Data Analysis Plan for “The Effects of Religion and Opportunities to Influence Others on Avowals of Cooperative and Sexual Moral Positions”

Liana S. E. Hone, Evan C. Carter, Eric J. Pedersen, and Michael E. McCullough

Background and Predictions

From July 25, 2013 to July 28, 2013, we conducted a survey-based experiment on-line via Amazon’s Mechanical Turk to examine whether participants’ self-reports of their sexual and/or cooperative morality are influenced by (1) the belief that their reports will be publicly disseminated or kept confidential; and (2) avowals of their religious beliefs; (3) individual differences in religious beliefs; and (4) the interactions of these variables.

Reproductive Religiosity Theory (RRT) posits that restricted sexual strategists use public avowals of religious belief to impose their own sexual morality upon others with the goal of restricting promiscuous sexual behavior in others who reside in their own mating pools (Weeden, Cohen, & Kenrick, 2011). Conversely, Religious Prosociality Theory (RPT) posits that people hold religious beliefs in order to gain the group-level or reputational benefits that accrue from projecting images of themselves as highly prosocial (i.e., generous, honest, and cooperative; Norenzayan & Shariff, 2008). If RRT is correct, activating religious cognition should increase sexual morality when controlling for cooperative morality—especially when participants believe that their avowals are to be made public (and, ostensibly, exert an influence on others behavior). In addition, the effects of avowals of religious beliefs (particularly when those avowals should be made public) should exert particularly strong effects on the cooperative moral avowals of highly religious (rather than less religious) participants. Alternatively, if RPT is correct, activating religious cognition should increase cooperative morality when controlling for sexual morality.

Both theories lead to the following predictions:

(1) A main effect of participants’ religious belief (i.e., strong religious believers should, in general, endorse stricter morality);
(2) A main effect of religious salience (i.e., people reminded of religion will avow stricter morality);
(3) A two-way interaction of religiosity and religious salience (i.e., the effect of religious salience on strict avowals of morality will be stronger for strongly religious people than for less religious people).
(4) A two-way interaction of religiosity and publicity (i.e., the effect of belief that one’s avowals of morality will be made public should increase the strictness of those avowals to a greater degree for strongly religious people than for less religious people);
(5) A two-way interaction of religious salience and publicity (i.e., the effect of religious salience on strict avowals of morality will be stronger when people think their avowals will be made public than when they believe that their avowals will be kept confidential); and
(6) A three-way interaction of individual differences in religious belief (i.e., the above-mentioned main effect for religious salience and two-way interaction of religious salience and publicity will be strongest for people who self-report high levels of religious belief).
Despite the fact that both RRT and RPT lead to these six predictions, their predictions differ depending on whether morality is measured in terms of avowals of cooperative morality (i.e., the rated justifiability of a variety of behaviors that involve cheating, lying, infractions of the law, etc.) or avowals of sexual morality (i.e., the rated justifiability of a variety of behaviors that involve non-monogamous and/or promiscuous sex that evades parental investment in offspring). That is, RRT leads us to predict the main effects and interactions specified above for sexual morality, but it does not give rise to predictions regarding cooperative morality. Conversely, RPT leads us to predict those effects for cooperative morality, but it does not give rise to predictions regarding sexual morality. In other words, if the statistical overlap between cooperative morality and sexual morality is statistically controlled, RRT leads to expectation of the abovementioned effects for the sexual morality scores but not for the cooperative morality scores. Conversely, RPT leads to expectation of the abovementioned effects for the cooperative morality scores, but not for the sexual morality scores.

**Procedural Overview of the Data Collection Effort**

Data were collected for 800 participants between July 25, 2013 and July 28, 2013. After participants agreed to participate in the study on-line, participants were either told that their answers would be used in a pamphlet distributed to people moving into their zip code in order to give newcomers an idea of the types of personal beliefs held by community members (public condition) or were told that their answers would be kept confidential (private condition). Participants were also randomly assigned to fill out (1) a religiosity questionnaire followed by a morality questionnaire, followed by a questionnaire about fitness/health-consciousness or (2) the fitness/health-consciousness questionnaire followed by the morality questionnaire, followed by the religiosity questionnaire. Whether they received the religiosity questionnaire first (or third) in the set of questionnaires is a manipulation of religious salience (with respect to their responses on the second questionnaire, which was the morality questionnaire for all participants.

