

THE IMPACT OF RELIGIOSTY ON SHAME AND SELF-ESTEEM
FOLLOWING A HOOKUP

A thesis presented to the faculty of the Graduate School of
Western Carolina University in partial fulfillment of the
requirements for the degree of Master of Arts in Psychology.

By

Kelsey Lynae Freeman

Director: Dr. David de Jong
Associate Professor of Psychology
Psychology Department

Committee Members: Dr. David M. McCord, Psychology
Dr. David Solomon, Psychology

April 2019

ACKNOWLEDGEMENTS

I would like to extend my gratitude to my thesis chair, Dr. David de Jong. While this has been a long process, Dr. de Jong always pushed me to do my best, even when I was beyond frustrated with myself. I would not be even half the researcher I could be if it were not for Dr. de Jong's expectations that research be conducted with the greatest dedication and careful thought. I was able to complete a project more complex and compelling than I ever imagined upon the start of my graduate career, and I cannot thank him enough for supporting me and helping me throughout the process.

TABLE OF CONTENTS

List Of Tables	v
List Of Figures	vi
Abstract	vii
Chapter One: Literature Review	vii1
Hookups	2
Hookups And Self-Esteem	3
Religiosity	4
Shame	5
Religious Priming.....	7
The Present Study.....	9
Chapter Two: Methods	11
Pre-Registration.....	11
Power Analysis.....	11
Participants	11
Measures.....	12
Demographics.....	12
Recall Of A Recent Hookup.....	12
Prime Conditions	12
Emotional Responses.....	12
The Rosenberg Self-Esteem Scale	13
Guilt And Shame Proneness Scale.	13
Moral Incongruence	14
Religiosity.....	14
Type of God Belief.	15
Procedure.....	15
Data Cleaning.....	16
Chapter Three: Results.....	18
Analytic Strategy.....	18
Moderated-Mediation.....	18

Simple Mediation	19
Correlations	20
Chapter Four: Discussion.....	23
Hypotheses And Exploratory Analyses.....	23
Future Directions.....	25
Limitations	27
Conclusion.....	28
References.....	29
Appendices.....	36
Appendix A: Consent Form	36
Appendix B: Emotional Responses.....	38
Appendix C: Rosenberg Self-Esteem Scale	39
Appendix D: Guilt And Shame Proneness (Gasp)	40
Appendix E: Moral Incongruence	42
Appendix F: Duke University Religion Index (Durel).....	43
Appendix G: Type Of God Belief.....	44
Appendix H: Demographics.....	45
Appendix I: Pre-Registration	47

LIST OF TABLES

Table 1. *Correlations Among Key Variables: GASP Scales, Self-Esteem, Moral Incongruence, Positive and Negative Emotions Religiosity*.....22

LIST OF FIGURES

Figure 1. Theorized Moderated-Mediation and Simple Mediation Model.....10

ABSTRACT

THE IMPACT OF RELIGIOSITY ON SHAME AND SELF-ESTEEM FOLLOWING A HOOKUP

Kelsey L. Freeman, Clinical Psychology, M.A.

Western Carolina University (04/03/2019)

Director: Dr. David de Jong

Research into the impact of hookups on mental health has focused on possible detriments to self-esteem. To better understand why hooking up is associated with lower self-esteem, this study focused on the impact of religious beliefs on shame following a hookup, and the subsequent impact on self-esteem. I theorized that more religious individuals would experience greater shame following a hookup, which in turn would cause lower self-esteem. Additionally, I hypothesized that more religious individuals would experience greater shame following a hookup, and in turn decreased self-esteem, but only for those high on the moderator religiosity. Moderated-mediation and simple mediation models did not support my hypotheses, indicating that religiosity did not increase shame following a hookup, and in turn decrease self-esteem. Future research may need to focus on connecting moral incongruence and religiosity to self-esteem and shame proneness in hopes of determining the cause of shame, and ultimately lower self-esteem, following a hookup. Implications for this research include a better understand of clinical and counseling practices to address incongruence between one's religious beliefs regarding sex and their sexual behaviors.

CHAPTER ONE: LITERATURE REVIEW

The college environment provides an opportunity for young adults to be exposed to many new experiences, ranging from academic to social. One aspect of life in college that can be especially important is the development of one's sexual ideals and norms and how those might impact mental health and well-being. Some students may struggle with their sexuality if they engage in sexual behaviors that are unfamiliar to them. This may be especially the case for individuals who have pre-existing negative views about casual sex, such as those present in certain religious beliefs. Engaging in casual sex in college can have both positive and negative effects on well-being, and beliefs regarding appropriate sexual practices might frame the mindset in which students view themselves following casual sexual interactions, or "hookups." An individual's view of oneself following a hookup, especially if it is negative, may lead to outcomes such as depression, low self-esteem, increased shame, and higher rates of sexual risk taking. These negative outcomes may be especially detrimental for individuals who engage in hookups despite the belief that the behavior is wrong or unacceptable.

In this study, the impact of religiosity on self-esteem was studied among college students who engaged in casual sex. More specifically, religious priming (Shariff, Willard, Andersen, & Norenzayan, 2016) was used to assess whether heightened salience of religiosity among individuals who hold strong religious values would cause an increase in shame following a hookup, and in turn, cause lower self-esteem. This research will help us better understand if college students who struggle with conflict between religiosity and their sexual experiences can be helped with therapeutic practices aimed at increasing self-esteem, resolving the conflict between their religion and their behaviors, and combating negative self-image that arises from feelings of shame.

Hookups

A “hookup” has been defined as a casual sexual encounter with no expectation of a romantic relationship (Fielder & Carey, 2010; Garcia, Reiber, Massey, & Merriwether, 2012). Reportedly 40% to 80% of North American college students have engaged in some form of hookup (Garcia et al., 2012). Conceptualizations of “hookups” vary, incorporating behaviors ranging from only kissing to sexual intercourse, or stricter classifications such as only oral, anal, and vaginal sex (Claxton & van Dulmen, 2013). Researchers also focus on differing time frames that constitute a hookup, such as knowing someone for only 24 hours or hooking up once and only once (Garcia et al., 2012; Eshbaugh & Gute, 2008). Many factors have been related to hookups, ranging from what influences engagement in casual sexual behavior to emotional and psychological outcomes following a hookup (Garcia et al., 2012). However, findings related to the associations between hooking up and well-being have produced a mix of positive and negative results (Vrangalova, 2015).

Positive outcomes related to hookups range from positive emotional responses, to sexual satisfaction during the hookup. Hookup research indicates that college students’ emotional reactions following a hookup are more positive than negative (Snapp, Ryu, Kerr, 2015; Garcia et al., 2012). Positive emotional reactions and even sexual satisfaction are often related to certain sexual motives, situational aspects, and pre-existing sexual beliefs regarding sex (Garcia et al., 2012). Sexual motives, such as seeking pleasure and intimacy, have been associated with positive emotional reactions following a hookup (de Jong, Adams, & Reis, 2018; Snapp, Ryu, & Kerr, 2015; Snapp, Lento, Ryu, & Rosen, 2014). College students who engaged in a hookup with a previous partner experienced greater sexual satisfaction (Snapp, Ryu, & Kerr, 2015). Additionally, individuals who have a more positive outlook regarding casual sex are also likely

to experience more positive emotional reactions (Owen, Rhoades, Stanley, & Finchman, 2010; Vrangalova & Ong, 2014).

Despite evidence for positive outcomes of hookups, most research in this area has focused significantly on the negative outcomes. Engagement in hookups has been related to higher rates of sexual risk taking, such as engaging in sex with multiple partners (Garcia et al, 2012). Other research shows that negative outcomes related to hookups include higher rates of depression, lower self-esteem, and increased guilt and shame (Garcia et al., 2012; Fielder & Carey, 2010). Additionally, restrictive religious and moral values, avoidant and anxious attachment style, and negative coping strategies have also been related to negative outcomes following hookups (de Jong et al., 2018; Murray, Ciarrochi, & Murray-Swank, 2007; Owen et al., 2010; Rizvi, 2010; Snapp et al., 2014). The mix of positive and negative outcomes related to hookups raise the question of why some individuals feel more negative emotions following hookup.

Hookups and Self-Esteem

Emotional reactions may impact how individuals view themselves following a hookup, especially negative emotions about oneself that could be detrimental to self-esteem. Rosenberg (1979) defines self-esteem as the way in which people experience feeling “good enough,” not as a comparison to others, but to oneself. Self-esteem is a self-evaluative state in which people reflect on their own worth (Friedlander, Reid, Shupak, & Cribbie, 2007). Low self-esteem has been associated with negative emotions that are detrimental to mental health, depression, anxiety and feelings of shame (Sowislo & Orth, 2013; Velotti, Garofalo, Bottazzi, & Caretti, 2017). Ziegler-Hill (2013) discusses the possibility that low self-esteem may increase an individual’s likelihood of experiencing poor psychological adjustment following stressful events. For

example, in a study examining the effects of various adaptive factors on first year undergraduate students' adjustment to university, lower self-esteem was correlated with increases in depression (Friedlander et al., 2007). If we can better understand what causes lower self-esteem in certain situations, such as following a hookup, we can create more effective interventions to increase self-esteem, and in turn, reduce the probability of poor psychological adjustment.

Few researchers have considered how self-esteem is impacted in the aftermath of a hookup (Garcia et al., 2012; Fielder & Carey, 2010; Paul, MacManus & Hayes, 2000). For example, Paul et al. (2000) found that both men and women who had hooked up experienced lower self-esteem. Fielder and Carey (2010) found that among female college students who hooked up in the first semester of college, those who had penetrative sex during their hookup reported lower self-esteem at the end of the semester than women who engaged in hookups without penetrative sex. Because this past research relies on correlational designs that do not allow for causal inferences, it cannot be known if hooking up causes lower self-esteem or vice versa. The current study seeks to expand on and add to the literature by studying the causal relationship between hookups and self-esteem using an experimental design.

Religiosity

Self-esteem may not be harmed by the hookup itself, but instead by individuals' perceptions of their behavior, in light of their pre-existing beliefs regarding appropriate sexual practices. Religious beliefs play an important role in perceptions of appropriate sexual attitudes and behaviors. Religiosity, or one's religious identity, behaviors, attitudes and perceptions (Luquis, Brelsford, & Rojas-Guyler, 2012), has been studied to better understand how religion plays a role in well-being. Reported benefits of religiosity include less depression, loneliness, substance abuse, and gambling (Hackney & Sanders, 2003). However, an individual's view of

their own worth may be tied to these beliefs and conflicting, negative feelings and self-judgments may arise when an individual does not act in accordance with them.

Religious beliefs are often accompanied by perceptions that developmentally normative sexual behaviors, such as feelings of sexual desire, masturbation, fantasy, and sexual interactions are sinful and to be avoided (Luquis et al., 2012). For example, Murray, Ciarrocchi, and Murray-Swank (2007) found that individuals with religious or spiritual beliefs were less likely to view casual sex as acceptable. Accordingly, it is possible that when someone with strong religious beliefs does engage in a hookup, conflicting emotions arise due to not adhering to those beliefs. If this is the case, religious individuals' beliefs may play a major role in emotional reactions following a hookup, especially since violating important religious beliefs and values might create psychological distress, including shame, guilt and regret (Burdette, Hill, Ellison, & Glenn, 2009).

Shame

An individual's feelings of shame regarding a hookup may play a key role in their feelings of self-worth, especially among people who hold strict religious values that condemn certain sexual behaviors. Shame is defined as a very intense, negative emotion resulting from an unfavorable self-evaluation after engaging in an act the individual perceives as morally wrong (Rizvi, 2010). When someone experiences shame, they can feel as though they are worthless, powerless, or inferior after having committed some form of perceived transgression (de Hooge, Zeelenberg, & Breugelmans, 2010; Tangney, Wagner, & Gramzow, 1992). Even after time has passed following the perceived transgression, individuals struggling with feelings of shame can experience intense self-criticism and rumination (Gilbert and Procter, 2006; Cheung, Gilbert, & Irons, 2004). This may be further exacerbated by individual tendencies to experience shame, or shame proneness, which has been associated with lower self-esteem (Tangney, 1992). Shame has

been found to be associated with a broad range of aspects of well-being, including low self-esteem, negative coping skills, increased depression, more anxiety, and guilt and regret (Rizvi, 2010; Vikan, Hassel, Rugset, Johansen, & Moen, 2010; Tangney and Dearing, 2002). For example, feelings of shame were shown to significantly predict greater depressive symptoms across the semester in an undergraduate population (Andrews, Qian, & Valentine, 2002). Shame was also found to be associated with negative coping skills, such as higher levels of withdrawal and the tendency to attack the self (Reid, Harper, & Anderson, 2009).

One theory that could explain how shame impacts self-esteem is social self-preservation theory, which posits that threats to the “social self” (i.e. one’s perceptions of their own social value or standing) create feelings of shame (Gruenewald, Kemeny, Aziz, & Fahey, 2004). According to this theory, shame is a “social emotion” that arises from being in situations that threaten one’s social acceptance (Scheff, 2003). The important factor when examining shame from this theoretical perspective is that social evaluation plays a significant role in how individuals develop feelings of shame. For example, individuals who performed a laboratory task in the presence of social evaluation (i.e. an unfriendly, evaluative audience) exhibited increases in shame and decreases in self-esteem (Gruenewald, Kemeny, Aziz, & Fahey, 2004). In another example, Dickerson, Kemeny, Aziz, Kim, & Fahey (2004) found that individuals who were randomly assigned to write about a time that they blamed themselves (compared to a neutral writing task) expressed themes related to threats to the social self, namely rejection and failing to meet parent expectations. In support of social self-preservation theory, these individuals also experienced elevated shame and guilt.

Guided by social self-preservation theory, I theorized that religious individuals may experience shame following a hookup due to not meeting their social group’s norms. In support

of this, Murray et al. (2007) found that those who viewed their behaviors as “out-of-line” with God’s expectations may be more likely to experience higher levels of shame. This feeling of alienation from God was found to be a strong predictor of shame. Thus, the hookup itself may not be the cause of shame—instead, it may be a person’s self-concept and values that the individual uses to understand her or his hookup that causes shame. I hypothesized that religiosity plays a causal role in the findings that people who hookup tend to report lower self-esteem, due to feelings of shame caused by incongruence between individuals’ actions and their religious beliefs regarding casual sex.

Religious Priming

Religious priming is an experimental tool in which religious salience (i.e., strength of religious beliefs and values) is experimentally manipulated, to identify the causal effects that religiosity has on behaviors or emotions (Willard, Shariff, & Norenzayan, 2016). Researchers have tested the effects of religious priming on various psychological concepts, including prosocial tendencies, prejudice, task persistence during stressful tasks, and moral hypocrisy (Shariff et al., 2016; Toburen & Meier, 2010; Johnson, Rowatt, & Labouff, 2010; Carpenter & Marshall, 2009). Religious priming has been shown to consistently impact how people respond to questions and stimuli in different situations, due to activation of religious concepts (Shariff et al., 2016). For example, Carpenter and Marshall (2009) used religious priming combined with intrinsic religious motivation to predict decreased moral hypocrisy. Ahmed and Salas (2011) primed religious words prior to engaging in a dictator and prisoner dilemma game and found that religious priming increased prosocial behavior.

Different types of priming have been used to test how different presentations of religious content elicit religious thoughts and beliefs. Explicit primes do not hide the religions content of

the prime but activate more specific and complex thought processes compared to implicit and subliminal types of primes (Shariff et al., 2016). For example, Van Tongeren, Newbound, & Johnson (2016) randomly assigned participants to read either a religious paragraph or a neutral paragraph, which strengthened the relationship between religious commitment and how a participant perceived their partner's negative view of a sexual value violation. Rand, Dreber, Haque, Kane, Nowak, & Coakley (2014) determined that participants primed with a Christian passage were more likely to cooperate during prisoner and dictator dilemma games. Another example of explicit religious priming involved use of Bible passages vs. a passage from an existential short story to examine the effects of priming on intrinsic religiousness (Van Tongeren, McIntosh, Raad, & Pae, 2013).

In contrast to explicit religious primes, implicit and subliminal primes attempt to hide or otherwise minimize participants' ability to recognize religious related concepts. For example, Shariff and Norenzayan (2007) primed God-related concepts using five-letter word scrambles where participants were required to drop words to create full sentences. Although participants were not aware of the purpose of the prime, the religious prime led to greater prosociality during anonymous dictator game. In an implicit prime study, Johnson et al. (2010) flashed Christian words during a Lexical Decision Task, resulting in participants displaying more covert prejudice and negative affect toward African Americans (Johnson et al., 2010). Contextual priming involves use of naturalistic settings, such as testing inside or near a religious building, to improve generalizability. However, explicit primes provide a larger effect than subliminal and implicit primes and are easier to utilize than contextual techniques (Willard et al., 2016), thus an explicit prime was used in the current study.

The Present Study

Across these studies, it is evident that hookups impact people differently, but much of the available research into hookups is correlational. What is missing is research that seeks to understand why people feel the way they do after a hookup using an experimental design to uncover causal processes. Through the utilization of religious priming, the current study sought to determine whether salience of religiosity, as activated by the religious prime, caused feelings of shame after a hookup, and in turn, caused lower self-esteem. These connections are important to study in college student populations given that it is a time of major transition and change, as well as mental health problems (Auerbach, Alonso, Axinn, Cuijpers, Ebert, Green, & Hwang et al., 2016). Because shame and low self-esteem are associated with negative mental health outcomes, it is important to understand how they are related to hookups in order to address them appropriately in therapy, such as addressing low self-esteem and feelings of shame following engagement in hookups to promote positive coping skills.

An additional consideration in the current study was whether religiosity, among other measures, would moderate the effect of religious priming on shame and self-esteem. For example, Carpenter and Marshall (2009) found that religious priming led to reduced moral hypocrisy for individuals high in intrinsic religiosity but not for individuals low in intrinsic religiosity. Similarly, Van Tongeren et al. (2016) found that religious priming caused people to view a sexual value violation in the aftermath negatively, but this effect was found only for people who were highly committed to their religion. In other words, religious priming appears to work only for people who are highly committed to their religion. Accordingly, it is expected that religiosity will moderate the effect of the prime on shame, and in turn, self-esteem. I hypothesized that the religious prime will increase shame regarding one's hookup, and in turn,

decrease self-esteem for people who have stronger salience of religiosity but not for people who have weak or no religious affiliation (See Figure 1). I also tested several other variables as possible moderators of the mediated effect, including moral incongruence and guilt and shame proneness.

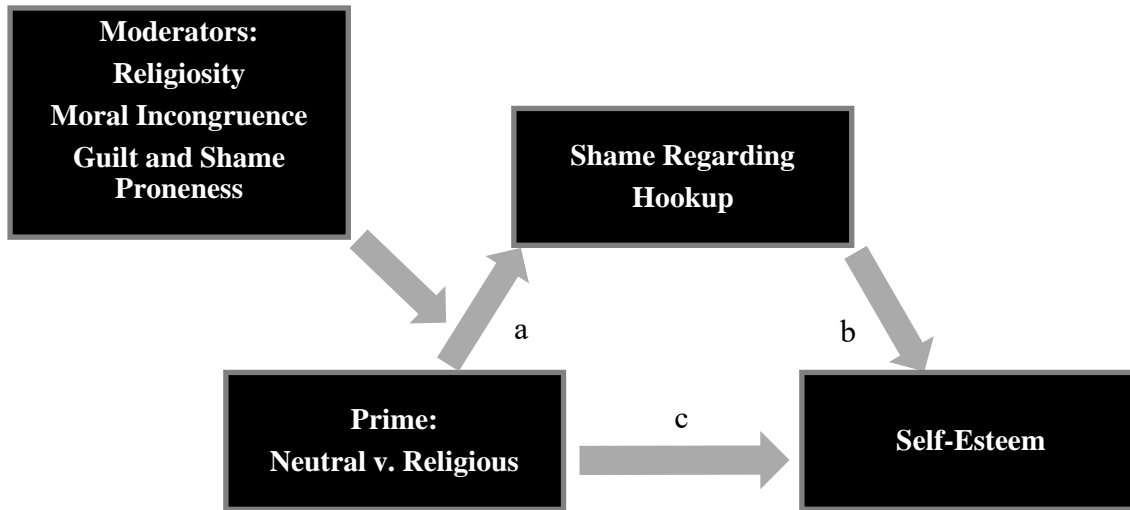


Figure 1: Theorized Moderated-Mediation and Simple Mediation model: Heightened salience of religiosity (as activated by the religious prime) will cause lower self-esteem via heightened shame, the hypothesized mediator. Additionally, religiosity will moderate the association between salience of religiosity and shame, such that the prime will increase shame regarding one’s hookup, and in turn decrease self-esteem, but only for people high on the hypothesized moderators, but not people low on the moderators.

In this experimental design, people who had engaged in a hookup at some point in their lives were randomly assigned to one of two conditions, a religious prime condition or a neutral condition. This experimental design enabled causal inferences about how religiosity impacts shame after a hookup, and in turn, self-esteem, in contrast to prior research regarding negative outcomes following a hookup which has relied exclusively on correlational data. The current study sought to provide evidence for the mechanisms that impact shame and self-esteem following a hookup.

CHAPTER TWO: METHODS

Pre-Registration

In order to maintain transparency, preserve accurate calibration of evidence, and maintain the statistical validity of hypothesis testing, all hypotheses were pre-registered prior to the start of the study on AsPredicted.org (Nosek, 2017).

Power Analysis

To estimate the number of subjects required to detect the moderated indirect effect, the R package *bmem* (Zhang, 2014) was used to conduct a Monte Carlo simulation and derive a power curve. Conservatively estimating small-medium effects (Beta 0.20; Cohen, 1988) for the paths M->Y, X->M, moderator->M, and the X*moderator interaction->M, 80% would be achieved with 225 subjects, 85% power with 240 subjects, and 90% power with 280 subjects. The goal was to achieve over 90% power with approximately 300 subjects.

Participants

The present study included 452 individuals 18 years of age or older who had ever engaged in a sexual hookup, consisting of 315 men, 132 women, and 5 who identified their gender as "Other." Participants ranged from 18 to 60 years of age, with 92 participants identifying as 18 years old and one identifying as 60 years old, representing the full range of ages. Within this study, 2% identified as American Indian or Alaskan Native, 6% identified as Asian, .00% as Native Hawaiian or Pacific Islander, 12% as Black or African American, 75% as White, and 5% as Other.

Measures

Demographics. Demographic questions included age, race, ethnicity, gender, sexual orientation, relationship status, highest level of education, full or part-time college student, and religious affiliation.

Recall of a Recent Hookup. Participants were prompted to recall a recent hookup and report, to the best of their ability, how many weeks or months ago it occurred. Response options ranged from within the past week to more than 1 year ago. Additionally, participants were asked to indicate what sexual activities took place as well as how familiar they were with their sexual partner. Response options for the sexual activities included sex with penis in vagina, sex with penis in anus, manual stimulation of genitalia, oral sex, or no genital contact at all. Response options for familiarity with their sexual partner ranged from someone they just met to a previous sexual partner.

Prime Conditions. Participants were randomly assigned to one of two conditions; religious prime or the neutral prime condition. There were 221 people in the religious prime condition, and 201 participants assigned to the neutral prime condition. Participants were asked to write at least 4 sentences. The religious prime condition consisted of an open-ended question meant to prompt the participant to begin thinking about the role of religion in their life. The prompt read, “Describe the role of religion and God in your life.” The prompt for the neutral condition read, “Please describe your favorite season” (Inzlicht & Tullett, 2010).

Emotional Responses. Participants’ emotions regarding recall of their recent hookup were measured using select items from the Discrete Emotions Questionnaire (DEQ, Harmon-Jones, Bastian, & Harmon-Jones, 2016). For the purposes of this study, positive and negative emotions were measured using the three positive items and three negative items from the DEQ

with the highest loading factor scores. Negative items included: shame, guilt, and regret, and were computed into an aggregate negative emotion measure with average internal consistency, $r = .78$. Positive items included: satisfaction, enjoyment, and happy and were computed into an aggregate positive emotion measures with an aggregate internal consistency of $r = .79$.

Responses were answered on a 7-point likert scale (1 = *Not at All* to 7 = *An Extreme Amount*).

The Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale is a 10-item measure that assesses a participant's global self-worth using both positive and negative feelings about the self (Rosenberg, 1979). For the purposes of this study, self-esteem was measured as it relates to feelings of self-worth using an all positively worded version of the Rosenberg Self-Esteem Scale (Greeneberger, Chen, Dmitrieva, & Farruggia, 2003). Participant were asked to, "Please indicate how strongly you agree or disagree with each statement about yourself right now, at this moment." A sample item read, "I feel I do have much to be proud of." Items were answered on a 7-point scale (1 = *Strongly Agree* to 7 = *Strongly Disagree*). An aggregate self-esteem measure was computed for analyses with Cronbach's alpha, $\alpha = .84$.

Guilt and Shame Proneness Scale. The Guilt and Shame Proneness Scale (GASP) is a 16-item scale that measures individual differences in the propensity to experience guilt and shame across a range of perceived personal transgressions (Cohen, Wolf, Panter, & Insko, 2011). The GASP scale contains four subscales, each containing four items: Guilt-Negative-Behavior-Evaluation (Guilt-NBE), Guilt-Repair, Shame-Negative-Self-Evaluation (Shame-NSE), and Shame-Withdraw. Participants were asked to read scenarios people would be likely to encounter on a day-to-day basis and rate how they would feel in that situation. A sample item from the Guilt-NBE scale read, "You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?" A sample item from the Guilt-Repair scale read, "You strongly

defend a point of view in a discussion, and though nobody was aware of it, you realize you were wrong. What is the likelihood that this would make you think more carefully before you speak?"

A sample item from the Shame-NSE scale read, "You give a bad presentation at work.

Afterwards your boss tells your coworkers it was your fault that your company lost the contract.

What is the likelihood that you would feel incompetent?" A sample item from the Shame-

Withdraw scale read, "A friend tells you that you boast a great deal. What is the likelihood that

you would stop spending time with that friend?" The items were answered on a 7-point scale

ranging from (1 = *Very Unlikely* to 5 = *Very Likely*). Cronbach's alphas for each of the four

subscales were, respectively, $\alpha = .71$, $\alpha = .46$, $\alpha = .66$, $\alpha = .55$.

Moral Incongruence. Moral incongruence related to one's hookup was measured with items adapted from a study examining religious belief and moral disapproval of pornography use in the development of self-perceived porn addiction (Grubbs, Exline, Pargament, Hook, & Carlisle, 2015). For the purposes of this study, the four items were worded to reflect moral incongruence, or disapproval of, one's hookup. A sample item read, "Engaging in a hookup troubles my conscience." Responses were answered on a 7-point likert scale (1 = *Not at All* to 7 = *An Extreme Amount*). Reliability was computed with Cronbach's alpha, $\alpha = .83$.

Religiosity. The Duke University Religion Index (DUREL) is a 5-item measure of religious involvement that assess the three major dimensions of religiosity determined by the National Institute on Aging (Koenig & Bussing, 2010). The three major dimensions of religiosity, as measured by the DUREL, include: organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic religiosity (or subjective religiosity; IR). The item assessing organizational religious activity read, "How often do you attend church or other religious meetings?" (1 = *Never* to 6 = *More than Once/Week*). The item assessing non-

organizational religious activity read, “How often do you spend time in private religious activity, such as prayer, meditation, or Bible study?” (1 = *Not at all* to 2 = *Very much so*). A sample item assessing intrinsic religiosity read, “In my life, I experience the presence of the Divine (e.g., God).” (1 = *Definitely Not True* to 5 = *Definitely True of Me*). Reliability of the aggregate religiosity measure was computed with Cronbach’s alpha, $\alpha = .80$.

Type of God Belief. The type of God, if any, participants most identified with was assessed with a four-item measure (Inzlicht & Tullett, 2010). These items were assessed independent of each other, and consisted of the following type of God identifications: There is one God that created the universe and observes and intervenes in human affairs; There is a God or Gods, but that God(s) does not observe and intervene in human affairs; A pantheistic God, where God is synonymous with nature or the unknown; I don’t believe in any kind of God.

Procedure

Participants were recruited via social media platforms such as Redditt, Tumblr, and Facebook, as well as through the Western Carolina University research system. To access the study, participants were 18 years of age or older, and had to have engaged in a hookup at any time. Participants provided informed consent to participate in the study. Next, participants answered demographic questions. Next, participants were asked to provide details about their most recent hookup and were then randomly assigned to either the religious prime or neutral prime condition. After the priming condition, both groups reported if they felt shame (among other emotions) regarding their recent hookup. Following the shame, or emotions, measure, participants completed the self-esteem measure. After the self-esteem measure, participants were presented with various real-world scenarios that comprise the GASP scale. The GASP scale was followed by the adapted moral incongruence measure. Religiosity was then measured using the

DUREL, followed by a single question assessing the type of God participants identified with the most. Participant religious affiliation was also assessed via a list of common Christian denominations and other religious affiliations, as well as non-religious affiliations. The study ended with a funneled debrief to determine if participants ascertained the purpose of the prime.

Data Cleaning

Prior to data analysis, the data set was subjected to specific exclusionary criteria. In the first step, participant responses were coded for compliance with three attention checks. Those that failed two or more of the attention checks were excluded from the analyses, resulting in exclusion of 475 participants. Next, prime responses were examined, and 52 participants were initially excluded for not meeting the word count criteria of ten words or more, leaving 623 responses for prime coding. Participants had to answer the question in such a way that their response indicated careful read the prime carefully and responded appropriately. Remaining prime responses were coded by two separate coders, exhibiting perfect inter-rater reliability, kappa = 1.00. Prime condition coding resulted in exclusion of 26 participants, leaving 597 participants. Additionally, a funneled de-briefing was utilized at the end of the survey to determine if participants were able to identify the true purpose of the prime, causing people to think about religion leading to greater shame regarding one's hookup. Review of funneled debriefing questions did not result in exclusion of any participants.

On some online forums where the recruitment ad was posted, many participants made comments indicating that they were atheists, felt excluded by the study, and that the study and researchers (i.e., Freeman and de Jong) were biased in favor of Christianity and religion. This led us to inspect responses to the religious prime and discovered that many responses reflected anger at the supposedly religious bias of the study and religious prime. This caused us to be concerned

that atheists would be more likely to not complete the religious prime due to annoyance (and in turn, be excluded from, or drop out of the study), but would be not more likely to drop out if assigned to the neutral prime. This differential completion of the religious prime vs. the neutral prime by atheists would risk confounding any association between condition (religious vs. neutral), shame, and/or self-esteem, threatening validity of any findings supporting the hypotheses. To assess this, we ran a logistic regression predicting non-completion of either prime by condition (neutral vs. religious), religiosity (as measured by the DUREL), and the interaction between condition and religiosity. The interaction term was marginally significant, $B = 0.63$, $SE = 0.36$, $p = .08$, $\text{Exp}(B) = 1.88$. In other words, for participants assigned to the religious prime (but not the neutral prime), being less religious was associated with not completing the prime. This supported our concern that atheists, or people who are less religious in general, may have been annoyed by the religious prime, dropped out of the study, and in doing so, possibly confound any effect of condition on shame or self-esteem. Accordingly, all hypothesis tests were conducted only on theists, that is, participants who indicated believing in one God that created the universe and observes and intervenes in human affairs. As a result, my mediation hypotheses were tested in a final sample of participants.

CHAPTER THREE: RESULTS

Analytic Strategy

To test whether data were consistent with my hypothesized moderated-mediation and simple mediation model, I used the PROCESS macro v3.0 (Hayes, 2017). The moderated-mediation effect and simple mediation effect were tested using 5,000 resampled bias-corrected bootstrap confidence intervals (95% CI). As recommended by Hayes & Rockwood (2016), mediation exists if the bias-corrected bootstrapped confidence interval for the indirect effect does not include zero.

In the present study (see Figure 1), the mediator was the level of shame a person experiences in relation to the hook-up, measured via the aggregate negative emotion measure. Religiosity, among other variables, such as moral incongruence, were hypothesized to moderate the relationship between the religious prime (versus neutral) and shame, such that the prime will increase shame regarding one's hookup, and in turn decrease self-esteem, but only for people high on one of the proposed moderators. In other words, salience of religiosity, as activated by the religious prime, will cause people to feel greater shame following a hookup, leading to lower self-esteem, but only for individuals with greater religiosity. For the simple mediation, shame is the pathway by which religious priming is hypothesized to impact self-esteem. In other words, the religious prime will increase salience of religiosity that will lead to feelings of shame following a hookup, which will in turn lead to lower self-esteem.

Moderated-Mediation

First, I tested whether religiosity moderated the path from the prime condition to the mediator, shame, and ultimately self-esteem. I hypothesized that individuals in the religious prime condition, compared to neutral, would experience increased shame related to their recent

hookup, and in turn decreased self-esteem, but only for those high in religiosity. The confidence interval of the index of moderated mediation did include zero, $B = 0.06$, $SE = 0.05$, 95% CI for B [-0.28, 0.16], indicating that religiosity did not significantly moderate the indirect effect. Other moderators tested included moral incongruence and the four subscales from the GASP. Results from other tested moderators also yielded insignificant results, indicating that none of the proposed moderators moderated the indirect effect.

Simple Mediation

Since none of the moderated-mediation effects were significant, I proceeded to test the hypothesized simple mediation model. The simple mediation model tested the significance of the indirect effect of the prime condition on self-esteem through the hypothesized mediator shame. For the indirect effect of religious priming on self-esteem through the hypothesized mediator shame, $B = -0.00$, $SE = 0.03$, 95% CI for B [-0.07, 0.05]. Because the confidence interval for the indirect effect did include zero, the indirect effect was not significant. In sum, this indicates that the religious prime (compared to the neutral prime) did not significantly increase shame, and in turn, decrease self-esteem. The following results detail the results from the a , b , and c paths included in the mediation model. The a path, which regressed the mediator shame onto the prime condition, was insignificant, $B = 0.00$, $SE = 0.26$, $t(166) = 0.03$, $p = .96$, 95% CI [-0.50, 0.52], $r = .00$. This means that the religious prime compared to neutral did not cause an increase in shame. The b path regressed the outcome variable, self-esteem, onto the prime condition, $B = 0.07$, $SE = 0.13$, $t(165)$, $p = .58$, 95% CI [-0.18, -0.03] and the mediator variable shame, $B = -0.11$, $SE = 0.04$, $t(165) = -2.81$, $p = .006$, 95% CI [-0.18, -.03]. Results from the b path indicated that the priming condition did not increase or decrease self-esteem, but that shame was significantly and negatively associated with self-esteem, such that greater shame was associated

with decreased self-esteem. The *c* path tested the total effect of the predictor variable, the priming condition, on the outcome variable self-esteem before the mediating variable, shame, is added to the model. The *c* path was insignificant, $B = 0.07$, $SE = 0.13$, $t(166) = 0.53$, $p = .60$, 95% CI [-0.19, 0.33], indicating that the prime condition did not significantly increase or decrease self-esteem, prior to adding shame into the model. In sum, results do not support the hypothesis that individuals in the religious prime condition, versus neutral, would be more likely to experience greater shame following a hookup, and in turn, be more likely to report lower self-esteem. A post hoc power analysis was conducted on the mediation model using the software package, G*Power (Faul and Erdfelder 1992). The effect of the condition on shame was Cohen's $d = -.004$, which was entered in G*Power, resulting in an observed power of 0.05. Based on the power analysis, the sample for the mediation model was insufficient to detect a significant effect given the very small observed effect of the condition on shame.

Correlations

Exploratory analyses were conducted among key variables to determine if any positive or negative relationships existed despite insignificant results in both the moderated-mediation and simple mediation models. The following correlations were significant as they related to the negative relationship between self-esteem and shame proneness. Self-esteem and guilt repair were significantly and positively correlated, $r = .14$, $p = .00$, indicating that higher self-esteem is related to greater repair tendencies following a perceived transgression. Self-esteem and shame-negative self-evaluation were significantly negatively correlated, $r = -.20$, $p = .00$, as well as self-esteem and shame-withdraw, $r = -.20$, $p = .00$. Negative correlations between both shame subscales of the GASP scale and self-esteem are consistent with the initial hypothesis that greater shame may lead to lower self-esteem. Although these do not reveal causal inferences, they do

indicate that lower self-esteem is associated with increased negative self-evaluation and withdraw tendencies following a perceived transgression.

Other significant correlations revealed relationships between moral incongruence and religiosity. Moral incongruence was positively and significantly correlated with guilt-negative behavior evaluation, $r = .21, p = .00$, indicating that feeling as though one's actions did not align with one's morals was associated with greater negative behavior evaluation following a perceived transgression. Additionally, moral incongruence and shame-withdraw were significantly and positively correlated, $r = .12, r = .02$. In other words, feelings as though one's actions are not in line with one's morals was associated with a tendency to withdraw following a perceived transgression. Religiosity was positively and significantly correlated with guilt-negative behavior evaluation, $r = .19, p = .00$, as well as with shame-withdraw, $r = .10, p = .04$. Both correlations to religiosity matched those found with moral incongruence, indicating that individuals higher on religiosity evaluated their behavior more negatively, but tend to withdraw from the situation, following a perceived transgression. Accordingly, moral incongruence and religiosity were significantly positively correlated, $r = .64, p = .00$. In sum, feeling as though one's actions do not align with their moral values was related to greater overall religiosity.

Table 1.

Correlations Among Key Variables: GASP Scales, Self-Esteem, Moral Incongruence, Positive and Negative Emotions, Religiosity

	Mean	Standard Deviation	Correlations								
			1.	2.	3.	4.	5.	6.	7.	8.	
1. Guilt-NBE	4.97	1.32									
2. Guilt Repair	5.54	0.95	.41**								
3. Shame-NSE	5.54	1.10	.49**	.31**							
4. Shame Withdraw	2.86	1.10	.10*	.03	.27**						
5. Self-Esteem	5.58	0.97	-.01	.14**	-.20**	-.20**					
6. Moral Incongruence	1.10	1.33	.21**	.05	.02	.12*	-.01				
7. Positive Emotions	4.42	1.58	-.12*	-.07	-.20**	-.08	.20**	-.19**			
8. Negative Emotions	2.16	1.47	.16**	.02	.14**	.11*	-.20**	.49**	-.43**		
9. DUREL Total	0.01	0.86	.19**	.05	-.04	.10*	.14**	.64**	-.04	.21**	

Notes. $N = 417-422$ participants. * $p < .05$. ** $p < .01$.

CHAPTER FOUR: DISCUSSION

Hypotheses and Exploratory Analyses

Based on the literature, increased shame regarding one's sexual practices has been associated with restrictive sexual religious beliefs, as well as lower self-esteem. However, none of these studies looking at self-esteem following a hookup or the development of shame following a hookup utilized a causal method (Murray et al., 2007; Paul et al., 2002; Paul et al., 2000). The majority of hookup studies have utilized correlation methods to determine how shame, religion, and self-esteem, relate to hook-ups, but have not discovered what causes increased shame after a hookup, and how that relates to religiosity and self-esteem (Garcia et al., 2012). The present study sought to determine if religiosity causes increased shame following a hookup, and in turn decreased self-esteem. The first hypothesis tested was the moderated-mediation model, which assessed if the religious prime increased shame regarding a recently recalled hookup, but only for those high on the proposed moderators, and in turn decreased self-esteem. None of the proposed moderators were found to be significant, and thus this hypothesis was not supported.

The second hypothesis tested was the simple mediation model, which assessed the impact of religiosity on shame, and in turn self-esteem. I hypothesized that the religious prime, compared to neutral, would increase shame regarding one's hookup, and in turn decrease self-esteem. This hypothesis was not supported, as the mediation model was insignificant. The results of both the moderated-mediation and simple mediation models did not support my theory that individuals who place high value on their religious group's sexual behavior norms will use those beliefs to inform their personal sexual practices. Shame arises when more religious individuals engage in a hookup, thus creating incongruence between beliefs about appropriate sexual norms

learned via one's religious affiliation, and their sexual behavior. My overall hypothesis was not supported within the two proposed models, but other findings in this study may shed light on aspects of my hypotheses that could lead future research into religiosity and shame following a hookup, and how that affects self-esteem.

Self-esteem was found to be negatively correlated with both aspects of shame proneness, shame-negative self-evaluation and shame-withdraw (Tangney, 2002). Self-esteem was also associated with greater overall negative emotions related to one's recently recalled hookup. These results are consistent with previous findings that shame, among other negative emotions and self-esteem are negatively correlated, even if a causal relationship is not clear (Garcia et al., 2012; Paul et al., 2002). In contrast to the negative relationship between shame-proneness and self-esteem, there was a positive relationship between self-esteem and guilt-negative behavior evaluation. Individuals with greater self-esteem were more likely to engage in repair tendencies following a perceived transgression. These results indicate that high versus low self-esteem does differ in people's tendencies to either withdraw or repair the situation following a perceived transgression.

Additionally, the correlation between moral incongruence and religiosity indicated that people do use their religious group's norms to assess the morality of their sexual behaviors. This lends support to my theory that individuals reporting greater religiosity may report greater moral incongruence when they do not deem their sexual behaviors to be in line with morals related to sexual practices (Murray et al., 2007). In other words, people with higher overall religiosity tended to have higher scores on a measure that specifically assessed perceived morality of hookups. How this moral incongruence impacts shame, and ultimately self-esteem is not clear from the results of the present study. However, it is clear from the results that people who

subjectively identify as more religious think about their hookups as wrong, in one way or another, in relation to religiously based sexual norms.

As for shame and self-esteem, I hypothesized that increased shame relating to one's hookup would cause lower self-esteem. The moderated-mediation and simply mediation models did not support this theory, but both aspects of shame proneness, as well as overall negative emotional responses to one's hookup, were indeed negatively correlated with self-esteem. However, the results from this study seemed to be missing the key piece that would link the cause of these negative emotions following a hookup and shame proneness to self-esteem. The mechanism by which shame causes lower self-esteem is still not revealed by this model, however there is support for my theory in the correlations found between shame proneness, self-esteem, and negative emotions following a hookup.

Future Directions

The present study sought to make a connection between religiosity, shame, and self-esteem. Although this connection was not found in the moderated-mediation and simple mediation models, the significant correlations provide insights into how these concepts might be measured in the future. Two distinct aspects of my theory were independently supported by significant correlations. The first supported aspect of my theory was that religious individuals reference their religious beliefs to assess the morality of hookups. The second supported part of my theory was that negative emotions, including shame, regret, and guilt, following a recently recalled hookup, did indeed correlate with lower self-esteem. Negative emotions following a hookup was also associated with greater moral incongruence in regard to hookups, showing that people who feel as though their hookups are morally wrong reported negative feelings following a hookup. Taken together, all these results indicate that further research is needed to determine

what might cause people to feel negative emotions following a hookup, and what that might mean in terms of causing lower self-esteem. Moral incongruence may play a role in negative emotions following a hookup, but the connection between moral incongruence and self-esteem is unclear.

An unexpected correlation, which was not hypothesized, was found in facets of guilt proneness and its relation to self-esteem. The overall focus of the present study was on how increased shame decreases self-esteem. While correlations supported this aspect of my theory, there were apparent differences in guilt and shame proneness between those with high and low self-esteem. Individuals with high self-esteem were more likely to engage in guilt related repair tendencies following a perceived transgression, but those with low self-esteem were more likely to engage in shame negative self-evaluation and shame withdraw tendencies following a perceived transgression. However, the causal relationship between these guilt and shame proneness orientations and self-esteem are unclear and require further research.

Although not a significant moderator, moral incongruence was positively correlated with overall religiosity. This result indicates that greater overall religiosity is associated with greater feelings of incongruence between one's hookup behavior and their morals. That being said, even feeling as though one's sexual behaviors were morally wrong did not significantly impact shame or self-esteem. Future research may need to focus on measuring religiosity using different facets, such as subjective religiosity (Fielder & Carey, 2010) versus more behavioral aspects of religious involvement, such as church attendance (Burdette, Ellison, Hill, & Glenn, 2009).

An additional consideration is that of cultural and ethnic differences related to both religiosity and appropriate sexual practices. The overwhelming majority of the population in the present study identified as white. Past research findings have made the case that it is important to

consider cultural influences, which may play a large role in the way people view their hookup (Williams & Harper, 2014; Bogle, 2008). Future research, especially when looking at the influence of one's cultural group on shame following a hook-up, should consider the cultural differences that might influence one's beliefs regarding appropriate sexual practices. Part of this includes considering differences among specific denominations, especially when studying Christian based religious affiliations. Rostosky, Wilcox, Wright, and Randall (2004) discussed the possible need to categorize religious affiliations more specifically based on their emphasis on morality and specific sexual norms. Instead of grouping together all Christian denominations and all non-Christian, it may be more beneficial to investigate differences between sub-level denominations based on their specific set of beliefs and norms. However, it is often difficult to obtain numbers for many different denominations with a small sample size.

Limitations

Possibly the greatest limitation of the present study is the drastically reduced sample size due to exclusionary criteria. The number of participants required for 80% power was 300. However, we discovered that those that identified as atheist were less likely to complete the religious prime, which would have confounded any effect of the religious prime on the dependent variables. After excluding non-theists, there were only 168 participants in the sample used for key hypothesis tests. Accordingly, it is possible that the results from both models were insignificant due to not having enough participants.

The use of religious priming is a limitation to the study, in so much as it is a controversial practice for assessing the impact of salience of religiosity (Elk et al., 2015). Within the religious priming literature, Shariff et al. (2015) conducted a meta-analysis of priming studies and found significant effect sizes for studies using explicit and implicit priming, but only for those who

place greater importance on their religion. In contrast, Elk et al. (2015) replicated their analyses and found results inconsistent with Shariff's data, arguing that experimenter bias and publication bias were not accounted for in the original analysis, thus making priming meta-analyses less reliable. It is apparent that religious priming can be a useful tool, however future studies are needed that test the effect of different types of religious priming, as well as replicating existing studies to assess reliability and validity of priming in experimental studies.

Conclusion

Research into hookups and "hookup culture" continue to be important in today's cultural framework. An important part of development among young people and adults is trying to understand one's sexuality (Garcia et al., 2012). In the present study, religious priming did not significantly increase shame or decrease self-esteem, and other moderating variables yielded insignificant results. However, correlational data indicates that self-esteem and aspects of shame-proneness were indeed negatively correlated, and incongruence between one's moral views of hookups and overall religiosity were positively correlated. Individually, these results may not shed light on how shame, and ultimately self-esteem, may be influenced by religiosity. Together, they provide possibilities for future research that may allow for more selective and specific assessment procedures and measures. Given the negative mental health implications of hookups, future research must continue to try to better understand why people experience negative feelings following a hookup in a causal format, rather than strictly correlational.

REFERENCES

- Ahmed, A. M. & Salas, O. (2011). Implicit influences of Christian religious representations on dictator and prisoner's dilemma game decisions. *The Journal of Socio-Economics, 40*, 242-246.
- Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., ... & Bruffaerts, R. (2016). Mental disorders among college students in the WHO World Mental Health Surveys. *Psychology Medicine, 46*, 2955-2970.
- Burdette, A. M., Hill, T. D., Ellison, C. G., & Glenn, N. D. (2009). "Hooking up" at college: Does religion make a difference? *Journal for the Scientific Study of Religion, 48*, 535-551.
- Carpenter, T. P. & Marshall, M. A. (2009). An examination of religious priming and intrinsic religious motivation in the moral hypocrisy paradigm. *Journal for the Scientific Study of Religion, 48*, 386-393.
- Cheung, M. & Gilbert, Irons, C. (2004). An exploration of shame, social rank and rumination in relation to depression. *Personality and Individual Differences, 36*, 1143-1153.
- Claxton, S. E. & van Dulmen, M. H. M. (2013). Casual sexual relationships and experiences in emerging adulthood. *Emerging Adulthood, 1*, 138-150.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Cohen, T. R., Wolf, S. T., Panter, A. T., & Insko, C. A. (2011). Introducing the GASP scale: A new measure of guilt and shame proneness. *Journal of Personality and Social Psychology, 100*, 947-966.

- de Hooge, I. E., Zeelenberg, M., & Breugelmans, S. M. (2010). Restore and protect motivations following shame. *Cognition and Emotion, 24*, 111-127.
- de Jong, D. C., Adams, K. N., & Reis, H. T. (2018). Predicting women's emotional responses to hooking up: Do motives matter? *Journal of Social and Personal Relationships, 35*, 532-556.
- Dickerson, S. S., Kemeny, M. E., Aziz, N., Kim, K., & Fahey, J. (2004). Immunological effects of induced shame and guilt. *Psychosomatic Medicine, 66*, 124-131.
- Eshbaugh, E. M., & Gute, G. (2008). Hookups and sexual regret among college women. *The Journal of Social Psychology, 148*, 77-89.
- Fielder, R. L., & Carey, M.P. (2010). Predictors and consequences of sexual "hookups" among college students: A short-term prospective study. *Archives of Sexual Behavior, 39*, 1105-1119.
- Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment of university among first-year undergraduates. *Journal of College Student Development, 48*, 259-274.
- Garcia, J. R., Reiber, C., Massey, S. G., & Merriwether, A. M. (2012). Sexual hookup culture: A review. *Review of General Psychology, 16*, 161-176.
- Gilbert, P. & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy, 13*, 353-379.
- Greeneberger, E., Chen, C., Dmitrieva, J., & Farruggia, S. P. (2003). Item-wording and the dimensionality of the Rosenberg Self-Esteem Scale: Do they matter? *Personality and Individual Differences, 35*, 1241-1254.

- Greunewald, T. L., Kemeny, M. E., Aziz, N., & Fahey, J. L. (2004). Acute threat to the social self: Shame, social self-esteem, and cortisol activity. *Psychosomatic Medicine*, *66*, 975-924.
- Grubbs, J. B., Exline, J. J., Pargament, K. I., Hook, J. N., & Carlisle, R. D. (2015). Transgression as addiction. Religiosity and moral disapproval as predictors of perceived addiction to pornography. *Archives of Sexual Behavior*, *44*, 125-136.
- Harmon-Jones, C., Bastian, B., & Harmon-Jones, E. (2016). The discrete emotions questionnaire: A new tool for measuring state self-reported emotions. *PLoS ONE*, *11*, 1-25.
- Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach* (2nd ed.). New York, NY: Guildford Press.
- Hackney, C. H. & Sanders, G. S. (2003). Religiosity and mental health: A meta-analysis of recent studies. *Journal for the Scientific Study of Religion*, *42*, 43-56.
- Inzlicht, M., & Tullett, A. M. (2010). Reflecting on God: Religious primes can reduce neurophysiological response to errors. *Psychological Science*, *21*, 1184-1190.
- Johnson, M. K., Rowatt, W. C., & LaBouff, J. (2010). Priming Christian religious concepts increases racial prejudice. *Social Psychological and Personality Science*, *1*, 119-126.
- Koenig, H. G., & Bussing, A. (2010). The duke university religion index (DUREL): A five-item measure for use in epidemiological studies. *Religions*, *1*, 78-85.
- Lefkowitz, E. S., Gillen, M. M., Shearer, C. L., & Boone, T. L. (2004). Religiosity, sexual behaviors, and sexual attitudes during emerging adulthood. *The Journal of Sex Research*, *41*, 150-159.

- Luquis, R. R., Brelsford, G. M., & Rojas-Gulyer, L. (2012). Religiosity, spirituality, sexual attitudes, and sexual behaviors among college students. *Journal of Religion and Health*, 51, 601-614.
- McClintock, K. A. (2001). *Sexual Shame: An Urgent Call to Healing*. Minneapolis, MN: Augsburg Fortress.
- Murray, K. M., Ciarrocchi, J. W., Murray-Swank, N. A. (2007). Spirituality, religiosity, shame and guilt as predictors of sexual attitudes and experiences. *Journal of Psychology and Theology*, 35, 222-234.
- Owen, J.J., Rhoades, G. K., Stanley, S. M., & Finchman, F. D. (2010). "Hooking up" among college students: Demographic and psychosocial correlates. *Archives of Sexual Behavior*, 39, 653-663.
- Paul, E. L. & Hayes, K. A. (2002). The casualties of 'casual' sex: A qualitative exploration of the phenomenology of college students' hookups. *Journal of Social and Personal Relationships*, 19, 639-661.
- Paul, E. L., McManus, B., & Hayes, A. (2000). "Hookups": Characteristics and correlates of college students' spontaneous and anonymous sexual experiences. *Journal of Sex Research*, 37, 76-88.
- Rand, D.G., Dreber, A., Haque, O. S., Kane, R. J., Nowak, M. A., & Coakley, S. (2014). Religious motivations for cooperation: An experimental investigation using explicit primes. *Religion, Brain, & Behavior*, 4, 31-48.
- Reid, R. C., Harper, J. M., & Anderson, E. H. (2009). Coping strategies used by hypersexual patients to defend against the painful effects of shame. *Clinical Psychology and Psychotherapy*, 16, 125-138.

- Rizvi, S. L. (2010). Development and preliminary validation of a new measure to assess shame. The shame inventory. *Journal of Psychopathology and Behavior Assessment*, *32*, 438-447.
- Rosenberg, M. (1979). *Conceiving the Self*. New York: Basic Books.
- Rostosky, S. S., Wilcox, B. L., Wright, M. L. C., Randall, B. A. (2004). The impact of religiosity on adolescent sexual behavior: A review of the evidence. *Journal of Adolescent Research*, *19*, 677-697.
- Scheff, T. J. (2003). Shame in self and society. *Symbolic Interaction*, *26*, 239-262.
- Shariff, A. F. & Norenzayan, A. (2007). God is watching you: Priming god related concepts increases prosocial behavior in an anonymous economic game. *Psychological Science*, *18*, 803-809.
- Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2016). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review*, *20*, 27-48.
- Snapp, S., Lento, R., Ryu, E., & Rosen, K. S. (2014). Why do they hook up? Attachment style and motives of college students. *Personal Relationships*, *21*, 468-481.
- Snapp, S., Ryu, E., & Kerr, J. (2013). The upside to hook up: College students' positive hookup experiences. *International Journal of Sexual Health*, *1*, 43-56.
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, *139*, 213-240.
- Tangney, J. P., & Dearing, R. L. (2002). *Shame and Guilt*. New York, NY: The Guilford Press.
- Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology*, *101*, 469-478.

- Toburen, T. & Meier, B. P. (2010). Priming God-related concepts increases anxiety and task persistence. *Journal of Social and Clinical Psychology, 29*, 127-143.
- van Elk, M., Matzke, D., Gronau, Q. F., Guan, M., Vandekerckhove, J., & Wagenmakers, E. J. (2015). Meta-analyses are no substitute for registered replications: A skeptical perspective of religious priming. *Frontiers in Psychology, 6*, 1-7.
- Van Tongeren, D. R., McIntosh, D. N., Raad, J. M., & Pae, J. (2013). The existential function of intrinsic religiousness: Moderation effects of priming religion on intercultural tolerance and afterlife anxiety. *Journal of the Scientific Study of Religion, 52*, 508-523.
- Van Tongeren, D. R., Newbound, H., & Johnson, E. (2016). The interactive effects of religiosity and priming religion following recall of a values violation. *Sexual Addiction & Compulsion, 23*, 211-224.
- Velotti, P., Garofalo, C., Bottazzi, F., & Caretti, V. (2017). Faces of shame: Implications for self-esteem, emotional regulation, aggression, and well-being. *The Journal of Psychology, 151*, 171-184.
- Vikan, A., Hassel, A. M., Rugset, A., Johansen, H. E., & Moen, T. (2010). A test of shame in outpatients with emotional disorder. *Nordic Journal of Psychiatry, 64*, 196-202.
- Vrangalova, Z. (2015). Does casual sex harm college students' well-being? A longitudinal investigation of the role of motivation. *Archives of Sexual Behavior, 44*, 945-959.
- Vrangalova, Z. & Ong, A. D. (2014). Who benefits from casual sex? The moderating role of sociosexuality. *Social Psychological and Personality Science, 5*, 883-891.
- Willard, A. K., Shariff, A. F., & Norenzayan, A. (2016). Religious priming as a research tool for studying religion: Evidentiary value, current issues, and future directions. *Current Opinion in Psychology, 12*, 71-75.

- Williams, C. D., & Harper, S. R. (2014). Toward complex and inclusive studies of sex scripts, college students' sexual behaviors, and hookup cultures on U.S. campuses. *Masculinities and Social Change*, 3, 271-289.
- Zhang, Z. (2014). Monte Carlo based statistical power analysis for mediation models: Methods and software. *Behavior Research Methods*, 46, 1184-1198.
- Ziegler-Hill, V. (2013). Self-Esteem. *Current Issues in Social Psychology*. New York, NY: Psychology Press.

APPENDICES

Appendix A: Consent Form

Project Overview

Sexual Hookups and Personality

Thank you for your interest in this study!

The purpose of this study is to assess how personality is associated with engaging in sexual hookups.

To participate, you must:

- **Be at least 18 years old.**
- **Have engaged in a hookup (i.e., a casual sexual encounter with no expectation of a relationship).**

In this study, you will be asked questions about a recent hookup, your personality, and your religious background, if any. It is not required that you be religious in order to participate in this study. You will also be asked to write a few sentences.

This study takes approximately 15 minutes.

No identifying information will be collected, so all of your responses are completely anonymous.

Please answer these questions in private. We are interested in your individual responses.

Note that there are no right or wrong answers to these questions. Try to work steadily and carefully, and don't worry about spending too much time on any one item.

Be sure to provide an answer for each question, even if you have to take your "best guess" in some cases. If you are uncomfortable answering a question, you may leave it blank.

Also, please read the response options carefully! They change from page to page.

Please complete the survey in one sitting.

Please click next to review and provide informed consent to participate in this study.

Consent Form

Project Title: Sexual Hookups and Personality

Principal Investigator: Dr. David de Jong, Ph.D. and Kelsey L. Freeman, Graduate Student

Description and Purpose of the Research: The purpose of this study is to assess how personality is associated with engaging in sexual hookups.

What you will be asked to do: In this study, you will be asked questions about a recent hookup, and your religious background, if any. You will also be asked to write a few sentences.

Risks and Discomforts: Some of the questions we will ask you as part of this study may make you feel uncomfortable, as they pertain to your sexual experiences. If you are uncomfortable answering a question, you may leave it blank. If you have any concerns regarding the content of the study, please contact the study coordinator.

Benefits: There are no direct benefits to you for participating in this research study. The study may help us better understand how beliefs about sex impact the way people feel after a casual sexual experience.

Privacy/Confidentiality/Data Security: No identifying information will be collected, so all your responses will be completely anonymous. We will have no way to connect responses to any individual participant. Numeric codes will be used to identify specific responses, and will be stored in a secure, online server. Data will be used for a graduate thesis that will be submitted for journal publication, and presentations at conferences.

Western Carolina University students participating via SONA: Upon completion of the study, please email Kelsey Freeman to receive credit for participation. We will not ask for identifying information during the study, so there is no way to connect responses to an individual participant.

Voluntary Participation: Participation is voluntary, and you have the right to withdraw your consent or discontinue participation at any time without penalty. If you choose not to participate or decide to withdraw, there will be no impact on your grades/academic standing. If you choose to withdraw, you may simply discontinue answering questions and exit the study browser.

Contact Information: For questions about this study, please contact Kelsey Freeman at klfreeman6@catamount.wcu.edu or Dr. David de Jong at ddejong@email.wcu.edu.

If you have questions or concerns about your treatment as a participant in this study, you may contact the Western Carolina University Institutional Review Board through the Office of Research Administration by calling 828-227-7212 or emailing irb@wcu.edu.

Appendix B: Emotional Responses

Please take a moment to think about your most recent hookup, the one you described a few pages ago.

When thinking about that hookup, to what extent do you feel the emotions listed below?

Please answer in terms of how much you feel these emotions, right now, at this present moment, when you think about your most recent hookup.

Satisfaction

Shame

Enjoyment

Regret

Happy

Guilt

1 = Not at All

2 = Slightly

3 = Somewhat

4 = Moderately

5 = Quite a Bit

6 = Very Much

7 = An extreme amount

(Harmon-Jones, Bastian, & Harmon-Jones, 2016)

Appendix C: Rosenberg Self-Esteem Scale

(ALL POSITIVELY WORDED ITEMS)

Please indicate how strongly you agree or disagree with each statement.

When answering, think about your feelings right now, at this present moment.

On the whole, I am satisfied with myself.

At times I think I am pretty darn good.

I feel that I have a number of good qualities.

I am able to do things as well as most other people.

I feel I do have much to be proud of.

I really feel useful at times.

I feel that I am a person of worth, at least on an equal plane with others.

I think I have enough respect for myself.

This is an attention check. Please choose the “Strongly Disagree” response option.

All in all, I am inclined to feel that I am **not** a failure.

I take a positive attitude toward myself.

1 = Strongly Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Strongly Agree

(Greeneberger, Chen, Dmitrieva, & Farruggia, 2003)

Appendix D: Guilt and Shame Proneness (GASP)

In this section, you will read about situations that people are likely to encounter in day-to-day life, followed by common reactions to those situations.

As you read each scenario, try to imagine yourself in that situation.

Then indicate the likelihood that you would react in the way described.

1. After realizing you have received too much change at a store, you decide to keep it because the salesclerk doesn't notice. What is the likelihood that you would feel uncomfortable about keeping the money?
2. You are privately informed that you are the only one in your group that did not make the honor society because you skipped too many days of school. What is the likelihood that this would lead you to become more responsible about attending school?
3. You rip an article out of a journal in the library and take it with you. Your teacher discovers what you did and tells the librarian and your entire class. What is the likelihood that this would make you would feel like a bad person?
4. After making a big mistake on an important project at work in which people were depending on you, your boss criticizes you in front of your coworkers. What is the likelihood that you would feign sickness and leave work?
5. You reveal a friend's secret, though your friend never finds out. What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future?
6. You give a bad presentation at work. Afterwards your boss tells your coworkers it was your fault that your company lost the contract. What is the likelihood that you would feel incompetent?
7. A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?
8. Your home is very messy and unexpected guests knock on your door and invite themselves in. What is the likelihood that you would avoid the guests until they leave?
9. You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?
10. You successfully exaggerate your damages in a lawsuit. Months later, your lies are discovered, and you are charged with perjury. What is the likelihood that you would think you are a despicable human being?
11. You strongly defend a point of view in a discussion, and though nobody was aware of it, you realize that you were wrong. What is the likelihood that this would make you think more carefully before you speak?
12. You take office supplies home for personal use and are caught by your boss. What is the likelihood that this would lead you to quit your job?
13. You make a mistake at work and find out a coworker is blamed for the error. Later, your coworker confronts you about your mistake. What is the likelihood that you would feel like a coward?
14. You are taking an online survey. This is an attention check. Please choose the response option "Very Unlikely".

15. At a coworker's housewarming party, you spill red wine on their new cream colored carpet. You cover the stain with a chair so that nobody notices your mess. What is the likelihood that you would feel that the way you acted was pathetic?
16. While discussing a heated subject with friends, you suddenly realize you are shouting though nobody seems to notice. What is the likelihood that you would try to act more considerately toward your friends?
17. You lie to people but they never find out about it. What is the likelihood that you would feel terrible about the lies you told?

1 = Very Unlikely

2 = Unlikely

3 = Slightly Unlikely

4 = About 50% Likely

5 = Slightly Likely

6 = Likely

7 = Very Likely

(Cohen, Wolf, Panter, & Insko, 2011)

Appendix E: Moral Incongruence

Please rate your level of agreement with the following statements.

Engaging in a hookup troubles my conscience.

Engaging in a hookup violates my religious beliefs.

I believe that hooking up is morally wrong.

This is an attention check. Please choose "Extremely."

I believe that hooking up is a sin.

1 = Not at All

2 = Slightly

3 = Somewhat

4 = Moderately

5 = Quite a Bit

6 = Very Much

7 = An Extreme Amount

Items adapted from (Grubbs, Exline, Pargament, Hook, & Carlisle, 2015)

Appendix F: Duke University Religion Index (DUREL)

The following questions are meant to help us better understand the importance of religion in your life.

Please read each item carefully, because the response options change for the last few questions.

How often do you attend religious meetings, such as church or temple?

- 1 = Never*
- 2 = Once a Year or Less*
- 3 = A Few Times a Year*
- 4 = A Few Times a Month*
- 5 = Once a Week*
- 6 = More Than Once a Week*

How often do you spend time in private religious activities, such as prayer, meditation, or Bible study?

- 1 = Rarely or Never*
- 2 = A Few Times a Month*
- 3 = Once a Week*
- 4 = Two or More Times a Week*
- 5 = Daily*
- 6 = More Than Once a Day*

The following section contains 3 statements about religious beliefs or experiences. Please mark the extent to which each statement is true or not true for you.

In my life, I experience the presence of the Divine (e.g., God).
My religious beliefs are what really lie behind my whole approach to life.
I try hard to carry my religion over into all other dealings in life.

- 1 = Definitely Not True*
- 2 = Tends Not To be True*
- 3 = Unsure*
- 4 = Tends To be True*
- 5 = Definitely True of Me*

(Koenig & Bussing, 2010)

Appendix G: Type of God Belief

What type of God do you believe in, if any?

- 1 = *There is one God that created the universe and observes and intervenes in human affairs.*
- 2 = *There is a God or Gods, but that God(s) does not observe and intervene in human affairs.*
- 3 = *A pantheistic God, where God is synonymous with nature or the unknown.*
- 4 = *I don't believe in any kind of God.*

Appendix H: Demographics

How old are you?

Dropdown with 18 to 100+

What is your gender?

0 = *Man*

1 = *Woman*

2 = *Other (please describe, if you'd like) [space provided]*

What is your sexual orientation?

1 = *Heterosexual/Straight*

2 = *Gay or Lesbian*

3 = *Bisexual*

4 = *Pansexual*

5 = *Asexual*

6 = *Other (please describe, if you'd like) [space provided]*

Which of the following best describes your relationship status?

1 = *Married or common-law*

2 = *Engaged*

3 = *Dating, exclusively committed*

4 = *Dating, not exclusively committed*

5 = *Single, not dating at all*

What is the highest level of education that have you completed?

1 = *High school diploma*

2 = *Some college or trade school*

3 = *Associates degree*

4 = *B.A. or B.S. degree*

5 = *M.A. or M.S. degree*

6 = *Ph.D., Psy.D., D.D.S., M.D., or Law degree*

Are you currently a full-time college student?

1 = *Yes*

2 = *No*

What is your race? (Check all that apply)

American Indian or Alaskan Native

Asian

Native Hawaiian or Pacific Islander

Black or African-American

White

Other

What is your ethnicity?

1 = *Hispanic or Latino*

2 = *Not Hispanic or Latino*

Appendix I: Pre-Registration

Title: Religiosity and Self-Esteem after Hooking Up

1. Data Collection. Have any data been collected for this study already?

Yes, we already collected the data.

2. What's the main question being asked or hypothesis being tested in this study? (optional)

Confirmatory analyses:

We hypothesize that random assignment to explicit religious primes (compared to a neutral prime) will cause an increase in shame regarding one past hookup, and this increase in shame will be associated with lower self-esteem. This is a mediation model: religious primes will cause a decrease in self-esteem, mediated by heightened shame regarding one's past hookup.

There are three explicit prime conditions (described in detail below):

1. Religious prime
2. Religion/sex prime
3. Neutral prime

Additionally, we hypothesize that the a path (prime -> shame) will be moderated by at least one of the following variables:

Organizational Religious Activity
Intrinsic Religiosity
Belief in a Theistic God
Moral Incongruence of Hooking Up
Guilt and Shame Proneness Scale—Guilt-Negative-Behavior-Evaluation Subscale
Guilt and Shame Proneness Scale—Guilt-Repair Subscale
Guilt and Shame Proneness Scale—Shame-Negative-Self-Evaluation Subscale
Guilt and Shame Proneness Scale—Shame-Withdraw Subscale

More specifically, we hypothesize that the indirect effect of the religious primes on self-esteem via shame will be stronger for (or will only exist for) participants who are high on one of the potential moderators listed above. Moderators will be tested in separate runs of the moderated-mediation model.

3. Describe the key dependent variable(s) specifying how they will be measured. (optional)

Self-Esteem—Rosenberg Self-Esteem Scale—Revised Positive Version (Greeneberger, Chen, Dmitrieva, & Farruggia, 2003)

(Outcome variable)

On the whole, I am satisfied with myself.

At times I think I am pretty darn good.

I feel that I have a number of good qualities.

I am able to do things as well as most other people.

I feel I do have much to be proud of.

I really feel useful at times.

I feel that I am a person of worth, at least on an equal plane with others.

I think I have enough respect for myself.

This is an attention check. Please choose the “Strongly Disagree” response option.

All in all, I am inclined to feel that I am **not** a failure.

I take a positive attitude toward myself.

1 = *Strongly Disagree* to 7 = *Strongly Agree*

Shame Re: Recent Hookup

(Mediator variable)

Shame

Regret

Guilt

1 = *Not at All* to 7 = *An Extreme Amount*

Following are all other measures relevant to the above hypotheses:

Guilt and Shame Proneness Scale—Guilt-Negative-Behavior-Evaluation Subscale (Cohen et al., 2011)

(Possible moderator of the a path)

After realizing you have received too much change at a store, you decide to keep it because the salesclerk doesn't notice. What is the likelihood that you would feel uncomfortable about keeping the money?

You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?

At a coworker's housewarming party, you spill red wine on their new cream colored carpet. You cover the stain with a chair so that nobody notices your mess. What is the likelihood that you would feel that the way you acted was pathetic?

You lie to people but they never find out about it. What is the likelihood that you would feel terrible about the lies you told?

1 = *Very Unlikely* to 7 = *Very Likely*

Guilt and Shame Proneness Scale—Guilt-Repair Subscale (Cohen et al., 2011)
(Possible moderator of the a path)

You are privately informed that you are the only one in your group that did not make the honor society because you skipped too many days of school. What is the likelihood that this would lead you to become more responsible about attending school?

You reveal a friend's secret, though your friend never finds out. What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future?

You strongly defend a point of view in a discussion, and though nobody was aware of it, you realize that you were wrong. What is the likelihood that this would make you think more carefully before you speak?

While discussing a heated subject with friends, you suddenly realize you are shouting though nobody seems to notice. What is the likelihood that you would try to act more considerately toward your friends?

1 = *Very Unlikely* to 7 = *Very Likely*

Guilt and Shame Proneness Scale—Shame-Negative-Self-Evaluation Subscale (Cohen et al., 2011)

(Possible moderator of the a path)

You rip an article out of a journal in the library and take it with you. Your teacher discovers what you did and tells the librarian and your entire class. What is the likelihood that this would make you would feel like a bad person?

You give a bad presentation at work. Afterwards your boss tells your coworkers it was your fault that your company lost the contract. What is the likelihood that you would feel incompetent?

You successfully exaggerate your damages in a lawsuit. Months later, your lies are discovered, and you are charged with perjury. What is the likelihood that you would think you are a despicable human being?

You make a mistake at work and find out a coworker is blamed for the error. Later, your coworker confronts you about your mistake. What is the likelihood that you would feel like a coward?

1 = *Very Unlikely* to 7 = *Very Likely*

Guilt and Shame Proneness Scale—Shame-Withdraw Subscale (Cohen et al., 2011)

(Possible moderator of the a path)

After making a big mistake on an important project at work in which people were depending on you, your boss criticizes you in front of your coworkers. What is the likelihood that you would feign sickness and leave work?

A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?

Your home is very messy and unexpected guests knock on your door and invite themselves in. What is the likelihood that you would avoid the guests until they leave?

You take office supplies home for personal use and are caught by your boss. What is the likelihood that this would lead you to quit your job?

1 = *Very Unlikely* to 7 = *Very Likely*

Organizational Religious Activity (DUREL; Koenig et al. 1997)

(Possible moderator of the a path)

How often do you attend religious meetings such as church or temple?

(1) Never to (6) More than Once/Week

How often do you spend time in private religious activities, such as prayer, meditation or Bible study?

(1) Rarely or Never to (6) More than Once a Day

Intrinsic Religiosity (DUREL; Koenig et al. 1997)

(Possible moderator of the a path)

In my life, I experience the presence of the Divine (e.g., God).

My religious beliefs are what really lie behind my whole approach to life.

I try hard to carry my religion over into all other dealings in life.

(1) Definitely Not True to (5) Definitely True

Belief in a Theistic God (Modified from Inzlicht & Tullen, 2010)

(Possible moderator of the a path)

What type of God you believe in, if any?

(1) There is one God that created the universe and observes and intervenes in human affairs.

(2) There is a God or Gods, but that God(s) does not observe and intervene in human affairs.

(3) A pantheistic God, where God is synonymous with nature or the unknown.

(4) I don't believe in any kind of God.

Moral Incongruence of Pornography Use (Modified from Grubbs, Exline, Pargament, Hook, Carlisle, 2015)

(Possible moderator of the a path)

Engaging in a hookup troubles my conscience.

Engaging in a hookup violates my religious beliefs.

I believe that hooking up is morally wrong.

I believe that hooking up is a sin.

(1) Not at All to (7) Extremely

4. How many and which conditions will participants be assigned to? (optional)

There are three explicit prime conditions. Participants will be randomly assigned (between-subjects design) to one of the three conditions:

1. Religious prime

One of the goals of this study is to better understand how people think about different topics.

Describe the role that religion and God play in your life.

When answering, please write at least four sentences.

2. Religion/sex prime

One of the goals of this study is to better understand how people think about different topics.

Please take a moment to think of the religion that you are MOST familiar with.

Please describe that religion's perspectives on sex in terms of lust, pornography and masturbation, or sex outside of marriage (e.g., sex with someone who you are not married to, or adultery).

Please also describe whether, according to that religious perspective, any of those things are sinful, and why they're sinful.

When answering, please write at least four sentences.

3. Neutral prime

One of the goals of this study is to better understand how people think about different topics.

Please describe your favorite season.

When answering, please write at least four sentences.

5. Specify exactly which analyses you will conduct to examine the main question/hypothesis. (optional)

First, we will test for mediation using the appropriate model found in the SPSS macro PROCESS (Hayes, 2017):

X variable: Condition (3 groups: 1. Religious prime 2. Religion/sex prime 3. Neutral prime)

Mediator variable: Shame/Regret/Guilt
Y variable: Self-esteem

Next, we will conduct moderated-mediation analyses (moderation of the a path: prime -> shame) using the appropriate model found in the SPSS macro PROCESS (Hayes, 2017), once with each of the eight possible moderators listed below:

Organizational Religious Activity
Intrinsic Religiosity
Belief in a Theistic God
Moral Incongruence of Hooking Up
Guilt and Shame Proneness Scale—Guilt-Negative-Behavior-Evaluation Subscale
Guilt and Shame Proneness Scale—Guilt-Repair Subscale
Guilt and Shame Proneness Scale—Shame-Negative-Self-Evaluation Subscale
Guilt and Shame Proneness Scale—Shame-Withdraw Subscale

6. Outliers and Exclusion. Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding participants.

All exclusions will be made prior to hypothesis testing. Participants will be excluded if they:

- Failed two out of the three attention checks (i.e., embedded questions in the survey, e.g., This is an attention check, please select “a lot”)
- Provided bogus responses to any questions (e.g., What is your gender? "Giraffe," "Attack helicopter," etc.)
- Completed survey in less than 4 minutes
- Indicated in the funnel debriefing awareness that the purpose of the religious primes was to affect shame or self-esteem
- Did not answer the prime. Two coders will code each prime response for whether the participant followed the instructions of the prime. Disagreement between coders will be resolved by a third coder.

The SPSS macro PROCESS (Hayes, 2017) makes no assumptions about normality of the sampling distribution for the indirect effect or the variables themselves (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). Therefore, other than the two items mentioned above, outliers will not be transformed.

7. Any secondary analyses? (optional)

EXPLORATORY ANALYSES

We have no a priori hypotheses regarding the following exploratory analyses:

A. Since beginning data collection, but before conducting any analyses, we have become concerned that atheists may be prone to not adequately responding to (or not at all responding to) the religious prime or religion/sex prime. This question arose for us when 1) it was brought to our attention that individual differences could predict completion of explicit primes, and thus confound the effect of primes on DVs, and 2) some participants expressed on Reddit (which we recruited from) that they were irritated by the questions asking about religion.

More specifically, our concern is that atheists (compared to non-atheists) are less likely to complete the religious prime and religion/sex prime (but are just as likely to complete the neutral prime). If this occurs, it would result in a higher proportion of non-atheists in the religious prime and religion/sex prime conditions, relative to the neutral condition. And if shame re: hooking up is higher for people in the religious prime or religion/sex prime conditions (as we have hypothesized), that difference could be due to a higher proportion of non-atheists in those groups, rather than being due to the primes themselves. In other words, if either the religious prime or religion/sex prime condition turns out to be associated with greater shame, it could be due to a confounding effect of Intrinsic Religiosity or Belief in a Theistic God.

Thus, we will explore whether Intrinsic Religiosity or Belief in a Theistic God, assessed near the end of the study and after the prime and the DV, predicts completion of either the religious prime or religion/sex prime. If either of those variables DO predict completion of either the religious prime or religion/sex prime, we will conduct our hypothesis tests ONLY on theists (i.e., people who answered "There is one God that created the universe and observes and intervenes in human affairs").

B. Explore whether the hypothesized mediation and moderated mediation effects will differ for men vs. women by running the hypothesis tests separately in men and women.

7. How many observations will be collected or what will determine the sample size? No need to justify decision, but be precise about exactly how the number will be determined. (optional)

Participants are currently being recruited from various online venues such as: Reddit, <https://psych.hanover.edu/research/exponnet.html>, Tumblrs, Western Carolina University psychology subject pool, Facebook, and <https://www.socialpsychology.org/expts.htm>.

To estimate the number of subjects required to achieve at least 80% power to detect the hypothesized mediation and moderated-mediation effects, the R package *bmem* (Zhang, 2014) was used to conduct a Monte Carlo simulation. Conservatively estimating small-medium effects (Beta 0.20; Cohen, 1988) for all X->M, M->Y, moderator->M, and X*moderator interaction->M paths, 275 subjects would achieve 80-82% power to detect the mediated and moderated-mediation effects. We are aiming to recruit a higher number of participants to accommodate incomplete responses, participants who did not follow the prime instructions, to ensure adequate power for exploring the hypotheses within subgroups (for example, theists are of particular interest, in light of the exploratory analyses mentioned above), and to allow for the possibility that effect sizes will be smaller than anticipated.

8. Anything else you would like to pre-register? (e.g., data exclusions, variables collected for exploratory purposes, unusual analyses planned?) (optional)

Note: Data collection began prior to pre-registering. At the time of preregistration, we have not conducted hypothesis tests, although we have looked at the number people who have completed the primes, and assessed number of theists (due to our concern re: atheism predicting completion of the religious primes).

Missing data will not be imputed.

There are other items in the survey not mentioned above which are irrelevant to the described hypotheses.

Inclusion Criteria:

To be included in the dataset, participants must:

- Be 18 years of age or older
- Have engaged in a hookup