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# An Exception in Risk-Taking Behavior: Religiosity as a Situation-Specific Predictor of Sexual Risk-Taking

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An Exception in Risk-Taking Behavior:  
Religiosity as a Situation-Specific Predictor of Sexual Risk-Taking

An Undergraduate Honors Thesis  
Submitted in Partial Fulfillment of  
University Honors Program Requirements  
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by  
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### **Abstract**

The relationship between religiosity and sexual risk-taking has been widely studied but conclusive consensus on the influence has not been established. Part of this stems from how religiosity is measured. The current study analyzes how religious fundamentalism, one way of measuring religiosity, and risk-taking propensity predict sexual risk-taking. We used a wide range of risk-taking propensity measures to better understand their role and the unique role of religious fundamentalism in this risk-taking area. The current study aims to assess whether religious fundamentalism has potential to be a situation-specific predictor of sexual risk-taking. To test this, 17 participants completed risk-taking propensity measures, a religious fundamentalism scale, and self-reported sexual risk-taking behaviors. We found that most risk-taking propensity measures did not correspond with one another and few predicted sexual risk-taking. Religion alone did not play a significant role in predicting sexual risk-taking but did demonstrate a contribution in a larger model including other predictors. There was limited support for religious fundamentalism as a situation-specific predictor. Because of a limited sample size and methodological issues, few conclusions could be drawn from the current study.

**Key Words:** Religiosity, sexual risk-taking, risk-taking, religious fundamentalism, risk, sex, religion, psychology.

### **Introduction**

Together, the three largest religions in the world, Hinduism, Islam, and Christianity, comprise around five billion followers. Their long history has influenced human behavior and thought in many ways; religion interacts with all other disciplines to some level. Each religion has unique doctrines which detail acceptable actions for followers. We do not have to search deeply to find each religion's view of sexual behaviors. For Hindus, one of the four *parusarthas*, or "goals of human life", is *Kama*, or "desire". The *Kama Sutra*, the Hindu book remarking on those desires, speaks more broadly on desires but is well known for its sexual preaching. While the *Kama Sutra* discusses many topics, it remarks on specific sexual actions for a substantial portion of the book. Similarly, Christian religion speaks with some ambiguity about appropriate sexual behavior in two (the sixth and ninth) of the Ten Commandments, a foundational text of the Judeo-Christian religions describing principles of their faith. Islam has doctrine throughout the *Qur'an* and *Hadith* (actions, thoughts, etc. approved by Mohammed) which detail appropriate sexual behavior. Importantly, a religion is meant to be all inclusive, acting as a wholistic set of ideological principles for people to follow. While people vary in how strictly they adhere to religious jurisprudence, the teachings of these religions have been prevalent in society for many centuries.

### Introduction

Religious beliefs have been intertwined with social and legal aspects of society for just as long. In the United States, this intersection has largely been with Christianity. In 2012, around 77% of adults identified as Christian and only 5% as other religions (Newport, 2012). In the past, the percentage of Christians has been even higher. It is not surprising, then, that Christian beliefs have pervaded social and political life in the United States. One need only to look at the beginning of the Declaration of Independence to know this has happened from the very beginning: "...Endowed by their Creator with certain unalienable rights..." Religious beliefs have shaped the conversation on topics as disparate as racial inequality (Edgell & Tranby, 2007), space exploration (Ambrosius, 2015), and gun laws (Merino, 2018). This is the case even though those specific topics are not mentioned in religious texts. It should come as no surprise that religious beliefs have an impact on topics that *are* mentioned specifically by religious doctrine. Sex is one topic that is heavily discussed in religious texts. An important concept of Christianity is the "Divine Marriage", that which is between a man and woman. While sex is involved in Christian marriage, it has been viewed historically as a "temporary function" for the reproduction of children (Piper, 1960, p. 107). This belief system led to laws regulating prostitution, homosexuality, and divorce along with social structures confining sex to specific people and actions. This long history of sexual restriction based on religion has greatly impacted the attitudes of Americans toward sex (DeLameter, 1981). Recently, homosexual marriage has been legalized in the United States and elsewhere and acceptance of homosexuality continues to rise. Nevertheless, there is still a negative relationship between self-described religious adherence and acceptance of homosexuality (Jackle & Wenzelburger, 2015). It would make sense that these beliefs extend across all sexual behaviors

commented upon by their religion. Yet, people's beliefs are more complex and are not always consistent with religious practices.