**Experimental Conditions for Manipulating Publicity**

Instructions for Public Condition:

"The University of Miami Beliefs© Study

Thank you for taking time to participate in the University of Miami Beliefs© study. In this survey, you will be asked to answer questions about your personal beliefs. Your involvement will provide us with valuable information for our research.

In addition - as a service to families who have recently relocated to your zip code - we will be using the results of this research to help newcomers to your area understand what your community is like. Specifically, we will be developing a pamphlet and web site that will use your responses to give new families the information they need to understand the personal beliefs of community members like you who are already established in your area. Please be aware that your specific answers will be kept confidential and anonymous - no one will ever be told the specifics of what you personally believe. Only general
summaries of what your community members’ beliefs are like will be made available to new families in your zip code.

Please take your time and answer as thoughtfully as you can. Thank you again for participating in the University of Miami Beliefs© Study.”

Instructions for Private Condition:

“The University of Miami Beliefs© Study

Thank you for taking time to participate in the University of Miami Beliefs© study. In this survey, you will be asked to answer questions about your personal beliefs. Your involvement will provide us with valuable information for our research.

We will be using the results of this research to help us understand what your community is like. Specifically, we would like to understand the personal beliefs of community members like you who are established in your zip code. Please be aware that your answers will be kept confidential and anonymous and will only be used for research purposes. Only research personnel will have access to your responses and your anonymity will be safeguarded with the utmost care. No one, outside of our research team, will ever learn of your responses to the following questions.

Please take your time and answer as thoughtfully as you can. Thank you again for participating in the University of Miami Beliefs© Study.”

Religiosity, Fitness/Health-Consciousness, and Morality Questionnaires

Instructions for Religiosity and Fitness/Health-Consciousness Questionnaires:

“You may be asked to complete one more cognitive tasks, questionnaires, and/or writing tasks about yourself, and/or some decision-making tasks. You may be asked to give your impressions regarding a variety of topics (such as the difficulty of tasks or what you think of a specific individual.)”

Religious Questionnaire (The first set of questionnaire items for participants in the “Religion Salient” condition and the third set of questionnaire items for participants in the “Religion Not Salient” condition):

“How much do you believe in God?
Not at all Not really Not sure Mostly Completely

How much do you believe in the scriptures and writings of your religion?
Not at all Not really Not sure Mostly Completely

How much do you believe in the lessons taught by the founders of your religion?
Not at all Not really Not sure Mostly Completely
RUNNING HEAD: Morality Plan

How much do you believe in the lessons taught by the leaders of your religion?  
Not at all    Not really    Not sure    Mostly    Completely

How important are your religious beliefs in your daily life?  
Not at all    Not really    Not sure    Mostly    Completely

How often do you pray (please pick one by entering the corresponding number)?  
Never    Occasionally    Once a week    Several times a week    Every day

How often do you attend public religious activities or services?  
Never    A few times a year    Once a month    Once a week    More than once a week

Fitness/Health Consciousness Questionnaire (The third set of questionnaire items for participants in the “Religion Salient” condition and the first set of questionnaire items for participants in the “Religion Not Salient” condition):

“How much do you believe in the importance of physical fitness-enhancing activities?  
Not at all    Not really    Not sure    Mostly    Completely

How much do you believe what you read in books, in magazines, and on the Internet about physical fitness and maintaining a healthy diet?  
Not at all    Not really    Not sure    Mostly    Completely

How much do you believe what you have heard from doctors about physical fitness and maintaining a healthy diet?  
Not at all    Not really    Not sure    Mostly    Completely

How much do you believe in the lessons of fitness experts about physical fitness and maintaining a healthy diet?  
Not at all    Not really    Not sure    Mostly    Completely

How important is physical fitness in your daily life?  
Not at all    Not really    Not sure    Mostly    Completely

How often do you engage in physical fitness-enhancing activities on your own?  
Not at all    Not really    Not sure    Mostly    Completely

How often do you engage in physical fitness-enhancing activities with a group or in a class?  
Not at all    Not really    Not sure    Mostly    Completely

Instructions for Morality Questionnaire:

“For each of the following statements, please indicate whether you think the action can be justified on the scale below, where 1 means “never” and 7 means “always.”
RUNNING HEAD: Morality Plan

<table>
<thead>
<tr>
<th>Can never Justified</th>
<th>Can always be justified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Morality Questionnaire (All participants completed these items, with sexual and cooperative morality items, after completing either the religiosity items or the fitness/health consciousness items):

1. Married men having an affair: __________
2. A person under the legal age of consent having sex: __________
3. Partners having oral sex when the partners are not in a serious relationship with each other or anyone else: __________
4. Partners having sexual intercourse when the partners are not in a serious relationship with each other or anyone else: __________
5. Partners having sexual intercourse when one of the partners is in a serious relationship someone else: __________
6. Homosexual activity: __________
7. Using birth control: __________
8. Aborting a recently conceived embryo: __________
9. Getting divorced: __________
10. Claiming government benefits to which one is not entitled: __________
11. Avoiding a fare on public transportation: __________
12. Cheating on taxes: __________
13. Accepting a bribe in the course of one’s duties: __________
14. Taking and driving away a car belonging to someone else: __________
15. Lying in one’s own interest: __________
16. Littering in a public place: __________
17. Driving under the influence of alcohol: __________
18. Paying cash for services to avoid taxes: __________
19. Speeding in densely-populated areas: __________
20. Buying something known to be stolen: __________
21. Failing to report damage done accidentally to a parked vehicle: _________

Plan for Data Cleaning

We will exclude from analysis any data from participants who were suspicious of our manipulation based on answers to probing questions at the end of the study. Specifically, if participants mentioned the words “prime,” “control,” “experimental condition,” etc., or mentioned that they believed we were assessing the effects of publicity, or religiosity, on the morality items, we will not include their data in analyses (N = 35 subjects total are targeted for removal). We will also check for responses that are out of the range of possible responses by assessing frequencies then finding and marking those values as missing. We will check for duplicate entries by assessing IP addresses and removing the second entry by any participant who completed the survey twice.
We plan to take the mean of (1) the seven religious belief/behavior items to make a single religiosity scale; (2) the nine sexual morality items to make a single sexual morality scale; and (3) the twelve cooperative morality items to make a single cooperative morality scale.

**Plan for Analyses**

To test our predictions, we will run two ordinary least squares (OLS) multiple regressions.

In the first regression, we will regress sexual morality on eight predictors: (1) cooperative morality, (2) mean-centered religiosity, (3) the religious salience manipulation (dummy coded: religious vs. non-religious), (4) the publicity manipulation (dummy coded: public vs. private), (5) the mean-centered religiosity by religious salience interaction, (6) the mean-centered religiosity by publicity interaction, (7) the religious salience by publicity interaction, and (8) the three-way interaction of mean-centered religiosity, religious salience, and publicity.

In the second regression, we will regress cooperative morality on eight predictors: (1) sexual morality, (2) mean-centered religiosity, (3) the religious salience manipulation (dummy coded: religious vs. non-religious), (4) the publicity manipulation (dummy coded: public vs. private), (5) the mean-centered religiosity by religious salience interaction, (6) the mean-centered religiosity by publicity interaction, (7) the religious salience by publicity interaction, and (8) the three-way interaction of mean-centered religiosity, religious salience, and publicity.

**References**


**Notarization**

Signed by

Liana S. E. Hone, M.S.
Graduate Student/Data Analyst

Michael E. McCullogh, PhD
Principal Investigator

Date: 08/27/2013

Date: 8/27/2013
STATE OF Florida
COUNTY OF Miami-Dade

The foregoing instrument was acknowledged before me this 27th day of August, 2013 by
Liana Home, who is personally known to me or who has produced
as identification.

Notary Signature

My commission expires: 9-14-2014  Seal:

JOSEFINA DAUVAL
MY COMMISSION # DD 657974
EXPIRES: April 14, 2014
Bonded thru budget Notary Services
STATE OF Florida
COUNTY OF Miami-Dade

The foregoing instrument was acknowledged before me this 27th day of August, 2013 by Michael E. McCulloch who is personally known to me or who has produced __________________________ as identification.

Notary Signature

My commission expires: 4-14-2016 Seal: