worse than any other account of the beginning. 3. Not a valid account of creation. One question offered a choice from five different text options. Five of the ten questions were reverse coded, with the larger number indicating higher religiosity. For each participant, a total summation score was calculated for

the entire questionnaire (with a range from -25 through 47) as well as a summation score for each subscale.

Religious Commitment Inventory. This inventory measures how much an individual follows their religious values, beliefs, and practice in their daily life. This 10-item inventory developed by Worthington and his colleagues is based on previous studies by Worthington ($\alpha = .960$). Participant instructions are as follows: “To what extent does each of the following statements describe you? Please use the following scale to record an answer for each statement listed below. Select the number that best describes how much you agree with each statement”. Sample questions include, “My religious beliefs lie behind my whole approach to life”, “I spend time trying to grow in understanding of my faith”, and “It is important to me to spend periods of time in private religious thought and reflection.” The response scale for all ten questions use a Likert scale from -6 through 6; Strongly Disagree (-6), Disagree Somewhat (-3), Neither Agree or Disagree (0), Agree Somewhat (3), and Strongly Agree (6). A total mean score was calculated for each participant.

The Multiple Stimulus Types Ambiguity Tolerance Scale – II. This scale, developed by McLain in 2009, evaluates the extent in which ambiguity is tolerated per stimulus type (ambiguity in general, insoluble/illogical/irreducible/internally inconsistent stimuli, new/unfamiliar/novel stimuli, complex stimuli, and uncertain stimuli) ($\alpha = .889$). Participant instructions are as follows: “To what extent does each of the following statements describe you? Please use the following scale to record an answer for each statement listed below. Select the number that best describes how much you agree with each statement. Recall that ambiguity tolerance is an attitude of being okay with uncertainty or doubt.” Sample questions include, “I don’t tolerate ambiguous situations well”, “I prefer familiar situations to new ones”, “I enjoy tackling problems that are complex enough to be ambiguous”. The response scale for all ten questions use a Likert scale from -6 through 6; Strongly Disagree (-6), Disagree Somewhat (-3), Neither Agree or Disagree (0), Agree Somewhat (3), and Strongly Agree (6). Nine questions were

reverse coded and a total mean score was calculated for each participant as well as a mean score for each of the five subscales.

Need for Cognition Scale. This 18 question scale was developed by Cacioppo & Petty in 1982 to evaluate the extent in which a person tends to participate in effortful thought ($\alpha = .914$). The instructions were as follows: “To what extent does each of the following statements describe you? Please use the following scale to record an answer for each statement listed below. Select the number that best describes how much you agree with each statement.” Sample questions include, “I would prefer complex to simple problems”, “Thinking is not my idea of fun”, “I only think as hard as I have to.” The response scale for all ten questions use a Likert scale from -6 through 6; Strongly Disagree (-6), Disagree Somewhat (-3), Neither Agree or Disagree (0), Agree Somewhat (3), and Strongly Agree (6). Nine of the eighteen items were reverse coded and a total mean Need for Cognition score was calculated for each participant.

Procedure

Participants took part in this study online, using a computer during a time of their choosing to complete a digital questionnaire. The researchers did not interact with participants as it was an online, anonymous, digital survey. The order in which participants viewed the content was as follows: an introduction page (outlining purpose of the study, participants rights, who to contact with questions, IRB number and participant consent), Religious Background and Behaviors Questionnaire, Five-Dimension Scale of Religiosity, Religious Commitment Inventory, MSTAT-II, Need for Cognition Scale, Demographic collection (age, gender, race/ethnicity, comments, and lastly a thank-you note from Dr. Stocker that both serves at a completion certificate for students seeking course credit and a reminder that participants may contact her with questions. “Thank you for participating in this research study. If you have completed this survey for course credit, please either print or take a screen-shot of this completion certificate, to provide to your instructor. If you have any questions about the study, you can contact: (lists her name and contact information).”

Results

To test the prediction that a relationship between ambiguity tolerance and religiosity exists, a Pearson Correlation was conducted. Statistically significant negative correlations were found between ambiguity tolerance and the measures of religious belief and behavior, indicating that individuals who reported low mean ambiguity tolerance also reported higher religiosity in the following variables; the sum of Religious Behaviors and Beliefs, $r(289) = -.144, p = .014$, the sum of the Five Dimensional Scale of Religiosity, $r(289) = -.333, p < .001$, the mean of Religious Commitment Inventory, $r(289) = -.227, p < .001$, and mean Spirituality, $r(287) = -.173, p = .003$. A significant correlation was found between mean ambiguity tolerance and mean need for cognition as well, $r(277) = -.741, p = < .001$, such that individuals who indicated high levels of ambiguity tolerance also reported a high need for cognition. All of these results support the hypothesis that a relationship between ambiguity tolerance and religiosity would exist.

Discussion

As predicted, low ambiguity tolerance, measured by the MSTAT-II, is related to higher reporting of religiosity as measured by the Religious Background and Behaviors Questionnaire, the Five-Dimension Scale of Religiosity, and the Religious Commitment Inventory. People who have low tolerance of ambiguity think differently than ambiguous tolerant people by showing a greater need for certainty, inflexible thinking in regards to good and bad characteristics in the same person, early selection and maintenance of one solution in an ambiguous situation, and favor a black-white attitude about life (Frenkel-Brunswik, 1951). A person with these characteristics may be more attracted to the structure and dogma that religion offers. The correlation between higher reporting of religiosity and low tolerance for ambiguity supports the hypothesis that religious people do think differently as measured by ambiguity tolerance.

As this study demonstrates, highly religious individuals are more likely to be less tolerant of ambiguity. As 54% of Americans consider religion to be very important, these findings can offer some insight into this majority population. Previous research indicates that people with low ambiguity tolerance have certain characteristics to their personalities such as increased need for certainty, categorization, and preference of black-white attitudes (Frenkel-Brunswik, 1951). This offers some measure of predictability in the decision making of highly religious individuals which makes this area of research of particular interest.

Highly religious individuals may view the world in a very different way than those who report low religiosity. The highly religious may view the world through a lens which allows them to easily categorize and make conclusions even when presented with an incomplete picture which would ultimately create a perception of a much more orderly world, whereas those with low religiosity may view the world through a lens that allows them to leave space for multiple scenarios and flexible views when presented with the same incomplete picture, creating a perception of a more flexible world for that individual. When either party is presented with an opposing scenario (either inflexible or flexible) they likely would respond with less tolerance.

Knowing that the highly religious are likely to be less tolerant of ambiguity can help us understand how this population may think and make decisions differently with some measure of predictability. It can help give insight as to what the highly religious value in the views they hold. Greater insight would be gained if future research could determine the directionality of the relationship between religiosity and ambiguity tolerance and why one influences the other.

Some limitations of the study include that some participants voiced concerns that the study was designed to reinforce negative stereotypes that religious people are less intelligent. This concern about an alternate research agenda may have influenced their responses. Ambiguity tolerance and religiosity are not markers for intelligence and they were not treated as such by the researchers. Future research

could include measures to reduce the possible social desirability effect by adding reassuring content or to be mindful of the concern of participants. Additional studies could determine the direction of the religiosity and ambiguity tolerance relationship and why that may be the case. It may be worth investigating if individuals who report high religiosity and low ambiguity are more attracted to highly structured environments; are they more likely to belong or subscribe to a more structured version of their religion, join the military or a cult, are they more at ease or successful in the corporate world?

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