An inverse relationship between religiosity and liberal sexual attitudes has been found consistently over time (McMillen, Helm, & McBride, 2011). This has been found in youth on a range of religiosity measures including frequency of service attendance, religious adherence, and religion in daily life (Lefkowitz et al., 2004). McMillen, Helm, and McBride (2011) found that two measures, internal (i.e. personal faith) and external (i.e. adherence to ascetic actions) religiosity, were negatively correlated with positive attitudes towards a range of sexual behaviors amongst college students. As expected, religious people are more conservative in their sexual attitudes. The negative relationship has been well established in adolescents (Sheeran et al., 1993) and college students (Brelsford, Luquis, & Murray-Swank, 2011). While an inverse relationship may seem intuitive, how religiosity is measured makes a difference. McMillen, Helm, and McBride (2011), referenced above, took a third measurement called the "Quest scale" which sought to measure the extent to which people sought religion as a way to answer existential questions (e.g. "What should one do to lead a happy life?"). The Quest scale was not negatively related with as many sexual attitudes and was a less powerful predictor for the correlated attitudes than the internal or external scales. They posit that people high in the Quest measure view religion as a surreal experience and are less negative about certain sexual behaviors because of the sensations sex can bring. It did not show that this concept of religiosity differed in direction but varied in the strength of the relationship.

While most evidence suggests high religiosity is related to conservative sexual attitudes, religiosity is not always related to more conservative sexual behaviors. Haglund and Fehring (2010) found that people who regularly attended religious services were less likely to engage in

sexual activity. However, a later study found this to be only true for women (Luquis, Brelsford, & Rojas-Guyler, 2012). Luquis, Brelsford, and Rojas-Guyler (2012) also found that heightened private religious practices (activities which demonstrate faith but do not involve other people) were negatively related to sexual intercourse engagement for both sexes. This may vary by age group. A study of college students found no correlation between religious orientation (on a variety of measures) and sexual behaviors (Poulson et al., 1998). Sinha, Cnaan, and Gelles (2007) found that adolescents who attended a religious youth group were less likely to engage in sexual activity but that those perceived religion as highly important in their life were *more* likely to engage in sexual activity. Because sex is not inherently risky, it is important to consider specific risky behaviors during sex, for example, sex without condom use. Lefkowitz et al. (2004) found that people who are supportive of their religion's sanctions on sexual behaviors have a decreased likelihood of using a condom as emerging adults. Youth who were sexually active were more likely to perceive condom use as acceptable while most religious measures were not related. As demonstrated by these studies, the relationship between religion and sexual behavior is not particularly clear.

On the other hand, it has been generally established that people higher in religiosity engage in less risk-taking activities (Abbott-Chapman & Denholm, 2001; Isralowitz & Reznik, 2015; Varma et al., 2017). Religiosity is more powerful if it is intrinsic (held by oneself without coercion) than extrinsic (done as part of a social context), though nonetheless a protective factor for both (Fletcher & Kumar, 2014). Cheung and Yeung (2011), in a meta-analysis of 40 studies, found that religion is positively related to constructive behaviors and negatively related to destructive behaviors and the effect was stronger for private religious involvement. Simple religious adherence such as a service attendance (an extrinsic aspect) is protective for some risk-taking behaviors but is not as consistent as intrinsic beliefs. Other studies have come to similar conclusions, for

example, the salience of religion to the individual has been shown to better predict marijuana use than religious involvement, peer substance use, or parent monitoring (Longest & Vaisey, 2008). Neymotin and Downing-Matibag (2013) found that religiosity was a protective factor for marijuana and other drug use, but it did not correlate with sexual risk-taking behavior such as sex without a condom. It is important to note the impact of religious measurement in the literature. Above studies observed religiosity as service attendance, private practice, intrinsic and extrinsic beliefs, and involvement during youth. Another measurement type is religious fundamentalism. This measures people's belief in their religion as a fundamental truth in the world that cannot be overridden (Yelderman & Miller, 2017).

When measuring wholistic risk-taking, most scales account for a range of activities typically including drug use, smoking, alcohol use, and sex. Risky sexual behavior has been found to correlate with other risk-taking behaviors such as those listed above (Ceperich, Nettleman, & Johnson, 2008; Cottonham, Madson, Nicholson, & Mohn, 2018; Kuortti & Kosunen, 2009). However, other studies have found conflicting results. Szrek et al. (2012) took measurements from four scales: the Dohmen (a one-question scale), HL (a betting game), the Balloon Analogue Risk Task (BART) (a monetary based betting game), and the Domain Specific Risk Taking scale (DOSPERT) (hypothetical risk-taking activities). They found that risky sex was not associated with the other measured risk-taking behaviors: smoking, problem drinking, and seat belt non-use. Risky sex did not correlate with *any* of the risk-taking propensity measures, either (Szrek et al., 2012). These studies imply that there is a differentiation between sexual and non-sexual risk-taking and seek to find what can predict risk-taking in one category but not the other. Other studies do not analyze risk-taking in these two categories, but instead seek to understand what variables will predict all risk-taking in an individual.

