

MODERATING EFFECTS OF RELIGIOUS ORIENTATION ON THE RELATIONSHIP
BETWEEN SEXUAL SELF-DISCREPANCIES AND GUILT AND ANXIETY

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Ann E. Jones

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COMMITTEE MEMBERS

Committee Chair: Veanne Anderson, Ph.D.

Professor of Psychology

Indiana State University

Committee Member: Virgil Sheets, Ph.D.

Professor of Psychology

Indiana State University

Committee Member: Patrick Bennett, Ph.D.

Associate Professor of Psychology

Indiana State University

Abstract

The current study examined the moderating effect of religious orientation on the relationship between sexual self-discrepancies and guilt. There is some evidence of a positive correlation between sex-guilt and higher levels of religiosity. In this study it was proposed that sex-guilt in religious individuals is partially driven by discrepancies between actual sexual behaviors and how the individual thinks that they ought or ideally should behave. In order to test this idea a survey was administered to 151 undergraduate students to assess religious orientation, actual, ought, and ideal sexual behaviors, and sex guilt. Gender differences were found in reporting intrinsic religiosity, sexual behavior, and sexual attitudes. Men reported more favorable attitudes toward sexual behavior, also, men reported more sexual behaviors than women, no significant difference was found between women and men in the intrinsic religiosity scores, and women reported higher levels of sex anxiety and sex guilt than men. Moderate negative correlations were found between intrinsic religious orientation and penile-vaginal sex for women; and mutual manual stimulation, and attitudes towards sexual permissiveness for men. Intrinsic religious orientation moderated the following relationships: ideal total sexual behavior discrepancy and sex anxiety for men and women combined; ideal manual stimulation discrepancy and sex guilt for men and women combined; ideal total sexual behavior discrepancy and sex guilt in men; and ought masturbation discrepancy and sex guilt in women. That is, those who reported higher levels of intrinsic religious orientation also report higher levels of anxiety and guilt, associated with discrepancies related to sexual behavior. This study contributes to the awareness of how

religiosity can affect sex guilt. Based on the results of this study, the bogus pipeline methodology had limited utility when examining the relationships between intrinsic religiosity, sex anxiety, and sex guilt.

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Moderating Effects of Religious Orientation on the Relationship between Sexual Self-Discrepancies and Guilt and Anxiety

From the Kinsey reports (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953) to the present, the correlation between religiosity and sexuality has been established repeatedly. Specifically, highly religious people tend to hold more traditional and/or negative attitudes toward sexuality than less religious people. Ehrmann (1959), and MacCorquodale and DeLamater (1979) established strong relationships between sexual behavior and church attendance. In addition, Woodroof (1985) found that students with higher levels of religiosity were less sexually progressive. The current study seeks to add to the literature on the relationship between religion and sexuality by examining the role that religion plays in the relationship between sexual behavior and shame and guilt.

Religiosity

There have been multiple conceptualizations of what religiosity entails. This study focused on intrinsic and extrinsic orientations to religion. Religion is a shared understanding and an organized system encompassing a preset structure of ideas and beliefs about God or a higher power (Pargament, 1997). These concepts are understood communally by a group of individuals (Allport, 1962) and are supported by practices, rituals, doctrines, and beliefs (Pargament, 2007).

Religious orientation is one of the most influential and frequently used measures in the empirical study of religion (Donahue, 1985). Religious orientation refers to the degree that a religious person is dedicated to their chosen faith (Allport, 1962). Allport and Ross (1967) suggested intrinsic and extrinsic religious orientation as two ways of being religious, with motivation as the driving force. As summarized in their classic paper, Allport and Ross (1967) explain, “the extrinsically motivated person *uses* his religion, whereas the intrinsically motivated

lives his religion” (p. 434). Thus, individuals with extrinsic religious orientation participate in religion (e.g. attend church, pray, read sacred texts, etc.) because doing so serves some other, ultimate interest. Relating to religious beliefs, extrinsically motivated persons can be considered self-serving in terms of their commitment to their faith. For example, an extrinsically religious person would attend worship to improve their social status. Alternatively, the intrinsically oriented religious individual (i.e. someone who believes in their religion without external motivation for doing so) is thought to be one who fully embraces and internalizes a religious creed, striving to follow it in all words and actions. Allport (1968, p. 141) described intrinsic orientation as “life wholly orientated, integrated, and directed by the master value of religion.”

Religious orientation has been found to predict a variety of behaviors. Prejudice is positively correlated with extrinsic religiosity, whereas intrinsic religiosity is uncorrelated with prejudice (Allport, 1968). Dogmatism (i.e. close mindedness) is also predicted by an extrinsically religious orientation. An intrinsic religious orientation is not correlated with the full concept of dogmatism, but is positively related to conventionalism and superstition, which are two components of dogmatism (Hoge & Carroll 1973; Kahoe 1974; Kahoe & Dunn 1976; Paloutzian, Jackson, & Crandall 1978; Thompson 1974). Trait anxiety correlates negatively with intrinsic religiosity and positively with extrinsic religiosity (Baker & Gorsuch, 1982; Lovekin & Malony, 1977). One focus of this study is to determine the influence of religious orientation, in particular intrinsic orientation, on levels of anxiety and/or guilt related to sexual behaviors.

Religiosity and Sexual Behavior

Many Judeo-Christian religions have prohibitions against premarital and extramarital sex (e.g., 1 Corinthians 6:18-20; 1 Thessalonians 4:3, 4, 7, Revised Standard Version). Western religions continue to reinforce the inhibition of sexual urges and prohibit the use of sex for

pleasure. Because of this inhibition it is not surprising that higher levels of religiosity, especially intrinsic religiosity, are related to lower levels of sexual behavior (e.g., fewer sexual partners, delayed coitus debut; Rowatt & Schmitt, 2003). For example, Mahoney (1980) found that as religious strength increased, the frequency and range of sexual behaviors (i.e. sexual petting, oral sex, coitus) decreased. Religious commitment has been negatively associated with the age of coitus debut (Bassett et al., 2002) and number of lifetime sex partners (Christopher & Sprecher, 2001). Davidson, Darling and Norton (1995) inferred that people may avoid sexual behavior for the sake of enjoyment because of the religious attitude that sexual desires should be repressed.

Specifically, teachings from Christian religious texts, such as the Bible, warn against such behavior. For example, "God wants you to be holy and to stay away from sexual sins. He wants each of you to learn to control your own body in a way that is holy and honorable ... God called us to be holy and does not want us to live in sin," (1 Thess. 4:3,4,7 Revised Standard Version) and "Run away from sexual sin. Every other sin people do is outside their bodies, but those who sin sexually sin against their own bodies. You should know that your body is a temple for the Holy Spirit who is in you. You have received the Holy Spirit from God. So you do not belong to yourselves, because you were bought by God for a price. So honor God with your bodies" (1 Cor. 6:18-20 Revised Standard Version).

Associations between religious orientation, as described by Allport and Ross (1967), and several sexual behaviors and attitudes have also been documented. Within the evangelical unmarried Christian community intrinsic religious orientation (i.e. religion as an end) is negatively correlated with frequency of sexual behaviors (non-genital petting, oral sex, mutual masturbation, premarital intercourse and sexual liberation; Wulf, Prentice, Hansum, Ferrar & Spilka, 1984). Higher levels of intrinsic religious orientation have negative correlations with

attitudes towards premarital sexual acceptance (Leak 1993), attitudes towards other sexual behaviors (e.g., mutual masturbation, oral sex and vaginal intercourse; Bassett et al., 2002), and selfish needs for sexual gratification (McClain, 1978).

Higher levels of extrinsic religious orientation (i.e. religion as a means to an end) are positively correlated with increased sexual behaviors and more favorable attitudes toward sexual behavior (Rowatt & Schmitt, 2003). Such positive correlations with extrinsic religiosity include attitudes towards premarital intercourse, oral sex, sexual liberalism (Wulf et al., 1984), frequency of adultery (Leak, 1993), and frequency of sexual behaviors (mutual masturbation, oral sex, non-genital petting; Wulf et al., 1984). Extrinsically religious individuals also report more sexual activity than intrinsically religious individuals (Woodroof, 1985). Rowatt and Schmitt (2003) theorize that those who were associated with an intrinsic religious orientation are more likely to internalize religious teachings and standards about sexuality than those who were associated with an extrinsic religious orientation. Intrinsically religious people were more likely to have restricted sexual desires, or were more compliant to religious values and standards, and extrinsically religious people tended to have less restricted sexual desires, perhaps to satisfy individual or social needs (Rowatt & Schmitt, 2003).

Today's college student lives in a world overwhelmingly filled with sex. During college a student is exposed to sexual content found in multiple media (e.g., Internet, television, etc.), and such exposure may lead to increased sexual activity during the early adulthood stage. Schuster, Bell and Kanouse (1996) surveyed high school students and found that roughly 30% of those who identified themselves as virgins (never had sexual intercourse) reported that they had participated in mutual masturbation, and 10% had participated in one or more forms of oral sex. According to the Centers for Disease Control and Prevention (2006), 47% of U.S. students report

sexual activity by the time they graduate from high school. Following college enrollment, rates of lifetime sexual activity escalate to 75% (American College Health Association, 2006).

Many young adults may avoid sexual behavior due to their religious beliefs and the proscriptions of their faith. Studies have shown that there is a negative association between religiosity and premarital sex (Spanier, 1976). Religion reduces the likelihood of adolescents engaging in early sex by shaping their attitudes and beliefs about sexual activity (National Institute of Child Health and Human Development, 2003). A study conducted at Fordham University established a relationship between the strength of a college freshman's religious faith and sexual experimentation (Zaleski & Schiaffino, 2000). Students "who strongly identify with religious teachings and traditions" were "less likely to engage in ... sexual activity" (Zaleski & Schiaffino, 2000, p. 226).

The religiosity of one's peers may be another factor that influences sexual behavior. Daugherty and Burger (1984) found that the greatest contributor to sexual behavior is peer attitudes. Peer attitudes have more influence on sexual behavior and attitudes than church or parents (Daugherty & Burger, 1984). Adamczyk and Felson (2006) found that religious affiliation, personal religious beliefs, and close relationships with others that share the same beliefs have comparable levels of influence on delaying sexual intercourse among college students.

Religion's role in regulating sexual behavior is complex and may have widespread implications (Murray, Ciarrocchi & Murray-Swank, 2007). One implication of religious regulation of sexual behavior is emotional distress in the form of anxiety caused by shame and guilt (Murray et al., 2007). Violations of religious ideologies have been associated with feelings of guilt. Davidson, Moore and Ullstrup (2004) found that women who had regular church

attendance on a weekly basis compared to women who attended more sporadically had higher levels of guilt related to participating in sexual acts including masturbation, petting, coitus debut, and current sexual behaviors involving sexual intercourse. Shame and guilt may arise when one engages in behavior that is not sanctioned by one's religion.

Shame and Guilt

Shame and guilt are unique, emotional responses to personal failure and indiscretions (Lewis, 1971) that are sometimes confused with each other. Lewis (1971) reported distinctions between shame and guilt when focused on the self. Shame concerns focus on the self, whereas guilt is concerned with a particular behavior. Shame is an agonizing emotion that involves "negative evaluations of the self" (Tangney, Niedenthal, Covert & Barlow, 1998, p. 258). When shame is experienced the self is considered to have not meet expectations or standards set by the individual (Tangney et al., 1998). Those who experience shame generally feel a desire to get away or disappear (Tangney, 1993). Guilt, on the other hand, concerns a negative appraisal of a specific behavior, which is seen as separate from the global self (Tangney et al., 1998). Feelings of guilt are often associated with regret or remorse over the indiscretion (Tangney, 1993; Tangney, Miller, Flicker & Barlow, 1996).

Sexual guilt can be defined as "a generalized expectancy for self-mediated punishment for violating standards of proper sexual conduct. Such a disposition might be manifested by resistance to sexual temptation, by inhibited sexual behavior, or by the disruption of cognitive process in sex-related situations" (Mosher & Cross, 1971, p. 27). Sex guilt seems to inhibit sex-related behaviors and attitudes in a variety of conditions (Tangney & Dearing, 2002). Gunderson and McCary (1979) found that those with a strong religious interest had more sex guilt compared to those with a weak religious interest.

Self-Discrepancy

The religious beliefs that people hold about sexual behavior may not always align fully with their actual sexual behavior, which could lead to feelings of shame and guilt. This outcome would be expected according to self-discrepancy theory. Self-discrepancy theory aims to understand how conflicting beliefs about one's self are related to emotional discomfort (Higgins, 1987). Higgins's self-discrepancy theory suggests that people have three self-images: the *actual* self, *ideal* self, and *ought* self. The actual self involves beliefs about the traits or attributes that one truly possesses, the ideal self is comprised of attributes that one aspires to have, and the ought self includes attributes that one believes they should have. The ideal and ought selves are thought of as self-guides because they symbolize traits that one does not possess, but is working to acquire. Higgins (1987) predicted that actual self versus ideal self-discrepancies would result in an experience of shame, whereas actual self versus ought self-discrepancies would lead to an experience of guilt. Discrepancies are present when there is an inconsistency between how a person views their actual self and one or both of the ideal or ought self. An actual-ideal discrepancy implies that beliefs about actual attributes are contradictory with those that one would like to have, whereas an actual-ought discrepancy suggests that viewpoints about obligations do not complement beliefs about the actual self. People generally strive to reduce discrepancies by creating a match between their actual self and their ideal and/or ought selves.

Ought selves are thought to maintain a sense of duty, obligation or responsibility (Higgins, 1987). An ought self is a self that one does not intrinsically desire, but rather feels duty-bound to emulate or imitate. The ought self is a positive value in the sense that people wish to conform to it. However, the ought self may also be a consequence of punishment or avoidance of punishment. In other words, meeting standards of the ought self includes being a

certain kind of person so as to avoid an experience such as self-disapproval or the disapproval of others. Ought selves seem to have dual objectives. They integrate an effort to circumvent an undesired value by striving for a coveted value. In other words, ought selves are motivated to reject objectionable morals by making an effort to meet standards set by the desired ideals (Carver & Scheier, 1998). Self-discrepancy theory holds that discrepancies between the actual self and the ought self produce anxiety and guilt. Anxiety results when there is a perceived deficiency in satisfying an obligation (or avoidance of an imminent chastisement; Carver, Lawrence & Scheier, 1999).

Because self-discrepancy theory was initially framed entirely in terms of personal standards (ideals and oughts) and the approach to achieve or maintain these standards, there remains some ambiguity about which of the motives behind an ought self actually underlies the experience of anxiety: the approach motive (e.g. “how I would like to be”) or the avoidance motive (e.g. “how I hope never to be”); Ogilvie, 1987).

Bogus Pipeline, Religious Orientation and Sexual Behavior

The influence of socially desirable responding on self-report measures of sexual behavior has been a noteworthy concern. Self-report measures of sexual behavior can elicit the feeling of embarrassment within the individual because of the private nature of sexual activity (Herold & Way, 1988). There is considerable correlational evidence to suggest that measures of religiosity and sexual behavior are corrupted by social desirability. For example, participants that complete self-report sexual behavior assessments tend to overreport or underreport certain sexual behaviors, misleadingly claim to have participated or deny having engaged in certain sexual behaviors, and skip answering questions that they believe will reflect negatively on them (Meston, Heiman, Trapnell & Paulhus, 1998). To deal with the potential impact of social

desirability, many researchers who use measures of religious orientation and sexual behaviors employ statistical controls as part of analyses through the incorporation of scales such as the Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1960). Fisher (2013) suggests that previous research relating to gender differences could have some limitations due to social desirability influences; she suggests that when participants respond to sexual behavior questionnaires, they are more likely to respond in a gender-stereotyped way when there is no incentive or pressure to respond in a truthful way.

Measures of religious orientation are historically and currently among the most commonly assessed variables in the psychology of religion. The relationship between social desirability and religious orientation was first examined by Batson, Naifeh, and Pate (1978), who called into question the effect of social desirability and religious orientation on self-reported prejudice. Batson et al. (1978) found a negative correlation between intrinsic religious orientation and prejudice, and a positive correlation between intrinsic orientation and a measure of social desirability. When the effects of social desirability were controlled, the negative relationship between intrinsic orientation and prejudice decreased. This study found that extrinsic orientation was not significantly related to socially desirable responding (Batson et al., 1978).

The positive relationship between social desirability and intrinsic orientation and the negative relationship between social desirability and extrinsic orientations have been supported by subsequent research (Leak & Fish, 1989; Rowatt, Franklin, & Cotton, 2005; Rowatt & Kirkpatrick, 2002; Rowatt & Schmitt, 2003; Spilka, Kojetin, & McIntosh, 1985; Tsang & Rowatt, 2007; Watson, Hood, & Morris, 1985; Watson, Hood, Morris, & Hall, 1985). Trimble's (1997) meta-analysis showed a positive relationship between intrinsic religiosity and socially

desirable responding, and no relation between extrinsic religiosity and socially desirable responding. A meta-analysis by Sedikides and Gebauer (2010) regarding socially desirable responding, which did not include the bogus pipeline procedure to be described later, replicated findings for intrinsic and extrinsic religiosity.

The bogus pipeline procedure is an established method that is useful in prompting higher levels of truthfulness when participants are presented with questions pertaining to sensitive behaviors or opinions (Roese & Jamieson 1993). Typically with the bogus pipeline procedure the researcher tells the participants that dishonest answers may be identified by the lie detector that the participant is hooked up to. Jones and Sigall (1971) determined that this procedure provides a *pipeline* to a participant's real fundamental belief. Although the participants are told that the apparatus that they are hooked up to can detect lies or dishonest responding, the apparatus is bogus and does not actually have the capabilities that the researcher indicates (Gannon, 2006).

A meta-analysis of studies utilizing the bogus pipeline method across multiple opinion domains revealed that the technique is an effective means of decreasing biased responses (Roese & Jamieson, 1993). This procedure reduces positive self-presentation by inducing an incentive to shift from self-enhancement to self-protection (Roese & Jamieson, 1993). If a self-enhancing presentation (e.g. conformity to religious teachings against sexual behavior) is inconsistent with a person's true behavior or attitude (e.g. deviance from religious teachings against sexual behavior), a person then risks being detected as lying (Roese & Jamieson, 1993). The bogus pipeline method can motivate individuals to avoid self-enhancement in favor of more candid and accurate answers in order to avoid embarrassment (Sabini, Siepmann & Stein, 2001). Because the present study is focused on two very personal aspects of a person's life, religiosity and sexual

behavior, the bogus pipeline procedure will be an invaluable tool to help restore validity lost with self-report measures due to social desirability.

Present Study

In the current study we used the bogus pipeline to assess social desirability in measures of religious orientation, sexual behavior, and self-discrepancy. Participants in the control condition responded to measures of religious orientation, sexual behavior, and self-discrepancy in a typical fashion (i.e. no exposure to the bogus pipeline procedure) and those in the experimental condition were exposed to the bogus pipeline which was designed to encourage honest responses. There were four hypotheses for the current study. First, participants in the control group would over report intrinsic religiosity and under report sexual behavior when compared to the experimental group. Second, the bogus pipeline condition would moderate the relationship between intrinsic religiosity and sexual behavior. In other words, in the control group condition there would be a significant negative relationship between intrinsic religiosity and sexual behavior, whereas in the experimental group the strength of the relationship would be weak or nonsignificant. Third, participants in the experimental condition who report higher levels of intrinsic religiosity would report less favorable attitudes toward sexual behaviors. Finally, intrinsic religious orientation would moderate the relationship between self-discrepancies and levels of anxiety and guilt. That is, those who report higher levels of intrinsic religious orientation would also report higher levels of anxiety and guilt, associated with discrepancies related to sexual behavior.

Method

Participants

The original sample included 151 participants obtained from undergraduate psychology courses at a midsized, Midwestern University. The participants were recruited from introductory courses in order to increase the probability that they were naïve to the bogus pipeline procedure. Recruitment procedures involved solicitation through an online recruitment system, as well as distributing invitations in classes. The participants received course credit or extra credit for their participation.

Eight participants identified as Atheist, when asked about their religious affiliation. Atheists were not required to answer questions pertaining to religious orientation, which were used in all of the analyses. Therefore, these 8 participants were excluded from analyses leaving 143 participants in the analyses. This sample included 98 women and 45 men. See Tables 1 and 2 for detailed demographic information.

Measures

Religious Orientation Scale- Revised (ROS-R). The Religious Orientation Scale-Revised (Gorsuch & McPherson, 1989) was designed to identify intrinsic (I) and extrinsic (E) religious orientations (See Appendix A). This is a 14-item Likert scale response format ranging from 1 (strongly disagree) to 5 (strongly agree). Eight items measure intrinsic religious orientation (e.g. “I enjoy reading about my religion”) and six items measure extrinsic religious orientation (e.g. “I go to church because it helps me make friends”). Individuals receive a score for each orientation, with higher scores reflecting greater identification with that orientation. The internal consistency of the intrinsic scale has been reported as 0.83, for this study the

internal consistency was 0.69. Reported internal consistency for the extrinsic scale was 0.65, for this study the internal consistency was 0.33.

Sex Anxiety Inventory (SAI). The Sex Anxiety Inventory (Janda & O’Grady, 1980) consists of 25 forced choice items (See Appendix B). Participants select the option that best applies to them (one indicates anxiety and the other does not). Items pertain to a variety of sex-related topics such as specific sexual behaviors (e.g., petting, oral sex, and vaginal sex), sexual behaviors in general, sexual thoughts, masturbation, extramarital sex, group sex, and pornography. One example is “Extramarital sex is (a) OK if everyone agrees. (b) can break up families.” For each item, there is a keyed response; that is, one response is indicative of sex anxiety. One point is assigned each time the respondent selects the keyed response. Scores can range from 0 (no sex anxiety) to 25 (high sex anxiety). Higher scores indicate higher levels of sex anxiety. Test-retest reliability coefficients were 0.85 for men and 0.86 for women. Internal consistency for the SAI was good with an alpha coefficient of 0.86, as reported by Janda and O’Grady (1980). For the present study the reliability coefficients were 0.82 for men and 0.80 for women. Internal consistency for the SAI was 0.84 for the full sample.

The Brief Sexual Attitude Scale (BSAS). The Brief Sexual Attitude Scale (Hendrick, Hendrick, & Reich, 2006, see Appendix C) consists of four subscales (permissiveness, birth control, communion and instrumentality) with a total of 23 items each ranked on a Likert type scale ranging from 1 (strongly disagree with the statement) to 5 (strongly agree with the statement). Ten items represent permissiveness (e.g. “Casual sex is acceptable”), three items represent birth control (e.g., “Birth control is part of responsible sexuality”), four items represent communion (e.g., “Sex is a very important part of life”) and four items represent instrumentality (e.g., “Sex is primarily a bodily function, like eating”). Four subscale scores are calculated and

each score is calculated as the average of the item responses; each sub scale was analyzed separately. Higher scores represent more favorable attitudes towards sex. The alpha coefficients for reported by Hendrick et al. (2006) were as follows: Permissiveness = 0.93; Birth Control = 0.84; Communion = 0.71; Instrumentality = 0.77. The alpha coefficients for this study were as follows: Permissiveness = 0.89; Birth Control = 0.79; Communion = 0.56; Instrumentality = 0.68.

Measure of Sexual Behavior and Self-Discrepancy. The Measure of Sexual Behavior and Self-Discrepancy (MSBSD) was designed to measure frequencies of sexual behavior and discrepancies of ideal and ought sexual behavior compared to actual behavior (See Appendix D). The scales for actual, ideal, ought sexual behaviors measure six different sexual behaviors (e.g. “masturbation” and “anal sex”) on a 5-point scale (“Never” to “Daily”). Each behavior was analyzed separately to provide self-discrepancy scores for actual-ideal self-discrepancies and actual-ought self-discrepancies. To obtain these scores for each behavior the ideal and ought scores were subtracted from the actual score, the difference was the self-discrepancy score. Scores fell within a range of -5 to 5 and more extreme scores indicated greater levels of self-discrepancy. Since this measure was created for the current study, no psychometric data are available.

10-Item Brief Mosher Sex-Guilt Scale. The 10-item Brief Mosher Sex-Guilt Scale (Janda & Bazemore, 2011, See Appendix E) consists of ten items measuring sex guilt based on the Revised Mosher Sex-Guilt Inventory (Mosher, 1998). The 10-item Brief Mosher Sex-Guilt Scale serves as a psychometrically sound alternative to the longer scale; the correlation between the two scales was $r = 0.95$. Items were rated on a 7-point Likert scale. One example is “When I have sexual dreams I try to forget them.” The scores from each item were summed to create a

total sex-guilt score, with high scores indicating higher levels of guilt associated with sex. Janda and Bazemore (2011) reported an internal consistency of 0.85. Internal consistency in this study for the Brief Mosher Sex-Guilt Scale was good with an alpha coefficient of 0.80.

Demographic questionnaire. The demographic questionnaire consisted of seven items (See Appendix F). Demographic items include age, gender, ethnicity, year in school, current relationship status, sexual orientation, and religious affiliation.

Apparatus

The lab was arranged with equipment to convince participants in the experimental condition that physiological data were being collected. The set-up consisted of two computers separated by a curtain. Adjacent to the participants' computer was an additional box apparatus connected to a skin electrode and two finger electrodes. The wires attached to this apparatus extended behind the curtain and appeared to be attached to the experimenter's computer.

The experimenter's computer screen had three different displays that were strategically used during each experimental session. Upon first entering the lab, the screen displayed a slide that read "PhysioTrak", which was the name given to the bogus software. Prior to beginning the surveys, mock data output was displayed on this screen in order to further convince the participants that the equipment was active. Finally, the computer displayed a screen designed to look like it is receiving data while the participants were completing the surveys. The experimenter controlled the screen display, and was trained to switch the screen at specific times during administration.

Procedures

When the participants arrived, they were greeted outside the "biopsychosocial" lab by an experimenter in a white lab coat. All experimenters were upper-level undergraduate students or

graduate students in psychology and were trained to deliver a script (see Appendix G for control condition and Appendix H for bogus pipeline condition) for each condition. Informed consent (See Appendix I for control condition and Appendix J for bogus pipeline condition) was obtained verbally from the individuals after they read the informed consent form; however, information regarding the bogus pipeline procedures was withheld. Participants were taken into the lab to complete the experiment individually.

Bogus pipeline condition. Participants were randomly assigned through the use of a random number generator to the experimental condition prior to their arrival. See Table 1 for information on the age, gender, ethnicity, and religiosity of participants in each condition. Participants read the informed consent and verbally agreed to participate in the study, and then they were directed to their computer, where the experimenter indicated that they would be completing computer-based surveys while they are connected to the equipment in the lab. The experimenter explained that each survey question would appear on the screen individually, and after answering the question, the participants would need to click a button to view the next question. Participants were made to believe that the equipment was designed to measure physiological responses in order to distinguish an honest response from a dishonest response, and they were unaware that the equipment was inactive. At this time, the experimenter attached two finger electrodes to the participants' non-dominant hand with Velcro fasteners, and used electrode paste and medical tape to attach an electrode to the participants' non-dominant forearm.

Following this explanation, the experimenter returned to their computer behind the privacy curtain and proceeded to ask two pre-conceived questions (e.g., Is your name ___? and Do you currently attend Indiana State University?). The participants were instructed to respond

honestly to the first and dishonestly to the second, in order for the experimenter to “calibrate” the software. The experimenter was aware of the correct answers to both questions. The participants were shown the mock output on the experimenter’s computer screen and were able to see the difference between the output of an honest response and a dishonest one. This step was taken to further convince the participants that the equipment was active.

At this point, the experimenter replaced the privacy curtain, explained that the equipment was set to automatically record their physiological response to each individual question, and instructed the participants to begin the surveys. Participants in the bogus pipeline condition were given manipulation checks (See Appendix K) at the end of the questionnaires. This measured how accurate they thought the apparatus assessed truthfulness, how much influence they thought the apparatus had on their responses, and how much pressure they felt from the lie detector to answer questions honestly. Responses were recorded using a 5-point Likert scale (1 = not at all to 5 = a great deal). Two additional yes or no questions asked if the participant had ever heard of the bogus pipeline procedure or if they had heard about the procedures for this particular study. If they answered yes to either of the yes/no questions their data were disqualified and not used for the study.

Once each participant completed the surveys, they were read a debriefing script (See Appendix L) by the experimenter, informing them that no physiological responses were measured or recorded, and the equipment was inactive. They were also given more information regarding the purpose of the study.

Control condition. Participants were randomly assigned through the use of a random number generator to the control condition prior to their arrival. Participants read the informed consent and verbally agreed to participate in the study, and were then directed to the computer to

begin the study. The participants in this condition were not be connected to any bogus equipment, nor given an explanation for the purpose of the equipment; however, they did complete the surveys in the same lab with the equipment present. The experimenter informed the participants that they would be completing the computer-based surveys, and described the format of the surveys to them as well. Participants were then instructed to complete the surveys on the computer while the experimenter was seated on the other side of the privacy curtain. At the end of the session, control participants were also read a debriefing script (See Appendix M).

Participants in both conditions completed the questionnaires in the following order: Religious Orientation Scale-Revised, Brief Sexual Attitudes Scale, Sexual Anxiety Inventory, The 10-item Brief Mosher Sex-Guilt Scale, Measure of Sexual Behavior and Self-Discrepancies, and demographics.

Results

Gender Effects on Sexual Attitudes, Sexual Behavior, and Religiosity

Prior to examining the hypotheses for the study, two-tailed independent t-tests were completed to examine gender differences in sexual attitudes, sexual behavior, religiosity, sex anxiety, and sex guilt. Men reported more favorable attitudes toward sexual behavior, calculated from the total score from the BSAS, than women, $t(141) = -3.89, p < 0.001$. There was also a significant difference in reporting combined sexual behaviors with men reporting more sexual behaviors than women $t(141) = -4.80, p < 0.001$. No significant difference was found between women and men in the intrinsic religiosity scores. Women reported higher levels of sex anxiety, as measured by the SAI, than men $t(141) = 4.50, p < 0.000$. Women also reported higher levels of sex guilt, as measured by the Mosher Sex Guilt Scale, than men, $t(141) = 3.12, p < 0.002$. Because differences in gender were found in sexual behavior and sexual attitudes, the genders

were analyzed separately with respect to each of the four hypotheses. See Table 3 for means and standard deviations for scores by gender and condition.

Differential Reporting of Religious Orientation and Sexual Behavior by Condition

Hypothesis 1 predicted that participants in the control group would over report intrinsic religiosity and under report sexual behavior when compared to those in the bogus pipeline procedure. Eight two-way ANOVAS were run to test this hypothesis. The independent variables were the participant's gender and condition (control or bogus pipeline). The dependent variables were intrinsic religiosity as reported on the intrinsic subscale of the Religious Orientation Scale and scores for the six actual sexual behaviors and the total score as reported on the Sexual Behavior and Self-Discrepancy Measure. See Table 4 for correlations among sexual behaviors and see Table 5 for the statistical results for the ANOVAS. There were main effects for gender for five of the dependent variables. Compared to women men reported higher levels of total sexual behaviors, masturbation, oral sex, anal sex, and pornography viewing. There were no main effects of condition for any of the dependent variables. There was only one significant interaction effect between gender and condition. Compared to men in the bogus pipeline group, men in the control group reported lower levels of viewing pornography, $F(1, 139) = 5.57, p = .02$. There was no difference between women in the two conditions for viewing pornography, $F(1, 139) = .30, p = .59$.

Differential Relationships between Religious Orientation and Sexual Behavior by Condition

Hypothesis 2 predicted that in the control group condition there would be a significant negative relationship between intrinsic religiosity and sexual behavior, whereas in the bogus pipeline group the correlation would be weak or nonsignificant. Bivariate zero-order

correlations were examined between intrinsic religiosity as measured by the intrinsic subscale of the ROS-R and sexual behaviors scores (total score and individual sexual behavior scores) from the Sexual Behavior and Self-Discrepancy Measure separately for the control and bogus pipeline conditions and gender (See Table 6). The differences between the two correlations (control and bogus pipeline) were tested with the Fisher's standardized z-test, two-tailed.

Higher levels of penile-vaginal intercourse for women were related to lower scores on the measure for intrinsic religiosity in the control group, but not the bogus pipeline group. However, the difference between the correlations for the female control group and the female bogus pipeline group was not statistically significant, $Z = -1.47, p = .14$. None of the other correlations for women were significant. For men, higher scores on the intrinsic religiosity measure were related to lower levels of manual stimulation behavior for the control group, but not for the bogus pipeline group. The difference between the correlations for men in the control group and men in the bogus pipeline group was statistically significant, $Z = -2.18, p < .05$. None of the other correlations for men were significant.

For women and men combined in the control group, higher scores on the intrinsic religiosity measure were associated with lower levels of penile vaginal intercourse, $r(63) = -.31, p < .05$; this correlation was not significant in the bogus pipeline group, $r(74) = -.01, p = .91$. The difference between these correlations approached but did not reach statistical significance, $Z = -1.79, p = .07$.

Relationship between Intrinsic Religiosity and Sexual Attitudes in the Bogus Pipeline Condition

Hypothesis 3 predicted that there would be a negative correlation between intrinsic religiosity and attitudes towards sexual behavior in the bogus pipeline condition. A simple

bivariate correlation was used to examine the relationship between intrinsic religiosity as measured by the intrinsic sub-scale of the ROS-R and sexual attitudes as measured by the BSAS (See Table 7). Bivariate correlations revealed a significant negative relationship for men in the bogus pipeline group between intrinsic religious orientation and attitudes towards sexual permissiveness. Higher levels of intrinsic religiosity were associated with lower ratings of attitudes towards sexual permissiveness. None of the other correlations between intrinsic religiosity and sexual attitudes were significant.

Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Behavior and Anxiety and Guilt

Hypothesis 4 predicted that the relationship between discrepancies in sexual behavior and anxiety and guilt would be moderated by intrinsic religious orientation. In particular, those high in intrinsic religiosity, measured by the ROS-R, would report higher levels of anxiety and guilt as a result of these discrepancies. Fourteen hierarchical multiple regressions were used to examine this hypothesis; only variables that were significantly correlated with sex anxiety and/or sex guilt were used in the regressions. Some regressions were run with women and men combined, using gender as a covariate, and others were run for the men's sample and women's sample separately, due to gender differences. Five of the regressions examined the moderating effect of intrinsic religiosity on sexual discrepancies and sex anxiety; and nine regressions examined the same moderating effect on the relationship between sexual discrepancies and sex guilt. In the first step of the hierarchical regressions run with women and men combined, gender was entered as the covariate. In the second step of the regression, sexual discrepancies (calculated by subtracting the ideal and ought scores from the actual score of sexual behavior as measured by the Measure of Sexual Behavior and Self-Discrepancy) and intrinsic religiosity (as

measured by the ROS-R intrinsic subscale) were entered. In the third step, the interaction between sexual discrepancies and intrinsic religiosity was added. The steps were the same for the regressions run with men separately and women separately, except that gender was not entered.

Sexual anxiety. Bivariate correlations revealed significant positive relationships between sexual anxiety and intrinsic religious orientation, actual/ideal total sexual behavior discrepancies; actual ideal oral sex discrepancy; actual ideal anal sex discrepancy for women and men combined (See Table 8). Increases in anxiety were positively associated with increases in sexual discrepancies and higher levels of intrinsic religious orientation. None of the correlations between sexual anxiety and intrinsic religiosity and sexual discrepancies were significant for women. In men, higher levels of sexual anxiety predicted higher levels of intrinsic religiosity and greater ideal discrepancies for total sexual behaviors and masturbation. None of the actual-ought sexual discrepancies correlated significantly with sexual anxiety.

Table 9 presents the results of the significant hierarchical regression analyses on sex anxiety for women and men combined and Table 10 presents the results for the nonsignificant hierarchical regression analyses. Intrinsic religiosity was found to be a significant moderator in the relationship between sex anxiety and total sexual behavior discrepancy, $F(4, 138) = 18.61, p = .045, R^2 = .20$ (See Figure 1). There is a small positive effect of actual-ideal total sexual discrepancy on sex anxiety for those with low (at least 1 standard deviation below the mean) intrinsic religiosity. There is a more pronounced positive effect of actual-ideal total sexual discrepancy on sex anxiety for those with high (at least 1 standard deviation above the mean) intrinsic religiosity. Intrinsic religious orientation was not a significant moderator of the relationship between sex anxiety and actual-ideal oral sex discrepancy, and actual-ideal anal sex discrepancy in the full sample. The remaining results for the final step of the regression analyses

were actual-ideal oral discrepancy, $F(4, 138) = 8.74, p = .447, R^2 = .18$, and actual-ideal anal sex discrepancy, $F(4, 135) = 7.58, p = .598, R^2 = .16$.

Regressions on sexual anxiety in women were not calculated due to the lack of significant correlations. However, in men, intrinsic religious orientation was found to be a significant moderator in the relationship between sex anxiety and actual-ideal total sexual discrepancy, $F(3, 41) = 6.20, p = .033, R^2 = .262$, (See Table 11 and Figure 2). There appears to be little to no effect of actual-ideal total sexual discrepancy on sex anxiety for those with low intrinsic religiosity. However, there is a positive relationship between actual-ideal total sexual discrepancy and sex anxiety for those with high intrinsic religiosity. Men with higher levels of intrinsic religiosity felt more anxiety over total sexual behaviors the greater the discrepancy. In other words, men who had larger differences, or discrepancies, between actual sexual behavior and actual-ideal sexual behavior, had more anxiety when they reported higher levels of intrinsic religiosity. Intrinsic religiosity was not a significant moderator for the relationship between sex anxiety and actual-ideal masturbation discrepancies in men, $F(3, 40) = 5.35, p = .193, R^2 = .233$.

Sex guilt. There were significant relationships between sex guilt and intrinsic religious orientation, actual-ideal total sexual behavior discrepancies, actual-ideal manual stimulation, actual-ideal oral sex discrepancy, actual-ideal anal sex discrepancy, and actual-ought masturbation discrepancy for women and men combined (See Table 8). Sex guilt was positively associated with intrinsic religiosity and actual-ideal total discrepancy, manual stimulation discrepancy, oral sex discrepancy, and anal sex discrepancy for the full sample. Sex guilt was negatively associated with ideal-ought masturbation discrepancy, and positively correlated with intrinsic religiosity, actual-ideal total discrepancy, and oral sex discrepancy for women. Sex

guilt was positively correlated with intrinsic religiosity, actual-ideal total discrepancy, oral sex discrepancy, and anal sex discrepancy for men.

Table 12 presents the results of the significant hierarchical regression analyses on sex guilt and Table 13 presents the nonsignificant hierarchical regression analyses for women and men combined, with gender as a covariate,. Intrinsic religiosity was not found to be a significant moderator in the relationship between sex guilt and actual-ideal oral sex discrepancy, actual-ideal anal sex discrepancy, and actual-ought masturbation discrepancy in the full sample. The remaining results for the final step of the regression analyses were as follows: actual-ideal oral discrepancy, $F(4, 138) = 14.33, p = .975, R^2 = .27$; actual-ideal anal sex discrepancy, $F(4, 135) = 12.11, p = .318, R^2 = .24$; and actual-ought masturbation discrepancy, $F(4, 138) = 12.29, p = .059, R^2 = .24$. Intrinsic religious orientation was a significant moderator of the relationship between sex guilt and actual-ideal total sexual behavior discrepancy, $F(4, 138) = 13.35, p = .037, R^2 = .26$ (See Figure 3). There was a slight positive effect of actual-ideal total sexual behavior discrepancy on sex guilt for those with low intrinsic religiosity. At the same time there was a greater positive relationship between actual-ideal total sexual behavior discrepancy and sex guilt for those with high intrinsic religiosity. Also, intrinsic religiosity was a significant moderator in the relationship between sex guilt and actual-ideal manual stimulation discrepancy, $F(4, 135) = 12.99, p = .003, R^2 = .26$ (See Figure 4). There was little to no effect of actual ideal manual stimulation discrepancy on sex guilt for those with low intrinsic religiosity. At the same time there is positive relationship between actual ideal manual stimulation discrepancy and sex guilt for those with high intrinsic religiosity. Participants who had larger differences, or discrepancies, between actual manual stimulation and actual-ideal manual stimulation, had more feelings of guilt when they reported higher levels of intrinsic religiosity. In other words, people

who were low in intrinsic religiosity were not affected by the greater the discrepancy between actual manual stimulation and ideal manual stimulation; and those high in intrinsic religiosity felt more guilt the larger the discrepancy.

Table 14 presents the results of hierarchical regression analyses on sex guilt for women. Intrinsic religious orientation was not a significant moderator of the relationship between sex guilt and actual-ideal total sexual behavior discrepancy, as well as, actual-ideal oral sex discrepancy for women. The results for the final step of the regression analyses were actual-ideal total sexual behavior discrepancy, $F(3, 94) = 6.24, p = .358, R^2 = .14$, and actual-ideal oral discrepancy, $F(3, 94) = 7.98, p = .798, R^2 = .18$. Intrinsic religious orientation was found to be a significant moderator of the relationship between sex guilt and actual-ought masturbation discrepancy, $F(3, 94) = 8.90, p = .018, R^2 = .20$ (Figure 5). There was a slight negative effect of actual-ought masturbation discrepancy on sex guilt for women with low intrinsic religiosity. At the same time there was a positive relationship between actual-ought masturbation discrepancy and sex guilt for women with high intrinsic religiosity. Women who scored as being high in intrinsic religiosity felt more guilt with larger discrepancies between actual masturbation and ought masturbation.

In men, religious orientation was found to be a significant moderator in the relationship between sex guilt and actual-ideal total sexual discrepancy, $F(3, 41) = 9.46, p = .009, R^2 = .37$, (See Table 11 and Figure 6). There was a slight positive effect of actual-ideal total sexual discrepancy on sex guilt for men with low intrinsic religiosity. At the same time there was a more pronounced positive relationship between actual-ideal total sexual discrepancy and sex guilt for men with high intrinsic religiosity. Men who scored higher in intrinsic religiosity

reported higher levels of guilt associated with the discrepancy between actual total sexual behavior and ideal total sexual behavior.

Discussion

The first goal of the study was to investigate the effects of the bogus pipeline on reporting sexual behavior and intrinsic religiosity. Hypothesis 1 predicted that participants in the control group would over report intrinsic religiosity and under report sexual behavior when compared to those in the bogus pipeline procedure. Trimble's (1997) meta-analysis showed a positive relationship between intrinsic religiosity and social desirability, this was not upheld in the present study, since no differences were found between the bogus pipeline group and the control group. Batson, et al. (1978) initially proposed a link between social desirability and intrinsic religiosity in self-report measures. However, this study suggests that the bogus pipeline procedure may be limited in its utility in addressing the issue of social desirability in self-reports related to intrinsic religiosity. In order to examine the second portion of this hypothesis men and women's reporting of sexual behavior was analyzed separately. There were no meaningful differences found between the bogus pipeline and the control groups for women on any sexual behaviors. Reports of pornography viewing differed between the bogus pipeline and the control group for men. Men in the bogus pipeline group reported more frequent viewing of pornography than those in the control group. These results could be explained by Meston et al.'s (1998) findings that men would under report certain sexual behaviors (viewing pornography) due to self-presentation concerns.

Zaleski and Schiaffino (2000) indicated that college students who followed religious teachings closely were less likely to participate in sexual activities. In this study, hypothesis 2 predicted that in the control group condition there would be a significant negative relationship

between intrinsic religiosity and sexual behavior, whereas in the bogus pipeline group the correlation would be weak or nonsignificant. In the control condition there was a moderately negative relationship between intrinsic religiosity and manual stimulation for men. There was also a small relationship between penile-vaginal sex and intrinsic religiosity in women. The bogus pipeline condition yielded no significant correlations between sexual behaviors and intrinsic religiosity for either women or men. This partially supports hypothesis 2 since only a limited number of sexual behaviors from the set yielded significant relationships with intrinsic religiosity. Previous research by Wulf et al. (1984) found that intrinsic religious orientation was negatively correlated with frequency of sexual behaviors (i.e. non-genital petting, oral sex, mutual masturbation). However, this study with the use of the bogus pipeline, suggests that the previous findings may have been influenced by socially desirable responses.

Intrinsic religiosity has been found to have negative correlations with attitudes towards sexual behavior (Bassett, et al., 2002; Leak, 1993; McClain, 1978). Hypothesis 3 predicted that there would be a negative correlation between intrinsic religiosity and attitudes towards sexual behavior in the bogus pipeline condition. In partial support of this hypothesis and previous research, this study revealed that men with higher intrinsic religiosity reported less favorable attitudes towards sexual permissiveness; this was not the case for women. Previous research by Alexander and Fisher (2003) found that men tended to have more favorable attitudes than women in terms of sexual permissiveness. Furthermore, research has also found a significant relationship between religiousness and attitudes towards sexual permissiveness but not other aspects of sexual attitudes such as birth control, which is consistent with the current study's results (Ahrold, Farmer, Trapnell, & Metson, 2011; Beckwith & Morrow, 2005).

The main objective and contribution of this study was to examine whether intrinsic religiosity had a moderating effect on the relationship between sexual behavior discrepancies and sexual guilt and shame. Christensen (1969) indicated that those who are more sexually conservative are more likely to experience sexual guilt because there has been a violation of their sexual norms and values. Discrepancies surface when there is an inconsistency between how a person views their actual self and one or both of the ideal or ought self, causing feelings of either anxiety (shame) or guilt (Higgins, 1987). Shame involves focus on the self, whereas guilt is related to a particular behavior (Tangney et al., 1998). Hypothesis 4 predicted that the relationship between discrepancies in sexual behavior and anxiety and guilt would be moderated by intrinsic religious orientation. Intrinsic religiosity was found to be a moderator in the relationships between sex anxiety and actual-ideal total sexual behavior discrepancy for men and women combined, sex guilt and actual-ideal total sexual behavior for women and men combined; sex guilt and actual-ideal manual stimulation discrepancy for women and men combined; sex guilt and actual-ought masturbation discrepancy in women; sex anxiety and actual-ideal total sexual discrepancy in men; and sex guilt and actual-ideal total sexual discrepancy in men. Regardless of sexual behavior and gender, when levels of intrinsic religiosity were higher, sexual behavior discrepancy led to increased levels of sex guilt or sex anxiety. Those that were affected most by this moderation had higher levels of intrinsic religiosity. Those high with intrinsic religious orientation, internalize the messages of their religion, including the religious ideals pertaining to sexual behavior (Mahoney, 1980). Perhaps this internalization of the religious messages about abstaining from sexual behavior is what leads to increased levels of sex guilt when there is a discrepancy between actual behavior and ideal behavior.

Limitations

Due to the nature of the issues being investigated (i.e. religiosity and sexual behaviors) individuals may have preferred not to participate in this particular research. Also, though the goal of the bogus pipeline was to aid in motivating participants to answer more truthfully there was no guarantee that the participants answered in an honest manner. The bogus pipeline may not have eliminated socially desirable responding in terms of religious orientation, sex guilt, or sex anxiety. Perhaps future research should include other procedures or methodologies that would assist in decreasing socially desirable responses especially in studies related to these sensitive topics. Additionally, the previously reported mean effect size of the bogus pipeline procedure, as found in the bogus pipeline meta-analysis by Roese and Jamieson (1993), was $d = .41$, indicating, by Cohen's (1977) specifications, a small effect. This small effect for the bogus pipeline may not have been revealed with the small sample sizes of this study.

To increase external validity future research should explore more diverse samples. The present study's sample consisted of undergraduate students, with a high number of women, who were currently enrolled in a general psychology course. Future research should include more diversity in age, ethnicity, and sexual orientation. This study had a mean age of 20.01, which may have limited the participants' sexual experience or frequency of sexual behavior. Including older participants, who are likely to have had more sexual experiences, would be beneficial. Also, levels of religiosity may change with age; the participants in this study did not score particularly high on the intrinsic religiosity scale. Perhaps older participants would be more committed to their religious teachings and internalize those messages. Also, previous research has indicated that there is a need for studies to explore religious orientation within the framework

of race/ethnicity (Merrill, Steffen, & Hunter, 2012). Few studies involve comparisons of measures of religiosity between racial/ethnic groups in the United States.

Additionally, this sample was composed primarily of Christians. To gain a clearer understanding of religion's role in self-discrepancies as they relate to sexual behaviors, future research should expand to religions other than Christianity, such as Islam, Mormon, or Judaism. Understanding how other people of other religions may be influenced by sexual guilt and anxiety would give a clearer understanding as to whether it is the religion's teachings about sexual behavior or the internalization of the religion's messages that may have an effect on the relationship between sex guilt and anxiety and sexual behavior discrepancies.

The range of scores on the measure for intrinsic religiosity was not wide with very few participants rated as highly intrinsic. This restriction of range could have created problems examining intrinsic religiosity as a moderator in the relationship of sexual discrepancy and sex guilt and sex anxiety. Gathering data from participants who would rank higher on intrinsic religiosity may give further insight into its moderating effects on the relationship between sex guilt/anxiety and sexual behavior discrepancies. Very few studies have focused on fundamentalists who are more likely to score higher in intrinsic religiosity (Farmer, Trapnell, & Meston, 2009). Farmer et al. (2009) suggest that fundamentalists, those who have strict devotion to religious teachings and believe in religion as a supreme authority, would allow their beliefs to influence their sexual behaviors. We found that participants with higher levels of intrinsic religiosity also had higher levels of sex guilt when there were larger sexual behavior discrepancies; including those who are more religious could give further insight into how religious orientation may affect how someone experiences guilt associated with sexual behaviors.

A measure of sexual behavior discrepancy was created for this study. Future research on sexual behaviors and religion should strive to capture a more complete picture of the participants' true sexual behavior. The measure used in the present study focused on sexual behavior within the previous six months. Future research should examine sexual behavior over a longer period and include information about the age of onset for various sexual behaviors. Currently, the scale is relatively broad in options for frequency (never, once or twice a year, at least once a month, at least once a week, or daily). Allowing the participant to indicate the occurrence of the sexual behavior on a scale with more options for frequency may also assist in accuracy. Additionally, the measure could have been worded differently to better capture the sexual discrepancies, especially for the ought discrepancies. The current measure asked the participant to report how often they, in the eyes of others, should be participating in sexual behaviors, instead of directing the participant to consider their ought sexual behavior in the eyes of a religious other, such as a pastor or religious mentor. This might be a better indicator of ought sexual discrepancies.

Implications

Although much research has found a relationship between sexual behaviors and religiosity, and sexual behaviors and guilt/anxiety, the current study's results suggests a more nuanced approach is needed to understand those relationships. This study examined how religious orientation may contribute to the relationship between sexual behaviors and sex guilt/anxiety. Results of this study may aid in providing a deeper understanding of how intrinsic religious orientation influence shame and guilt associated with sexual behavior. The current findings affirm the notion that shame and guilt related to sexual behavior are moderated by religious orientation. It is apparent from the results of the study that those who are high on

intrinsic religious orientation are most affected by the discrepancies of sexual behavior.

Understanding the relationships between religious orientation (intrinsic or extrinsic) and shame and guilt associated with sexual behavior can help to influence treatment options for individuals based on their type of religiosity (e.g. intrinsic or extrinsic).

Also, this and future work may uncover how religion influences a person's sexuality and serves as either a healthy or dysfunctional coping mechanism. Those who are more intrinsically religious, compared to those who are less intrinsically religious, might be more prone to guilt. Higher levels of sex guilt for those that have higher levels of intrinsic religiosity may lead symptoms of depression symptoms. Although, previous research has not focused on sex guilt specifically, previous research has found significant positive relationships between generalized guilt and depression (Kim, Thibodeau, & Jorgensen, 2011).

This study examines sexual discrepancies through the lens of self-discrepancy theory. Self-discrepancy theory examines beliefs that one holds for themselves (Higgins, 1987). When ideal or ought beliefs do not match actual self, distress arises. This study aimed to verify if self-discrepancy applied to specific behaviors, in this case sexual behaviors. The results of this study show that much like typical self-discrepancies (Higgins, 1987), sexual behavioral discrepancies may yield emotional responses of anxiety and guilt.

Overall, the present study's results are partially consistent with previous research examining religiosity with the use of the bogus pipeline. This research indicates that the bogus pipeline may be a viable option when there needs to be a control for social desirability when examining intrinsic religiosity. More testing is needed with a larger sample size to determine whether the bogus pipeline is a feasible option for reducing social desirability with the current study's measures.

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Table 1

Demographic Information for the Conditions

	Bogus Pipeline Condition	Control Condition	Combined
Age in Years <i>M (SD)</i>	20.04 (6.89)	19.97 (5.44)	20.01 (7.60)
Gender <i>N (%)</i>			
Female	54 (71.1%)	44 (65.7%)	98 (68.5%)
Male	22 (28.9%)	23 (34.3%)	45 (31.5%)
Race <i>N (%)</i>			
White	41 (53.9%)	39 (58.2%)	80 (55.9%)
Hispanic/Latino(a)	2 (2.6%)	1 (1.5%)	3 (2.1%)
Asian/Asian American	1 (1.3%)	3 (4.5%)	4 (2.8%)
Black/African American	27 (35.5%)	18 (26.9%)	45 (31.5%)
Multiracial	1 (1.3%)	6 (9%)	1 (.7%)
Year in School <i>N (%)</i>			
Freshman	52 (68.4%)	43 (64.2%)	95 (66.4%)
Sophomore	14 (18.4%)	12 (17.9%)	26 (18.2%)
Junior	7 (9.2%)	7 (10.4%)	14 (9.8%)
Senior	3 (3.9%)	5 (7.5%)	8 (5.6%)
Sexual Orientation			
Heterosexual	70 (92.1%)	57 (85.1%)	127 (88.8%)
Homosexual	4 (5.3%)	2 (3.0%)	6 (4.2%)
Bisexual	1 (1.3%)	5 (7.5%)	6 (4.2%)
Other	2 (2.6%)	1 (1.5%)	3 (2.1%)
Current Relationship			
Married	1 (1.3%)	2 (3.0%)	3 (2.1%)
Living with someone	4 (5.3%)	2 (3.0%)	6 (4.2%)
Dating	38 (50.0%)	37 (55.2%)	75 (52.4%)
No intimate relationship	33 (43.4%)	26 (38.8%)	59 (41.3%)

Table 2

Religious Affiliation Information for the Conditions

	Bogus Pipeline Condition	Control Condition	Combined
Religious Affiliation <i>N</i> (%)			
Agnostic	4 (5.3%)	3 (4.5%)	7 (4.9%)
Buddhist	0	1 (1.5%)	1 (0.7%)
Christian			
Catholic	11 (14.5%)	12 (17.9%)	23 (16.1%)
Lutheran	4 (5.3%)	3 (4.5%)	7 (4.9%)
Methodist	3 (3.9%)	5 (7.5%)	8 (5.6%)
Baptist	26 (34.2%)	19 (28.4%)	45 (31.5%)
Other - Protestant	6 (7.9%)	2 (3.0%)	8 (5.6%)
Other - Denomination	16 (21.1%)	12 (17.9%)	28 (19.6%)
Jewish	0	1 (1.5%)	1 (0.7%)
Muslim/Islam	1 (1.3%)	1 (1.5%)	2
Pagan/Wiccan	0	1 (1.5%)	1 (0.7%)
Unitarian - Universalist	0	1 (1.5%)	1 (0.7%)
Other	5 (6.6%)	4 (6.0%)	9 (6.3%)
Religious <i>N</i> (%)			
Yes	59 (77.6%)	46 (68.7%)	105 (73.4%)
No	17 (22.4%)	21 (31.3%)	38 (26.6%)

Note. The “Religious” label was based on participants’ answer to the question, “Do you consider yourself a religious person?”

Table 3

Means and Standard Deviations by Gender and Condition

	Bogus Pipeline				Control			
	Women		Men		Women		Men	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Intrinsic Religiosity	24.15	3.93	25.05	3.74	25.86	4.19	25.30	5.36
Total Sexual Behavior	12.89	3.96	16.59	4.28	13.20	3.91	16.65	5.02
Masturbation	2.13	1.13	3.77	1.02	2.16	1.22	3.30	1.22
Manual Stimulation	2.85	1.34	2.77	1.11	2.95	1.45	3.35	1.30
Oral Sex	2.24	1.15	2.55	.91	2.39	1.28	2.91	1.24
Penile-Vaginal Sex	2.56	1.41	2.50	1.44	2.65	1.43	2.95	1.43
Anal Sex	1.26	.71	1.41	.67	1.09	.37	1.48	1.04
Pornography Viewing	1.93	.97	3.59	1.18	2.05	1.20	2.78	1.04
Sexual Anxiety	13.31	3.72	9.32	4.09	12.61	5.33	9.35	5.09
Sexual Guilt	36.65	7.27	30.77	10.10	36.45	.79	32.43	9.63
Sexual Attitudes: Permissiveness	2.33	.75	3.08	.81	2.39	.84	3.03	.99
Sexual Attitudes: Birth Control	4.17	.89	4.15	.88	4.33	.88	4.20	.81
Sexual Attitudes: Communion	3.69	.51	4.04	.88	3.70	.67	3.93	.63
Sexual Attitudes: Instrumentality	2.95	.67	3.11	.63	3.00	.79	2.89	.80

Note. Higher scores indicate higher levels of intrinsic religiosity, higher frequency of participation in the specific sexual activities, higher levels of sex anxiety and sex guilt, and more favorable attitudes toward sexuality.

Table 4

Correlations Among Sexual Behaviors for Women and Men Combined

	1	2	3	4	5	6
1. Total Sexual Behavior	--					
2. Masturbation	.54***	--				
3. Manual Stimulation	.70***	-.00	--			
4. Oral Sex	.73***	.07	.64***	--		
5. Penile-vaginal Sex	.66***	.00	.59***	.55***	--	
6. Anal Sex	.47***	.29***	.23**	.38***	.09	--
7. Pornography	.53***	.61***	.05	.09	.01	.11

Note. $N = 143$. Sexual Behaviors = Measure of Sexual Behavior and Self-Discrepancies, higher scores indicate a higher frequency of participation in the specific sexual activity.

** $p < .01$, *** $p < .001$.

Table 5

Results for Two-Way ANOVAS on Intrinsic Religiosity and Sexual Behaviors

	Condition			Gender			Condition x Gender		
	<i>F</i>	ω^2	<i>p</i>	<i>F</i>	ω^2	<i>p</i>	<i>F</i>	ω^2	<i>p</i>
ROS-I	1.67	.00	.20	.05	.01	.83	.91	.00	.34
Total Sexual Behavior	.06	.01	.80	22.47	.13	.00	.50	.01	.87
Masturbation	1.10	.00	.30	44.46	.23	.00	1.42	.00	.24
Manual Stimulation	2.00	.01	.16	.43	.00	.51	.95	.00	.33
Oral Sex	1.47	.00	.23	3.85	.02	.05	.28	.00	.60
Penile-vaginal Sex	1.13	.00	.29	.23	.01	.63	.48	.00	.49
Anal Sex	.17	.01	.68	4.52	.02	.04	.93	.00	.34
Pornography Viewing	3.07	.01	.08	37.38	.20	.00	5.57	.02	.02

Note. $df = 1, 139$. Control Group: Women ($n = 44$) and Men ($n = 23$). Bogus Pipeline Group: Women ($n = 54$) and Men ($n = 22$). ROS-I = Religious Orientation Scale – Intrinsic subscale, higher scores indicate higher levels of intrinsic religiosity. Sexual Behaviors = Measure of Sexual Behavior and Self-Discrepancies, higher scores indicate a higher frequency of participation in the specific sexual activity.

Table 6

Correlations between Intrinsic Religious Orientation and Sexual Behaviors

	Control Group		Bogus Pipeline	
	Women	Men	Women	Men
Total Sexual Behavior	-.19	-.41	.16	-.12
Masturbation	-.07	.33	.19	-.37
Manual Stimulation	-.08	-.41*	.12	.26
Oral Sex	.08	-.33	.06	-.06
Vaginal Sex	-.31*	-.32	-.01	.08
Anal Sex	-.00	.17	.15	-.03
Pornography Viewing	.09	-.09	-.00	-.41

Note. Control Group: Women ($n = 44$) and Men ($n = 23$). Bogus Pipeline Group: Women ($n = 54$) and Men ($n = 22$). ROS-I = Religious Orientation Scale – Intrinsic subscale, higher indicate higher levels of intrinsic religiosity. Sexual Behaviors = Measure of Sexual Behavior and Self-Discrepancies, higher scores indicate a higher frequency of participation in the specific sexual activity.

* $p < .05$.

Table 7

*Correlations between Intrinsic Religious Orientation and Sexual Attitudes for the Bogus Pipeline**Condition*

	1	2	3	4	5
1. ROS-I	--	-.20	.01	.16	-.18
2. BSAS Permissiveness	-.57**	--	.01	-.06	.21
3. BSAS Birth Control	-.34	.18	--	.23	-.01
4. BSAS Communion	-.04	.16	.35	--	.03
5. BSAS Instrumentation	-.26	.56**	.10	.03	--

Note. Correlations for women ($n = 54$) are presented above the diagonal, and correlations for the men ($n = 22$) are presented below the diagonal. ROS-I = Religious Orientation Scale. BSAS = Brief Sexual Attitudes Scale.

** $p < .01$.

Table 8

Correlations between Sex Anxiety and Sex Guilt, Intrinsic Religious Orientation, and Sexual Behavior Discrepancies

	Entire Sample		Women		Men	
	SAI	Mosher	SAI	Mosher	SAI	Mosher
ROS-I	.22**	.38**	.17	.33***	.40**	.51***
Ideal Discrepancy						
Total	.17*	.27**	.13	.29**	.35*	.31*
Masturbation	-.00	.04	-.02	.09	.39**	.21
Manual Stimulation	.12	.20*	.05	.17	.23	.24
Oral Sex	.21*	.35**	.14	.33***	.26	.35*
Penile-Vaginal Sex	.12	.16	.13	.15	.07	.16
Anal Sex	.21*	.30***	.09	.15	.20	.38**
Pornography Viewing	.03	.03	.07	.18	.23	.02
Ought Discrepancy						
Total	.00	-.04	-.06	-.03	.10	-.12
Masturbation	-.11	-.18*	-.19	-.21*	.22	-.03
Manual Stimulation	.08	.03	.04	.02	.01	-.08
Oral Sex	.01	.01	-.04	.01	.00	-.09
Penile-Vaginal Sex	.15	.12	.08	.05	.04	.10
Anal Sex	-.07	.06	-.03	.13	-.11	-.02
Pornography Viewing	-.11	-.15	-.13	-.01	.08	-.29

Note. Entire Sample ($N = 143$); Women ($n = 98$); Men ($n = 45$). ROS-I = Religious Orientation Scale Intrinsic Religiosity. SAI = Sexual Anxiety Scale. Mosher = 10-item Brief Mosher Sex-Guilt Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 9

Significant Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Anxiety with Gender as a Covariate for Women and Men Combined

	B	SEB	β	<i>p</i>	Adj. R^2
Step 1					.12
Gender	-3.37	.82	-.35	.00	
Step 2					.18
Gender	-3.81	.79	-.37	.00	
ROS-I	.23	.09	.20	.01	
Ideal Total	.17	.09	.15	.06	
Step 3					.20
Gender	-3.85	.78	-.37	.00	
ROS-I	.24	.09	.21	.01	
Ideal Total	-.89	.53	-.76	.10	
ROS-I x Ideal Total	.04	.02	.92	.05	

Note. $N = 143$. ROS-I = Religious Orientation Intrinsic Religiosity Scale. SAI = Sexual Anxiety Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

Table 10

Nonsignificant Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Anxiety with Gender as a Covariate for Women and Men Combined

	B	SEB	β	<i>p</i>	Adj. <i>R</i> ²
Step 1					.12
Gender	-3.67	.82	-.35	.00	
Step 2					.18
Gender	-3.52	.80	-.34	.00	
ROS-I	.25	.09	.22	.01	
Ideal Oral	.58	.31	.14	.07	
Step 3					.18
Gender	-3.56	.80	-.34	.00	
ROS-I	.26	.09	.23	.00	
Ideal Oral	-.87	1.92	-.21	.65	
ROS-I x Ideal Oral	.06	.07	.36	.45	
Step 1					.12
Gender	-3.60	.82	-.35	.00	
Step 2					.16
Gender	-3.42	.83	-.33	.00	
ROS-I	.24	.09	.21	.01	
Ideal Anal	.72	.64	.09	.26	
Step 3					.18
Gender	-3.55	.86	-.34	.00	
ROS-I	.26	.09	.23	.01	
Ideal Anal	-1.38	4.03	-.18	.73	
ROS-I x Ideal Anal	.08	.16	.27	.60	

Note. *N* = 143. ROS-I = Religious Orientation Intrinsic Religiosity Scale. SAI = Sexual Anxiety Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

Table 11

Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Anxiety and Sex Guilt in Men

	B	SEB	β	<i>p</i>	Adj. <i>R</i> ²
SAI					
Step 1					.19
ROS-I	.34	.14	.34	.02	
Ideal Total	.26	.14	.27	.06	
Step 2					.26
ROS-I	.40	.14	.40	.01	
Ideal Total	-1.70	.90	-1.76	.07	
ROS-I x Ideal Total	.08	.03	2.03	.03	
Step 1					.22
ROS-I	.34	.14	.33	.02	
Ideal Masturbation	1.06	.46	.32	.03	
Step 2					.23
ROS-I	.24	.16	.24	.13	
Ideal Masturbation	-2.36	2.26	-.71	.37	
ROS-I x Ideal Masturbation	.13	.10	1.07	.19	
Mosher					
Step 1					.27
ROS-I	.97	.28	.46	.00	
Ideal Total	.43	.28	.21	.13	
Step 2					.37
ROS-I	1.14	.27	.53	.00	
Ideal Total	-4.40	1.78	-2.12	.02	
ROS-I x Ideal Total	.19	.07	2.34	.01	

Note. Men (*n* = 45). ROS-I = Religious Orientation Intrinsic Religiosity Scale. SAI = Sexual Anxiety Scale. Mosher = 10-item Brief Mosher Sex-Guilt Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

Table 12

Significant Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Guilt with Gender as a Covariate for Women and Men Combined

	B	SEB	β	<i>p</i>	<i>Adj. R</i> ²
Step 1					.06
Gender	-4.94	1.59	-.25	.00	
Step 2					.24
Gender	-5.36	1.43	-.28	-3.76	
ROS-I	.72	.16	.34	4.51	
Ideal Total	.46	.17	.21	2.81	
Step 3					.26
Gender	-5.42	1.41	-.28	.00	
ROS-I	.74	.16	.35	.00	
Ideal Total	-1.54	.97	-.70	.11	
ROS-I x Ideal Total	.08	.04	.92	.04	
Step 1					.06
Gender	-4.93	1.61	-.25	.00	
Step 2					.21
Gender	-4.94	1.47	-.25	.00	
ROS-I	.80	.17	.37	.00	
Ideal Manual Stimulation	.73	.56	.10	.19	
Step 3					.26
Gender	-4.99	1.43	-.25	-3.49	
ROS-I	.92	.17	.43	.00	
Ideal Manual Stimulation	-8.89	3.24	-1.24	.01	
ROS-I x Ideal Manual Stimulation	.38	.13	1.34	.00	

Note. *N* = 143. Religious Orientation Scale. Mosher = 10-item Brief Mosher Sex-Guilt Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

Table 13

Nonsignificant Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Guilt with Gender as a Covariate for Women and Men Combined

	B	SEB	β	<i>p</i>	Adj. <i>R</i> ²
Step 1					.06
Gender	-4.94	1.59	-.25	.00	
Step 2					.28
Gender	-4.34	1.40	-.22	.00	
ROS-I	.76	.15	.36	.00	
Ideal Oral	2.19	.55	.29	.00	
Step 3					.27
Gender	-4.34	1.41	-.22	.00	
ROS-I	.76	.16	.36	.00	
Ideal Oral	2.08	3.40	.27	.54	
ROS-I x Ideal Oral	.00	.13	.01	.98	
Step 1					.06
Gender	-5.01	1.61	-.26	.00	
Step 2					.24
Gender	-4.25	1.49	-.22	.01	
ROS-I	.79	.16	.37	.00	
Ideal Anal	2.84	1.15	.19	.02	
Step 3					.24
Gender	-4.68	1.55	-.24	.00	
ROS-I	.84	.17	.39	.00	
Ideal Anal	-4.32	7.23	-.29	.55	
ROS-I x Ideal Anal	.29	.29	.48	.32	
Step 1					.06
Gender	-4.94	1.59	-.25	.00	
Step 2					.23
Gender	-4.67	1.45	-.24	.00	
ROS-I	.85	.16	.40	.00	
Ought Masturbation	-.96	.41	-.17	.02	
Step 3					.24
Gender	-4.57	1.44	-.24	.00	
ROS-I	.77	.16	.36	.00	
Ought Masturbation	-5.69	2.50	-1.03	.03	
ROS-I x Ought Masturbation	.19	.10	.87	.06	

Note. *N* = 143. Religious Orientation Scale. Mosher = 10-item Brief Mosher Sex-Guilt Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

Table 14

Hierarchical Regressions Examining the Moderating Effect of Intrinsic Religiosity on the Relationship between Sexual Discrepancies and Sex Guilt in Women

	B	SEB	β	<i>p</i>	<i>Adj. R</i> ²
Step 1					.14
ROS-I	.58	.20	.28	.00	
Ideal Total	.48	.21	.22	.02	
Step 2					.14
ROS-I	.57	.20	.28	.00	
Ideal Total	-.56	1.15	-.26	.63	
ROS-I x Ideal Total	.04	.04	.49	.36	
Step 1					.19
ROS-I	.63	.19	.31	.00	
Ideal Oral	2.07	.63	.30	.00	
Step 2					.18
ROS-I	.63	.19	.31	.00	
Ideal Oral	3.06	3.92	.45	.44	
ROS-I x Ideal Oral	-.04	.15	-.15	.80	
Step 1					.16
ROS-I	.73	.19	.36	.00	
Ought Masturbation	-1.29	.48	-.25	.02	
Step 2					.20
ROS-I	.65	.19	.32	.00	
Ought Masturbation	-9.02	3.25	-1.75	.01	
ROS-I x Ought Masturbation	.31	.13	1.52	.02	

Note. Women ($n = 98$). ROS-I = Religious Orientation Scale. Mosher = 10-item Brief Mosher Sex-Guilt Scale. Ideal and Ought Discrepancies = Discrepancies between actual and ideal or ought on the Measure of Sexual Behavior and Self-Discrepancies.

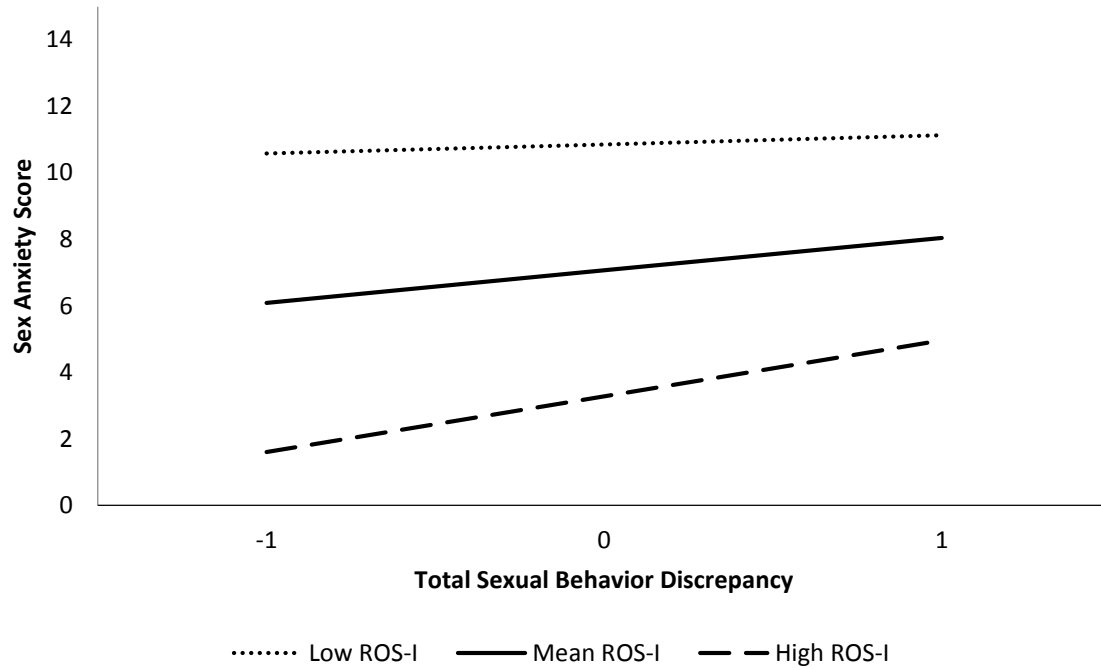


Figure 1. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual ideal total sexual behavior discrepancy and sex anxiety (SAI) with gender entered as covariate for women and men combined.

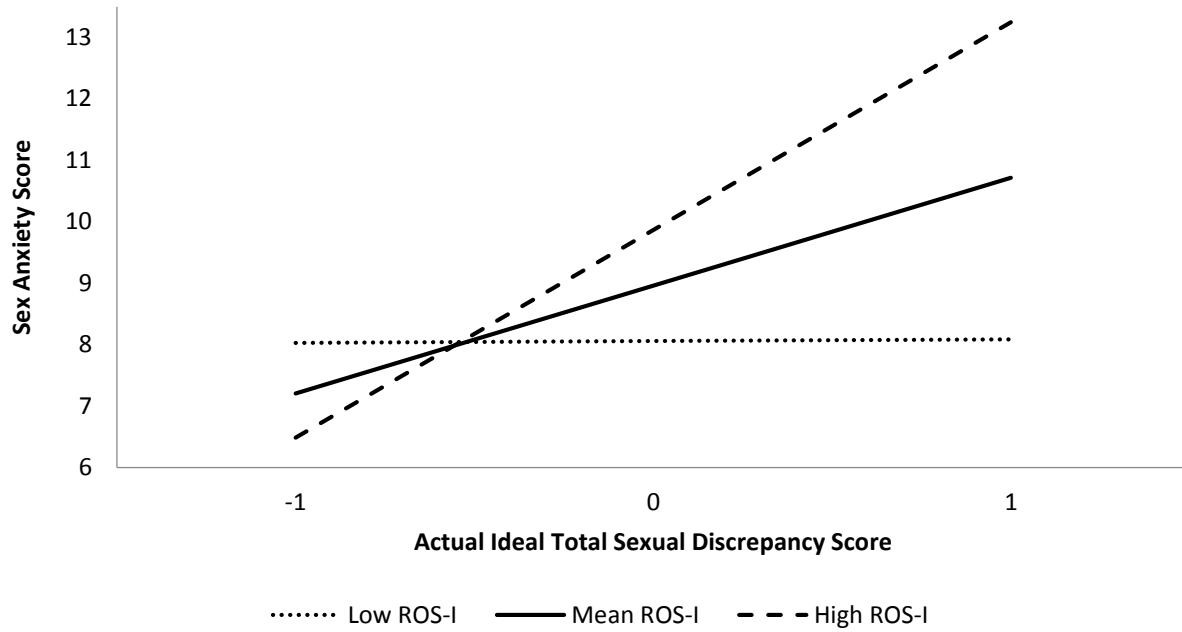


Figure 2. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual-ideal total sexual discrepancy and sex anxiety (SAI) in men.

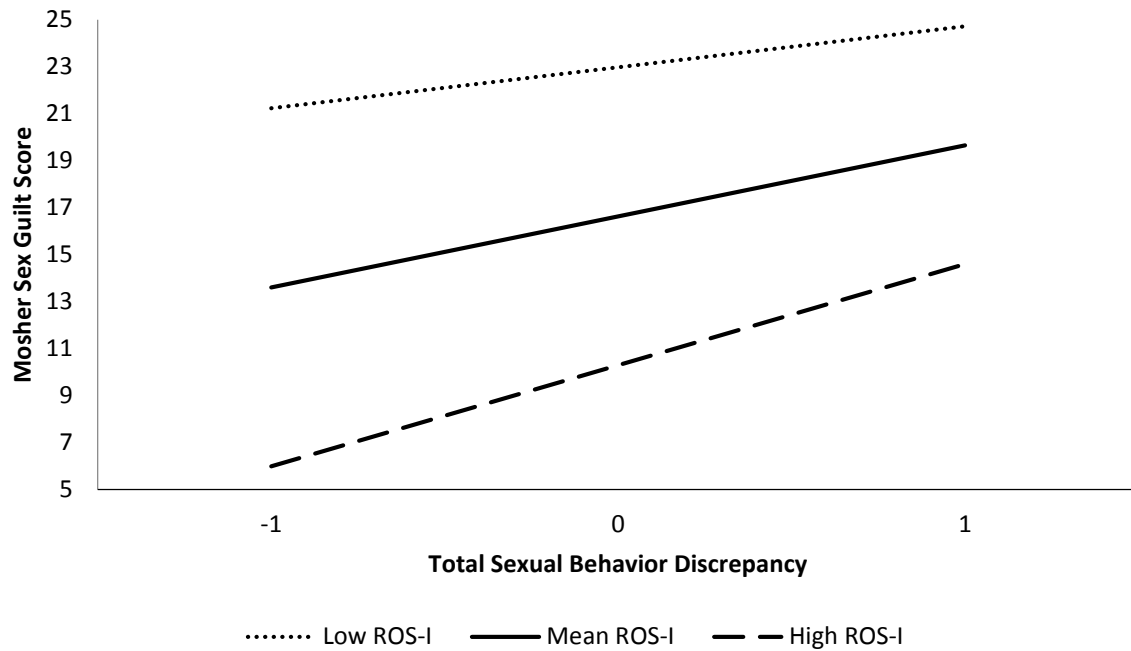


Figure 3. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual ideal total sexual behavior discrepancy and sex guilt (Moshher) with gender as a covariate for women and men combined.

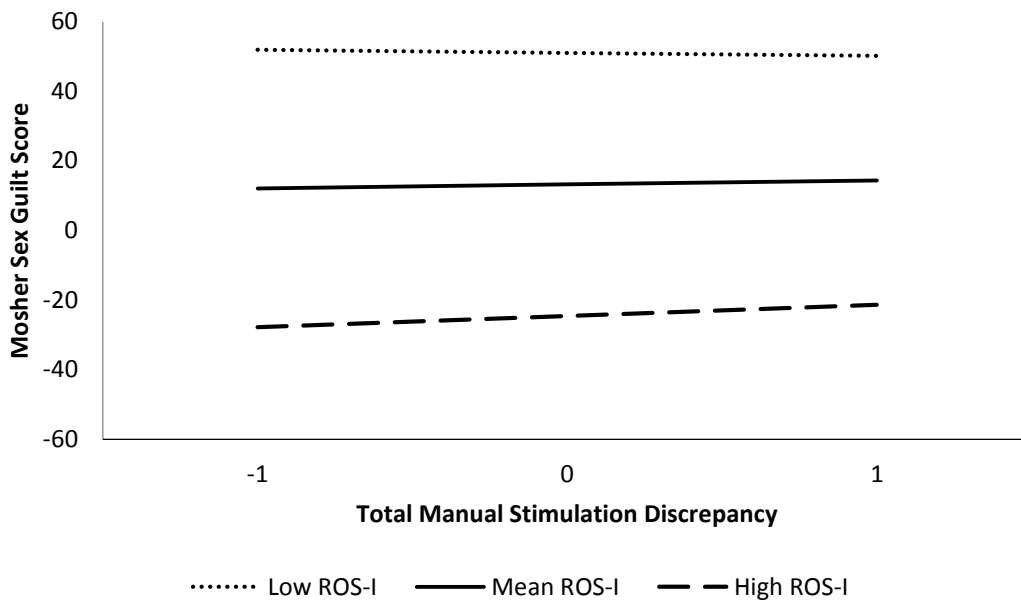


Figure 4. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual ideal manual stimulation discrepancy and sex guilt (Mosher) with gender as a covariate for women and men combined.

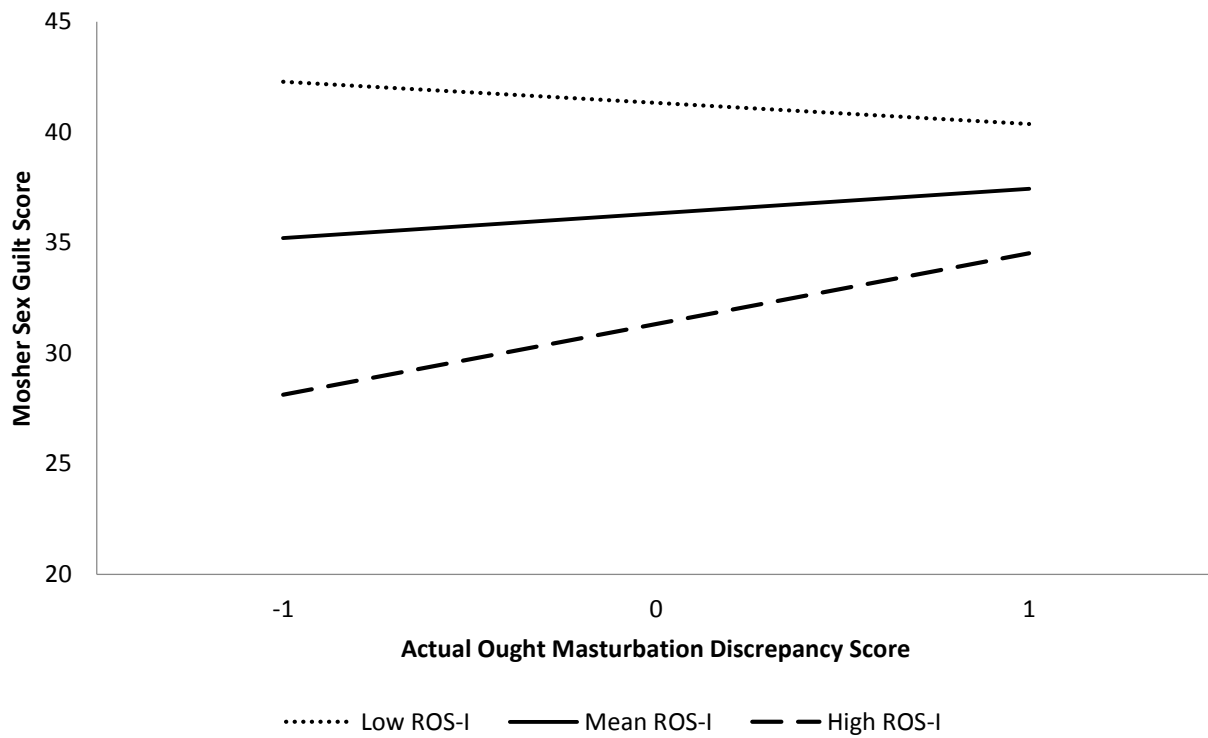


Figure 5. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual ought masturbation discrepancy and sex guilt (Mosher Sex Guilt Scale) in women.

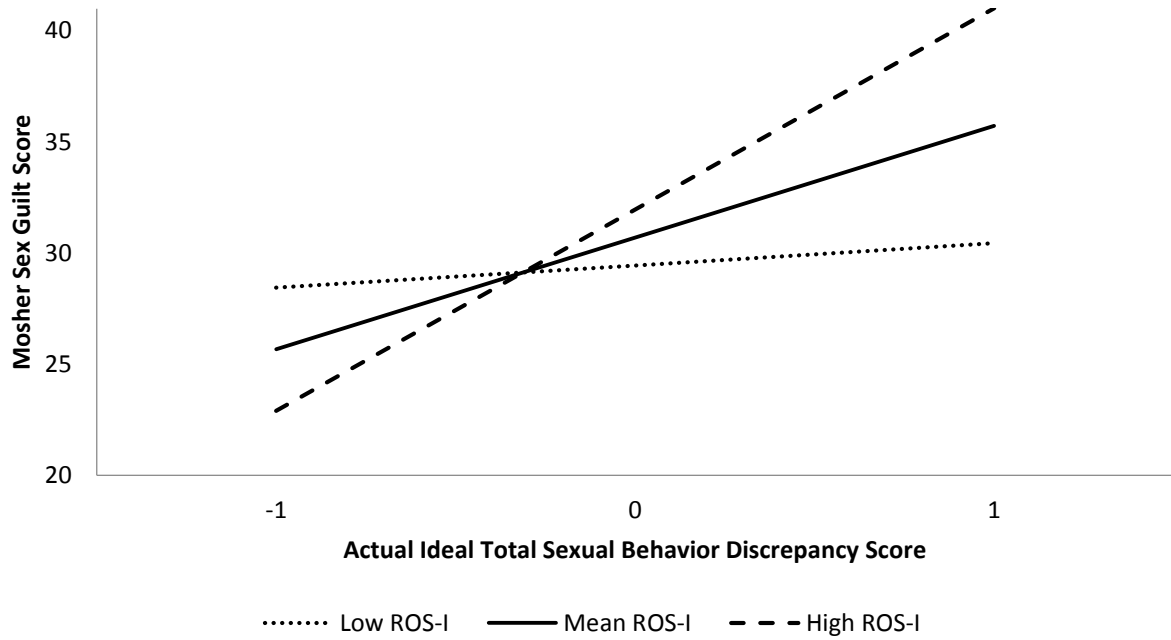


Figure 6. Moderating effect of intrinsic religiosity (ROS-I) on the relationship between actual ideal total sexual discrepancy and sex guilt (Mosher Sex Guilt Scale) in men.

Appendix A

Religious Orientation Scale – Revised

Please indicate the extent to which you agree or disagree with each item below using the following rating scale.

1	2	3	4	5
I strongly disagree	I disagree	I'm not sure	I tend to agree	I strongly disagree

1. I enjoy reading about my religion.*
2. I go to church because it helps me to make friends.**+
3. It doesn't much matter what I believe so long as I am good.*
4. It is important to me to spend time in private thought and prayer.*
5. I have often had a strong sense of God's presence.*
6. I pray mainly to gain relief and protection.**
7. I try hard to live all my life according to my religious beliefs.*
8. What religion offers me most is comfort in times of trouble and sorrow.**
9. Prayer is peace and happiness.**
10. Although I am religious, I don't let it affect my daily life.*+
11. I go to church mostly to spend time with my friends.**
12. My whole approach to life is based on my religion.*
13. I go to church mainly because I like seeing people I know there.**
14. Although I believe in my religion, many other things are more important.*+

* indicates intrinsic religiosity

** indicates extrinsic religiosity

+ indicates reversed-scored

Appendix B

Sex Anxiety Inventory

After reading each statement please select the option that best describes you.

Extramarital sex

- is OK if everyone agrees.
- can break up families.*

Sex

- can cause as much anxiety as pleasure.*
- on the whole is good and enjoyable.

Masturbation

- causes me to worry.*
- can be a useful substitute.

After having sexual thoughts

- I feel aroused.
- I feel jittery.*

When I engage in petting

- I feel scared at first.*
- I thoroughly enjoy it.

Initiating sexual relationships

- is a very stressful experience.*
- causes me no problem at all.

Oral sex

- would arouse me.
- would terrify me.*

I feel nervous

- about initiating sexual behavior.*
- about nothing when it comes to members of the opposite sex.

When I meet someone I'm attracted to

- I get to know him or her first.
- I feel nervous.*

When I was younger

- I was looking forward to having sex.
- I felt nervous.*

When others flirt with me

- I don't know what to do.*
- I flirt back.

Group sex

- would scare me to death.*
- might be interesting.

If in the future I committed adultery

- I would probably get caught.*
- I wouldn't feel bad about it.

I would

- feel too nervous to tell a dirty joke in mixed company.*
- tell a dirty joke if it were funny.

Dirty jokes

- make me feel uncomfortable.*
- often make me laugh.

When I awake from sexual dreams

- I feel pleasant and relaxed.
- I feel tense.*

When I have sexual desires

- I worry about what I should do.*
- I do something to satisfy them.

If in the future I committed adultery

- it would be nobody's business but my own.
- I would worry about my spouse finding out.*

Buying a pornographic magazine

- wouldn't bother me.
- would make me nervous.*

Casual sex

- is better than no sex at all.
- can hurt many people.*

Extramarital sex

- is sometimes necessary.
- can damage one's career.*

Sexual advances

- leave me feeling tense.*
- are welcomed.

When I have sexual relations

- I feel satisfied.
- I worry about being discovered.*

When talking about sex in mixed company

- I feel nervous.*
- I sometimes get excited.

If I were to flirt with someone

- I worry about his or her reaction.*
- I would enjoy it.

* Indicates sexual anxiety.

Appendix C

Brief Sexual Attitudes Scale

Please indicate the extent to which you agree or disagree with each item below using the following rating scale.

1	2	3	4	5
I strongly disagree	I disagree	I'm not sure	I tend to agree	I strongly agree

1. I do not need to be committed to a person to have sex with him/her.
2. Casual sex is acceptable.
3. I would like to have sex with many partners.
4. One-night stands are sometimes very enjoyable.
5. It is okay to have an ongoing sexual relationships with more than one person at a time.
6. Sex is a simple exchange of favors is okay if both people agree.
7. The best sex is with no strings attached.
8. Life would have fewer problems if people could have sex more freely.
9. It is possible to enjoy sex with a person and not like that person very much.
10. It is okay for sex to be just good physical release.
11. Birth control is part of responsible sex.
12. A woman should share responsibility for birth control.
13. A man should share responsibility for birth control.
14. Sex is the closest form of communication between two people.
15. A sexual encounter between two people deeply in love is the ultimate human interaction.
16. At its best, sex seems to be the merging of two souls.
17. Sex is a very important part of life.

18. Sex is usually an intensive, almost overwhelming experience.
19. Sex is best when you let yourself go and focus on your own pleasure.
20. Sex is primarily the taking of pleasure from another person.
21. The main purpose of sex is to enjoy oneself.
22. Sex is primarily physical.
23. Sex is primarily a bodily function, like eating.

Scoring Key	Items	
Permissiveness	1 – 10	0.89
Birth Control	11 – 13	0.79
Communion	14 – 18	0.56
Instrumentality	19 – 23	0.68

Appendix D

Measure of Sexual Behavior and Self-Discrepancy

After reading each statement please select the option that best describes you.

1. Thinking back to the beginning of this school year, how often did you masturbate?
 - Never
 - Once or twice a year
 - At least once a month
 - At least once a week
 - Daily

2. Think of yourself as you would truly like to be. If you were like that self, how often would you masturbate?
 - Never
 - Once or twice a year
 - At least once a month
 - At least once a week
 - Daily

3. Think of how other people expect you to be. If you were like other people expect you to be, how often would you masturbate?
 - Never
 - Once or twice a year
 - At least once a month
 - At least once a week
 - Daily

4. Thinking back to the beginning of this school year, how often did you manually stimulate your partner's genitals or how often did your partner manually stimulate your genitals?
 - Never
 - Once or twice a year
 - At least once a month
 - At least once a week
 - Daily

5. Think of yourself as you would truly like to be. If you were like that self, how often would you manually stimulate your partner's genitals or how often would your partner manually stimulate your genitals?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

6. Think of how other people expect you to be. If you were like other people expect you to be, how often would you manually stimulate a partner's genitals or how often would your partner manually stimulate your genitals?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

7. Thinking back to the beginning of this school year, how often did you engage in oral sex (mouth to genitals)?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

8. Think of yourself as you would truly like to be. If you were like that self, how often would you participate in oral sex (mouth to genitals)?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

9. Think of how other people expect you to be. If you were like other people expect you to be, how often would you engage in oral sex (mouth to genitals)?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

10. Thinking back to the beginning of this school year, how often did you engage in penile-vaginal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

11. Think of yourself as you would truly like to be. If you were like that self, how often would you engage in penile-vaginal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

12. Think of how other people expect you to be. If you were like other people expect you to be, how often would you engage in penile-vaginal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

13. Thinking back to the beginning of this school year, how often did you engage in anal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

14. Think of yourself as you would truly like to be. If you were like that self, how often would you engage in anal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

15. Think of how other people expect you to be. If you were like other people expect you to be, how often would you engage in anal intercourse?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

16. Thinking back to the beginning of this school year, how often did you engage in viewing pornography?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

17. Think of yourself as you would truly like to be. If you were like that self, how often would you engage in viewing pornography?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

18. Think of how other people expect you to be. If you were like other people expect you to be, how often would you engage in viewing pornography?

- Never
- Once or twice a year
- At least once a month
- At least once a week
- Daily

Appendix E

10-item Brief Mosher Sex-Guilt Scale

Please indicate the extent to which you agree or disagree with each item below using the following rating scale.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. Masturbation helps one feel eased and relaxed.*
2. Sex relations before marriage are good in my opinion.*
3. Unusual sex practices don't interest me.
4. When I have sexual dreams I try to forget them.
5. "Dirty" jokes in mixed company are in bad taste.
6. When I have sexual desires I enjoy them like all healthy human beings.*
7. Unusual sex practices are dangerous to one's health and mental condition.
8. Sex relations before marriage help people adjust.*
9. Sex relations before marriage should not be recommended.
10. Unusual sex practices are all right if both partners agree.*

* Indicates reverse scoring.

Appendix F

Demographics

What is your gender?

- Male
- Female
- Other (please specify) _____

What is your age?

What is your race/ethnic background?

- White/Caucasian
- Hispanic/Latino(a)
- Asian/Asian American
- Black/African American
- Native American/American Indian
- Multiracial (please specify) _____
- Other (please specify) _____

What is your year in school?

- Freshman
- Sophomore
- Junior
- Senior

What kind of intimate relationship are you in now?

- Married
- Dating
- Not married but living with someone
- Divorced
- Widowed
- Not currently in an intimate relationship

What is your sexual orientation?

- Heterosexual
- Homosexual
- Bisexual
- Asexual
- Other (please specify) _____

What is your religious denomination? (Please select the one item that best describes your current religious identification)

- Agnostic
- Atheist
- Buddhist
- Christian- Catholic
- Christian- Lutheran
- Christian- Methodist
- Christian- Baptist
- Christian- Other Protestant
- Christian- LDS (Mormon)
- Christian- Other Denomination
- Hindu
- Muslim/Islam
- Jewish
- Taoist
- Pagan/Wiccan
- Unitarian-Universalist
- Other (Please Describe) _____

Appendix G

Control Condition Script for Bogus Pipeline Study

Welcome to the biopsychosocial research lab. I'm _____, Dr. Anderson's Research Assistant. I have a consent form for you to read before we can start the study.

Are you willing to participate in the study? Do you have any questions?

For our study today you will be filling out a computer-administered survey. The way this survey is set up, one question will appear on the screen at a time. When you have answered the question you will click on the "next" button to move to the next question. Are you ready to begin the survey? Okay. Just let me know when you have finished.

Thank you for participating. Before you leave, I need to tell you a bit more about the research. *Provide debriefing using supplied script.*

Appendix H

Experimental Condition Script for Bogus Pipeline Study

Welcome to the biopsychosocial research lab. I'm _____, Dr. Anderson's Research Assistant. I have a consent form for you to read before we start the study.

Are you willing to participate in the study? Do you have any questions?

For our study today you will be filling out a computer-administered survey. The way the survey is set up, sections of questions will appear on the screen at a time. When you have answered all of the questions on the screen you will click on the "next" button to move to the next section of questions.

Before you begin the survey, I am going to attach one electrode to the inside of your forearm and another set to your middle and index finger. These electrodes will measure your physiological response as you answer each question. So, as you answer question number 1, we will record your feedback with our PhysioTrak software.

Essentially, this equipment functions as an advanced type of lie detector to determine how honest you are when you answer each question. One pattern of physiological responses is an indicator of a truthful reply while another indicates a dishonest reply.

I will give you an example, which will also allow me to calibrate the software. I am going to step behind the privacy curtain for a second to start the software. Okay, I am just going to ask you a couple of questions. I want you to respond truthfully to the first question. Okay, question number one. Is your name _____? Good, now for the second question. I want you to lie when you answer this question. Do you attend Indiana State University? Very good.

Just one second. As you can see on the screen, the patterns of physiological response are different for honest and dishonest responses. Are you ready to begin the actual survey? I am

going to set the software to automatically record your responses. Just let me know when you have finished the survey so I can end your session.

Okay. Thank you for participating. Before you leave, I need to tell you a bit more about the research. *Provide debriefing using supplied script.*

Appendix I

Informed Consent – Control Condition

You are being asked to participate in a study on religion and sexual behavior. This research is being conducted by master's student, Ann E. Jones and Dr. Veanne Anderson of the Psychology Department at Indiana State University. Your participation in this study is entirely voluntary. Please read the information below and ask questions about anything you do not understand, before deciding whether or not to participate.

PARTICIPANT REQUIREMENTS

To participate in this study, you must be at least 18 years old.

PROCEDURE

If you volunteer to participate in this study, you will give verbal consent to the research assistant. If you agree, you will be asked to complete a series of computer based questionnaires pertaining to sexual behavior and religion. You will also be asked questions about your age, ethnicity, gender, sexual orientation, and education level. The survey will take approximately 45-60 minutes to complete. Your responses to the questionnaire will be kept in a secure database and we will not be collecting any identifying information. Only the researchers will have access to this database and it will be secured with a password.

PARTICIPANT RISKS AND BENEFITS

Risks of participation are minimal and not expected to be greater than what you encounter in everyday activities. You may experience some mild anxiety when completing some of the questions due to examining your own attitudes and behaviors. The benefits of participation include more exposure to psychological research and encouragement to think about your

attitudes related to sexual behavior and religion. Also, you will be contributing to a broader understanding of religion and sexual behavior.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary and you may choose to withdraw at any time without consequence. If you decide to withdraw in the middle of the survey, you may do so. You may also refuse to answer any questions you do not want to answer.

PARTICIPANT INCENTIVES

Participants will receive extra credit or class credit in their psychology classes for their participation. Participants will not be penalized if they withdraw from the study and will still receive extra credit or class credit if they withdraw from the study. Participants will not be penalized if they decline participation.

RIGHTS OF RESEARCH PARTICIPANTS

This project has been reviewed by the Institutional Review Board (IRB) of Indiana State University. The study has been determined to adequately safeguard the participant's privacy welfare, civil liberties, and rights. If you have any questions about your rights as a research participant, you may contact the Indiana State University institutional Review Board (IRB) by mail at Institutional Review Board, Indiana State University, 114 Erickson Hall, Terre Haute, IN 47809; by phone at (812) 237-8217; or by email at irb@indstate.edu.

IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about this research, please contact the project supervisor, Veanne Anderson, Department of Psychology, Indiana State University at (812) 237-2459, or by email at vanderson1@indstate.edu.

You may also contact the primary researcher, Ann E. Jones in the Department of Psychology at 812-237-2446, or by email, ajones47@sycamores.indstate.edu.

Appendix J

Informed Consent – Bogus Pipeline Condition

You are being asked to participate in a research study religion and sexual behavior. This research is being conducted by master's student, Ann E. Jones and Dr. Veanne Anderson of the Psychology Department at Indiana State University. Your participation in this study is entirely voluntary. Please read the information below and ask questions about anything you do not understand, before deciding whether or not to participate.

PARTICIPANT REQUIREMENTS

To participate in this study, you must be at least 18 years old.

PROCEDURE

If you volunteer to participate in this study, you will give verbal consent to the research assistant. If you agree, you will be asked to complete a series of computer based questionnaires pertaining to sexual behavior and religion. You will also be asked questions about your age, ethnicity, gender, sexual orientation, and education level. Additionally, while you are answering questions, researchers will monitor your physiological responses. In order to do this, one electrode will be connected to your forearm with hypoallergenic, non-latex tape and a set of hypoallergenic, non-latex finger cuffs housing additional electrodes will be attached to your middle and index fingers. The survey will take approximately 45-60 minutes to complete. Your responses to the questionnaire will be kept in a secure database and we will not be collecting any identifying information. Only the researchers will have access to this database and it will be secured with a password.

PARTICIPANT RISKS AND BENEFITS

Risks of participation are minimal and not expected to be greater than what you encounter in everyday activities. You may experience some mild anxiety when completing some of the questions due to examining your own attitudes and behaviors. The benefits of participation include more exposure to psychological research and encouragement to think about your attitudes related to sexual behavior and religion. Also, you will be contributing to a broader understanding of religion and sexual behavior.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary and you may choose to withdraw at any time without consequence. If you decide to withdraw in the middle of the survey, you may do so. You may also refuse to answer any questions you do not want to answer.

PARTICIPANT INCENTIVES

Participants will receive extra credit or class credit in their psychology classes for their participation. Participants will not be penalized if they withdraw from the study and will still receive extra credit or class credit if they withdraw from the study. Participants will not be penalized if they decline participation.

RIGHTS OF RESEARCH PARTICIPANTS

This project has been reviewed by the Institutional Review Board (IRB) of Indiana State University. The study has been determined to adequately safeguard the participant's privacy welfare, civil liberties, and rights. If you have any questions about your rights as a research participant, you may contact the Indiana State University institutional Review Board (IRB) by mail at Institutional Review Board, Indiana State University, 114 Erickson Hall, Terre Haute, IN 47809; by phone at (812) 237-8217; or by email at irb@indstate.edu.

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If you have any questions or concerns about this research, please contact the project supervisor, Veanne Anderson, Department of Psychology, Indiana State University at (812) 237-2459, or by email at vanderson1@indstate.edu.

You may also contact the primary researcher, Ann E. Jones in the Department of Psychology at 812-237-2446, or by email, ajones47@sycamores.indstate.edu.

Appendix K

Bogus Pipeline Manipulation Check Questions - Experimental Condition

Please answer the following questions about the study you just participated in.

1. How accurate do you think this machine was in measuring your true attitudes?
 - Absolutely none
 - A little
 - Moderate
 - Quite a bit
 - A great deal

2. How much influence do you think the physiological equipment had on your responses?
 - Absolutely none
 - A little
 - Moderate
 - Quite a bit
 - A great deal

3. How much pressure did you feel from the physiological equipment to answer questions honestly?
 - Absolutely none
 - A little
 - Moderate
 - Quite a bit
 - A great deal

4. Have you ever heard of a bogus pipeline procedure?
 - Yes
 - No

5. Have you heard about the procedures in this particular study?
 - Yes
 - No

Appendix L

Experimental Debriefing Statement

The goal of this study was to examine the effect that social desirability plays in self – reports of religious or spiritual beliefs and behaviors. We were especially interested in whether religiosity is related to guilt, and whether that guilt, in turn, influences people’s sexual behavior and attitudes. It has been found that people often describe their behavior in a socially desirable way, or in a way that may reflect more positively on themselves. In this study, you were randomly assigned to the experimental group. You were led to believe that we would be tracking physiological markers which could indicate if you were responding truthfully to the questionnaire items. However, no such markers were measured. This is known as a bogus pipeline procedure. This deception was necessary in order for the procedure to be effective in influencing participants to answer more truthfully than they would if they did not believe that their true opinions would be discovered. Do you have any concerns about the deception used during this study? It is vital to this study that future participants are not told about the procedures of the bogus pipeline condition. We urge you to please not discuss this study with others.

Thank you for your participation in this study. If you have any questions or if you are interested in the results of the study please contact Veanne N. Anderson, Department of Psychology at 812-237-2459. You can also email her at Veanne.anderson@indstate.edu.

Appendix M

Control Debriefing Statement

The goal of this study was to examine religious attitudes and beliefs and their connection to sexual behavior practices and attitudes in college students. We were especially interested in whether religiosity is related to guilt, and whether that guilt, in turn, influences people's sexual behavior and attitudes.

Thank you for your participation in this study. If you have any questions or if you are interested in the results of the study please contact Veanne N. Anderson, Department of Psychology at 812-237-2459. You can also email her at veanne.anderson@indstate.edu.