A range of risk-taking measures have correlated with sexual and non-sexual risk-taking in past studies. Risk-taking propensity measures such as the BART task (Lejuez, Aklin, Zvolensky, & Pedulla, 2003), DOSPERT (Weber, Blais, & Betz, 2002), risk-taking propensity measures of personality (Turchik, Garske, Probst, & Irvin, 2010), and a risk-taking measure, the Youth Risk Behavior Survey (YRBS) (Lee et al., 2001), have been found to predict risk-taking in previous studies. The YRBS provides a wide examination of risk-taking behavior in the areas of injuries, tobacco use, alcohol and drug use, dietary behavior, and physical activity (Lee et al., 2001). Personality measures include the Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ) (Torrubia et al., 2001), the Sensation Seeking Scale (Zuckerman, 1994), and Barratt Impulsiveness Scale (Patton, Stanford, & Barratt, 1995). While these are similar in their attempt to find a basis for risk-taking in personality, they each seek to describe a unique aspect of personality that is related to risk.

Comparing the interaction of risk-taking propensity and religious beliefs sets up a comparison of psychological development and social cognition. Throughout a person's life, cognitive psychological development will impact all decision-making whereas social influences, which stem from life experience, will only alter decision-making in related contexts. Boyer and Byrnes (2009) argue that a major component of risk-taking decisions comes from decision-making processes. These processes rely on a range of developmental and social cognition factors including people's beliefs about rewards and consequences, emotions, psychological development, and other social factors. Examples of overarching psychological development include Impulsivity and Sensation Seeking among other personality descriptors. However, people's beliefs about rewards and consequences can also be shaped by a range of social factors such as religious beliefs. While these may not alter brain development, they will shape a person's knowledge of potential outcomes

for engaging in an activity. People will be exposed to different beliefs about risk-taking activities and thus their own cognitions are not uniform. The current study seeks to understand whether religious beliefs play a role in shaping cognition about sexual risk-taking.

Religiosity's relationship with risk-taking has not been established clearly enough to support it as a situation-specific (i.e. varies by type of risk-taking activity) or domain-general (i.e. riskier people are more risk-taking in all situations) (Boyer & Byrnes, 2009) predictor. Social influences can alter decision-making in different ways. If the factor only changes decision-making in a single type of situation, that is considered situation-specific. Many studies have found support for non-religious situation-specific predictors of risk-taking. Szrek et al. (2012) tested four risk-taking propensity measures and found that only one was significantly related to health risk-taking behaviors (which included sexual risk-taking); the one propensity measure was a single item DOSPERT score. Other researchers have found that religion will predict risky decision-making only in certain situations like starting marijuana use (Longest & Vaisey, 2008). Domain-general factors are those that predict risk-taking in many areas. Studies that present risk-taking propensity measures propose that those specific qualities or variables will predict risk-taking in all situations to varying degrees (Torrubia et al., 2001; Patton, Stanford, & Barratt, 1995; Lejuez, Aklin, Zvolensky, & Pedulla, 2003). Any propensity measure or variable which can predict a range of risk-taking behaviors acts as a domain-general factor.

### **Present Study**

Inconsistencies in the sexual risk-taking literature suggest that there is not a great understanding of who is going to take sexual risks. Risk-taking propensity measures are not incredibly consistent with one another and vary between sexual and non-sexual risk-taking. Religion has been studied as a unique contributor but fails to consistently predict sexual risk-taking

or non-sexual risk-taking. The relationship between risk-taking propensity and religion has not been particularly well studied as it relates to sexual risk-taking. The present study seeks to understand the extent to which religious fundamentalism might act as a situation-specific predictor. Analyzing risk-taking propensity measures and religiosity will develop more knowledge on whether this factor can fill in for the gaps in previous research. Should religious fundamentalism play a role in predicting sexual risk-taking behavior but not general risk-taking, this would support a situation-specific theory. Because this study is only looking at sexual risk-taking, we are not able to say whether any risk-taking propensity measures are acting as domain-general predictors. This would require that we look at multiple types of risk-taking. For the same reason, it is also limited to the extent that religious fundamentalism can be fully interpreted as a situation-specific predictor. This study will, however, give guidance to the potential of religious fundamentalism to help clarify the gaps in risk-taking prediction.

In order to study this, we used religious fundamentalism and risk-taking propensity measures to observe whether religious fundamentalism will enhance our ability to predict sexual risk-taking. A range of risk-taking propensity measures were analyzed along with a religious fundamentalism scale. Self-reported sexual risk-taking behaviors were compared to the different risk-propensity scales. While there are multiple ways to measure religion, we utilized a fundamentalist measure to better grasp people's adherence to religious doctrine and ideological adherence. Fundamentalism is unique because there is a large amount of religious doctrine on sexual behavior but little on other types of modern risk-taking activities. Religious fundamentalists should theoretically desire to maintain those accepted sexual practices but should have a less clear belief on topics not addressed in their faith. We predict that, because religiosity has been found to act as a protective factor (Fletcher & Kumar, 2014), religious fundamentalism will be negatively

related to risk-taking while the risk-taking propensity measures will have positive relationships. Regarding the relationship with risk-propensity measures, we expect that religious fundamentalism will be a situation-specific predictor in that religious fundamentalism will explain differences in sexual risk-taking that other risk-taking propensity measures cannot.

## **Method**

### **Participants**

Data was collected from a pool of undergraduate students through a large Midwestern state university's online registration website for the psychology department. Data collection occurred from the fall of 2018 through early 2019. As part of a larger study, this study was broken into two parts; Part 1 was online only, and Part 2 was done in person. Because of this setup, few participants completed both parts of the study. One hundred and thirty-six participants completed Part 1, but only 17 completed Part 2 and were able to be analyzed. The majority, 15 (88.2%), were women and 2 were men (11.8%). Twelve of the participants were white (70.6%) with 4 participants being Asian/Pacific Islander (23.5%) and 1 identified as two or more ethnicities (5.9%). Fourteen (82.4%) of responding participants were heterosexual and 3 identified as bisexual (17.6%). The self-described religion of the participants varied greatly. There were 3 (17.6%) who identified as Other Christian, 3 (17.6%) as Agnostic, 3 (17.6%) as Nothing in Particular, 2 (11.8%) as Mainline Protestant, 2 (11.8%) as Catholic, 2 (11.8%) as Evangelical Protestant, 1 (5.9%) as Buddhist, and 1 (5.9%) as Other: Lutheran. As a sum, 10 (58.8%) identified as Christian and 6 (35.3%) did not identify with any sect or denomination.

### **Procedures**

Part 1 of the study took place solely online on the participant's device through the department's online registration website. The first part consisted entirely of survey questions. As

this was part of a larger study, the surveys used in this research on Part 1 were the Sensitivity to Punishment and Sensitivity to Reward Questionnaire, Sensation Seeking Scale, Barratt Impulsiveness Scale, the Revised Religious Fundamentalism Scale, and demographic questions.

Part 2 was taken in person and consisted of a task and additional surveys. Only participants who had completed Part 1 were asked to return for Part 2. Those who completed Part 1 were asked to complete Part 2 within a week after the completion of Part 1. As noted, there were fewer participants who completed this part of the study. The surveys utilized in Part 2 were the Youth Risk Behavior Survey (YRBS) and Sociosexual Scale. These measures were taken by computer in person.

## **Measures**

### **Demographics.**

*Demographics.* In the demographics portion of the study, participants chose their religious belief from nineteen options. This included most major world religions and Christian denominations as well as an option to write a different belief not listed. There were also options for non-religious people. Participants listed their race/ethnicity, gender identity, and sexual orientation. These were all asked during Part 1 of the study.

### **Risk-taking propensity measures.**

*Sensitivity to Punishment and Sensitivity to Reward Questionnaire.* Part 1 included multiple risk-taking propensity measures. The first was the Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ). This questionnaire asks questions about people's interest in/feelings about a range of activities which do not directly involve risk-taking in a yes/no format. There are two scales within the SPSRQ: Sensitivity to Punishment (SP) and Sensitivity to Reward (SR). The questionnaire consisted of 48 questions, 24 for each scale. Each "yes" answer

is worth 1 point for a range of 0-24 for each scale (Torrubia, et al., 2001). Higher scores indicate higher sensitivity to punishment/reward when making decisions. There is a separate score for SP and SR and there are no subscales. O'Connor, Colder, and Hawk (2004) noted the good reliability of both scales by summing results of multiple studies with  $\alpha$  values between 0.76 and 0.84.

*Sensation Seeking Scale.* The next measure was the Sensation Seeking Scale (SSS) which measures the extent to which people desire to engage in sensational activities (Zuckerman, 1994). Twenty-nine questions are given in a true/false format. There are four sections of questions divided into types of sensation seeking: *thrill and adventure seeking*, *disinhibition*, *experience seeking*, and *boredom susceptibility*. Thrill and Adventure Seeking (TA) measures desire to engage in activities that take place in the outdoors and have an aspect of speed or danger, like flying an airplane. Disinhibition (Dis) measures engagement in activities such as alcohol use, "partying," and sexual activity. Experience Seeking (ES) involved drug use and doing activities for the sake of the experience such as trying new foods. Finally, boredom susceptibility (BS) measures tolerance of boring activities (Thomas, 1989). The subscales have nine, seven, six, and seven items, respectively. Scores are calculated by adding the number of "true" responses coded as one. Participants who score higher for each subscale exhibit greater propensity in that area of sensation seeking, a different aspect of risk-taking propensity. A higher overall scale for SSS demonstrates an increased level of interest in activities which provide high levels of sensation. Participants can score up to 29 on the total scale measure. Internal reliability has varied between 0.83 and 0.86; subscale reliabilities have been established between 0.56 and 0.82 (Arnett, 1994).

*Barratt Impulsiveness Scale.* Thirdly, participants answered the Barratt Impulsiveness Scale (BIS), the final risk-taking propensity measure. It seeks to measure how impulsively people make decisions. This consists of 30 self-descriptive questions answered on a four-point scale.

Participants are asked to rate themselves between rarely/never and always/almost always for a range of actions or behaviors. For example, “I buy things on impulse.” Four is the highest score meaning most impulsive. Total scores are summed, and higher total scores mean an overall higher level of impulsivity in that individual. Scores range from 0 to 120 (Patton, Stanford, & Barratt, 1995). Stanford et al. (2009) report Cronbach’s  $\alpha$  of 0.83.

### **Other Measures.**

*Revised Religious Fundamentalism Scale.* The Revised Religious Fundamentalism Scale (R-RFS) measures belief that the religion participants follow reflects a fundamental truth of the world. This version of the scale is shorter than the original version but is a reliable measure (Cronbach’s  $\alpha = .92$ ); it is highly correlated with ethnocentrism, authoritarianism, racial prejudice, and right-wing authoritarianism (Altemeyer & Hunsberger, 2004). Higher scores represent a larger degree to which individuals believe their religious beliefs are fundamental, inherent truths. This is an eight-point scale ranging from strongly disagree (-4) to strongly agree (4). It consists of twelve questions related to basic religious principles. Scores are summed to create a total score ranging from -48 to 48 (Mora, Stavrinides, & McDermut, 2014).

*Youth Risk Behavior Survey.* Participants were asked to self-report behaviors in a range of activities including driving, tobacco, alcohol, and sex. The Youth Risk Behavior Survey (YRBS) was developed by the Center for Disease Control in 1990 to monitor health behaviors of Youth in the United States. It is administered across the U.S. every other year (Center for Disease Control, 2018). The questions asked for this study were number of lifetime sexual partners, did you use a condom the last time you had sex, and did you consume alcohol before you last had sex.

*Sexual Risk Scale.* The Sexual Risk Scale (SRS) was developed for this study by summing responses to the following three YRBS questions: condom use during last sex, alcohol

consumption prior to last sex, and number of lifetime sexual partners. Higher scores represent higher sexual risk-taking. Condom use during last sex was reverse coded. Cronbach's  $\alpha = .340$  for these measures. Scores for the SRS range from 0 to 8. Condom use and alcohol consumption were both binary and number of sexual partners went up to a score of 6. This scale was created to describe sexual risk-taking more broadly than a single measure. Looking at each sexual risk-taking behavior independently was also possible but would not accurately portray a person's overall sexual risk-taking behavior. The SRS was created to achieve a limited level of breadth in light of there not being any established sexual risk-taking scales in the study.

*Sociosexual Scale.* The last measure taken for this study was the Sociosexual Scale (SS) (Yeater et al., 2009). It asked 15 yes/agree or no/disagree questions. The questions are related to many sexual activities and beliefs and seeks to measure how conservative or liberal someone's sexual attitudes are, not their sexual actions. This includes type of sex, people involved in the sex, and other sexual acts. Scores are calculated by summing the number of yes/agree responses from the 15 binary questions. The maximum score is 15, the lowest is 0, and higher scores on the scale indicate more acceptance of liberal sexual behavior and beliefs (i.e. more liberal sexual attitudes). It is a reliable measure with Cronbach's  $\alpha = .86$  (Yeater et al., 2009).

## Results

The correlational relationships between all scale measures of risk-taking propensity (BIS, SSS, and SPSRQ), religious fundamentalism, Sociosexuality, and SRS were analyzed. Descriptive statistics for the listed scale measures and the Sociosexual Scale are listed in Table 1. After running Cronbach's alpha to test the reliability of the scales within this sample, there was one major discrepancy with previous findings, the religious fundamentalism scale. The other risk-taking propensity measures and the SS scale still had high reliabilities. The R-RFS had an alpha score of

0.274. Simple correlation relationships between scale measures are listed in Table 2. No scales were significantly related to the hypothesized outcome variable, the SRS. However, a few scales were correlated with each other. There was a negative correlation between the R-RFS and the SS ( $r = -.498, p < .05$ ). Disinhibition and Sensitivity to Reward showed a moderate positive correlation ( $r = .581, p < .05$ ). Additionally, Sensitivity to Reward was positively correlated with the total Sensation Seeking Scale ( $r = .546, p < .05$ ).

It should be noted that our sample size was very small and limited potential analyses. First, a multiple regression was run with all scales (except SSS sum) and subscales of the SSS as coefficients in a single model. The results are shown in Table 3. This model was significant and accounted for 89.9% of the variance in the Sexual Risk Scale ( $R^2 = .899, F(6, 15) = 6.991, p < .05$ ). Disinhibition ( $\beta = .878, t(17) = 3.792, p < .01$ ) was the only variable that made a significant unique contribution to the model. Approaching significance were the R-RFS ( $\beta = .437, t(17) = 1.941, p = .100$ ), Sensitivity to Punishment ( $\beta = -.328, t(17) = -1.977, p = .095$ ), and Thrill and Adventure Seeking ( $\beta = -.437, t(17) = -3.365, p = .056$ ).

A second single step regression was analyzed without the SSS subscales but included all other main scales and is shown in Table 4. While this model was not significant as a whole ( $R^2 = .649, F(9, 15) = 2.776, p = .082$ ), Sensitivity to Punishment did achieve significance as an individual predictor ( $\beta = -.556, t(17) = -2.369, p < .05$ ).

Lastly, as displayed in Table 5, a three-step multiple regression was conducted with SP, Dis, and R-RFS. Each step added one scale in their respective order. The first two scales were selected because they each demonstrated a unique effect on SRS scores. The R-RFS was included because it is the theoretical variable and we are attempting to find its unique contribution to SRS. Step 1, which only included the SP score, was not significant ( $R^2 = .242, F(14, 15) = 4.465, p =$

.053). However, Step 2, SP and Dis, did achieve significance and greatly increased the variance explained ( $R^2 = .544$ ,  $F(13, 15) = 7.764$ ,  $p < .01$ ). Finally, Step 3 which included all three measures, increased the variance explained again and remained a significant model ( $R^2 = .623$ ,  $F(12, 15) = 6.602$ ,  $p < .01$ ). Sensitivity to Punishment reached significance as individual predictors in Step 2 ( $\beta = -.414$ ,  $t(17) = -2.190$ ,  $p < .05$ ), and 3 ( $\beta = -.450$ ,  $t(17) = -2.493$ ,  $p < .05$ ). Disinhibition also reached significance in Step 2 ( $\beta = .555$ ,  $t(17) = 2.938$ ,  $p < .05$ ) and Step 3 ( $\beta = .589$ ,  $t(17) = 3.266$ ,  $p < .01$ ). R-RFS approached significance in Step 3 ( $\beta = .285$ ,  $t(17) = 1.579$ ,  $p = .140$ ).

### Discussion

Many results in this study do not line up with previous research. The scales utilized have been shown to be predictive of general risk-taking and sexual risk-taking behaviors. However, the findings here do not support these relationships. We expected that many of the risk-taking propensity measures would be related with one another. This was experienced to a small degree. Sensitivity to Reward was related to Sensation Seeking and the Disinhibition Subscale. The only other relationship, between the R-RFS and the SS scale, is not a surprising finding and has been well established in the literature.

The lack of a relationship between any risk-taking propensity measures and the R-RFS is surprising. These scales have been related to religiosity in the past, albeit inconsistently. However, not all have been related to the religious concept of fundamentalism. None of the SSS subscales nor the SSS total score were close to significance and the relationships with religious fundamentalism were small. This may mean that the R-RFS does not measure religiosity in a way that resembles other conceptualizations of religiosity. Similarly, no risk-taking propensity measures had any relationship with the Sexual Risk Scale. Only the Experience Seeking subscale came close to significance with a strong positive correlation. The positive relationship between the

ES subscale and Sexual Risk Scale was expected given previous research and we would expect this relationship to achieve significance if the sample were larger (Ballester-Arnal et al., 2018). Experience Seeking has been related to more liberal sexual behavior (Ballester-Arnal et al., 2018) and is conceptually similar to the “Quest” scale presented by McMillen, Helm, and McBride (2011).

It should be noted that the small sample likely violates assumptions needed to run a regression analysis. These analyses more accurately demonstrate a potential direction of the relationships and should be assessed accordingly. The first regression demonstrated that these variables account for a very large share of variance in the SRS. While only one variable in the complete regression was significant alone, all the other variables were contributing to some degree. A few variables, the R-RFS, SP, and TA, came close to individual significance in the wholistic model and would likely become significant predictors in a larger sample. In order to better understand the impact of religion, the final regression gives us the best picture. By Model 3 of this regression, over half of the variance in SRS was explained by just the variables SP, Dis, and R-RFS. When the R-RFS is added to the model, the unique contributions of SP and Dis change very little. This tells us that religion is adding something to the model. An additional 8% of the variance is explained by adding religion alone. We cannot say that religion is a large contributor because it does not contribute significantly. However, because of its large standardized Beta in the regression with all variables, it appears that a larger sample size might support that religious fundamentalism plays a role in sexual risk-taking.

The small sample of this study was problematic for running many analyses and left multiple statistics close to significance but without the power to support the result. The lack of participants likely contributed to the failure of most scales to have any relationship with religious

fundamentalism or sexual risk-taking. Many of them are well established scales and would typically be a reliable relationship. The sample of college students, many of which are not religious at all, calls into question how representative this sample is of the larger population. Older generations tend to be more religious. We also cannot assume that knowledge of sexual risk has been the same over time or place. Additionally, different religions and cultures express sex in a different way and our sample does not reflect the range of these variables.

One surprise was the lack of relationships between risk-taking propensity measures. Only Sensation Seeking and Disinhibition were related to Sensitivity to Reward. No other risk propensity scales were related. These three scales are conceptually similar. Those who are sensitive to rewards, or focused on rewards of risks, are very much like those who desire to engage in sensational activities which are often risky but can provide exciting experiences. The lack of relationships between risk-taking propensity measures may also mean that they are correctly measuring separate concepts. Outside of SSS, Disinhibition, and SP, there was little indication of connection amongst the risk-taking propensity measures. We expected religious fundamentalism to predict their sexual risk-taking behavior and this was not entirely born out. Religion never contributed significantly on its own. Yet, the results from the last 3-step regression suggests that religion may have a role in sexual risk-taking. However, since it was not significant in the model individually, it is difficult to judge how much it directly adds to the model. There is reason to believe that a larger sample size would bring the R-RFS to statistical significance and contribute significantly to the model. The fact that adding religious fundamentalism alters the impact of the risk-propensity measures and is not completely overlapping with other variables shows there is potential for religious fundamentalism to create a situation-specific alteration. However, further

studies would be needed to see if religious fundamentalism predicts other types of risk-taking. Until that point, it only has the potential to be a situation-specific predictor.

The small sample size in this study occurred largely because participants were not required to complete Part 2 if they completed Part 1 and the pool of participants for Part 2 was very limited compared to the pool for Part 1. Beyond an increased sample, this study could have been improved in other ways. While the YRBS questionnaire did provide some sexual risk-taking questions, there were not many and creating a scale measure was not reliable. However, the sample size forced us to create a scale to run regression analyses. There are many ways to take sexual risks and the YRBS only covered a handful. Utilizing an established sexual risk-taking scale for this analysis would have been more appropriate. Additionally, other aspects of religiosity could have been assessed to gain a better understanding on its effect on risk-taking. While fundamentalism fits well theoretically, other types of religiosity could have worked as well, for example religious service attendance and involvement in religious organizations could show a devotion to the religion by action, not necessarily belief. Adding more religiosity measures would help narrow down *how* religiosity impacts our cognitions, not just the type of belief system.

While our sample was small, the extremely low reliability of the religious fundamentalism scale was still surprising. This may be because less than half of the sample identified as part of a mainline religion. It is difficult to know how someone who does not have a faith, or a faith that does not strictly adhere to doctrine, will answer the fundamentalist questions. Some non-religious participants interpreted the additional questions as effectively not applicable, while others viewed their lack of belief in a religion effectively as a separate religion, answering the questions accordingly. This raises larger questions regarding how this scale reflects the broader scope of religious beliefs. The lack of a relationship with any risk-taking propensity measures may also

indicate that religious fundamentalism is an inherently different concept for other religiosity measures. Few have looked at fundamentalism and risk-taking and this relationship needs to be better clarified.

The study may have also suffered from being split into two parts. With only the second part being an in-person segment, the few participants who completed both may not represent the population effectively. Our population was also nearly all women and mostly white. Future research should seek to expand on these demographic variables. This is particularly important for gauging religion. Different beliefs systems could alter fundamental religiosity. Views on sexual behavior vary by religion and this could change how people perceive sexual risk.

Outside of supporting that religious beliefs will account for a small additional amount of variance in a multiple regression, this study cannot make more definitive claims about the impact of religious fundamentalism on sexual risk-taking. While nothing is clarified, the ambiguity exhibited here does reflect the already known complexity between these variables. We do not know exactly how religious beliefs impact our sexual risk-taking behavior and it seems clear that broad personality characteristics are not enough to know who is likely to take a risk.

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Table 1.

<i>Summary of Descriptive Statistics</i>				
	Univariate Statistics			
Revised Religious Fundamentalism Scale (R-RFS)	$M = 26.938$	$SD = 11.275$	$N = 16$	$\alpha = .274$
Sociosexual Scale (SS)	$M = 4.529$	$SD = 2.918$	$N = 17$	$\alpha = .838$
Sensitivity to Punishment (SP)	$M = 15.235$	$SD = 5.495$	$N = 17$	$\alpha = .858$
Sensitivity to Reward (SR)	$M = 12.235$	$SD = 3.327$	$N = 17$	$\alpha = .608$
Sensation Seeking Scale (SSS)	$M = 13.063$	$SD = 5.949$	$N = 17$	$\alpha = .852$
Thrill and Adventure Seeking Subscale (TA)	$M = 5.471$	$SD = 2.831$	$N = 17$	$\alpha = .830$
Disinhibition Subscale (Dis)	$M = 2.353$	$SD = 2.120$	$N = 17$	$\alpha = .754$
Experience Seeking Subscale (ES)	$M = 3.588$	$SD = 2.093$	$N = 16$	$\alpha = .793$
Boredom Susceptibility Subscale (BS)	$M = 1.688$	$SD = 1.662$	$N = 16$	$\alpha = .662$
Barratt Impulsiveness Scale (BIS)	$M = 62.177$	$SD = 6.453$	$N = 17$	$\alpha = .738$
Sexual Risk Scale (SRS)	$M = 1.412$	$SD = 2.123$	$N = 17$	$\alpha = .340$

Running head: RELIGIOUS FUNDAMENTALISM AND SEXUAL RISK-TAKING

Table 2.

*Correlation Matrix*

	1. R-RFS	2. SS	3. SP	4. SR	5. SSS	6. TA	7. Dis	8. ES	9. BS	10. BIS	11. SRS
1. R-RFS	-	-	-	-	-	-	-	-	-	-	-
2. SS	-.498*	-	-	-	-	-	-	-	-	-	-
3. SP	.143	-.039	-	-	-	-	-	-	-	-	-
4. SR	.232	-.104	.277	-	-	-	-	-	-	-	-
5. SSS	.100	.028	-.114	.546*	-	-	-	-	-	-	-
6. TA	.211	-.244	-.096	.266	.702**	-	-	-	-	-	-
7. Dis	-.135	-.099	-.045	.581*	.793***	.346	-	-	-	-	-
8. ES	.152	.447	-.062	.338	.668**	.161	.260	-	-	-	-
9. BS	-.044	-.200	-.079	.232	.568*	.053	.360	.406	-	-	-
10. BIS	.189	-.158	.370	.271	.193	.037	.169	.063	.292	-	-
11. SRS	.334	.228	-.455	.225	.319	.070	.379	.624	-.269	-.075	-

\*Significant at  $p < .05$

\*\*Significant at  $p < .01$

\*\*\*Significant at  $p < .001$

Abbreviations: R-RFS = Revised Religious Fundamentalism Scale; SS = Sociosexual Scale; SP = Sensitivity to Punishment; SR = Sensitivity to Reward; SSS = Sensation Seeking Scale; TA = Thrill and Adventure Seeking; Dis = Disinhibition; ES = Experience Seeking; BS = Boredom Susceptibility; BIS = Barratt Impulsiveness Scale; SRS = Sexual Risk Scale.

Table 3.

	Sexual Risk Scale		
	<i>B</i>	$\beta$	<i>p</i>
Constant	4.334	-	.223
SP	-.127	-.328	.095
SR	-.148	-.226	.287
R-RFS	.084	.437	.100
SS	.009	.013	.968
TA	-.326	-.437	.056
Dis	.967	.878	.009**
ES	.344	.338	.293
BS	-.056	-.043	.859
BIS	-.046	-.175	.376

\*\*Significance of  $p < .01$

Model: ( $R^2 = .899, F(6, 15) = 6.991, p < .05$ )

Abbreviations: R-RFS = Revised Religious Fundamentalism Scale; SS = Sociosexual Scale; SP = Sensitivity to Punishment; SR = Sensitivity to Reward; SSS = Sensation Seeking Scale; TA = Thrill and Adventure Seeking; Dis = Disinhibition; ES = Experience Seeking; BS = Boredom Susceptibility; BIS = Barratt Impulsiveness Scale; SRS = Sexual Risk Scale.

Table 4.

<i>Full Regression Model Without SSS Subscales</i>			
	Sexual Risk Scale		
	B	$\beta$	p
Constant	-2.844	-	.468
SP	-.215	-.356	.042*
SR	.011	.017	.948
R-RFS	.076	.397	.126
SS	.349	.483	.069
SSS	.133	.366	.178
BIS	.033	.124	.610

\*Significance of  $p < .05$

Model test: ( $R^2 = .649$ ,  $F(9, 15) = 2.776$ ,  $p = .082$ )

Abbreviations: R-RFS = Revised Religious Fundamentalism Scale; SS = Sociosexual Scale; SP = Sensitivity to Punishment; SR = Sensitivity to Reward; SSS = Sensation Seeking Scale; TA = Thrill and Adventure Seeking; Dis = Disinhibition; ES = Experience Seeking; BS = Boredom Susceptibility; BIS = Barratt Impulsiveness Scale; SRS = Sexual Risk Scale.

Table 5.

<i>Major Effect Regression Model</i>			
	Sexual Risk Scale		
Step 1	B	$\beta$	p
Constant	4.353	-	.009*
Sensitivity to Punishment	-.190	-.492	.053
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Step 2			
Constant	2.602	-	.067
Sensitivity to Punishment	-.160	-.414	.047*
Disinhibition	.612	.555	.012*
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Step 3			
Constant	1.262	-	.415
Sensitivity to Punishment	-.174	-.450	.028*
Disinhibition	.648	.589	.007**
Religious Fundamentalism Scale	.055	.285	.140

\*Significance of  $p < .05$

\*\*Significance of  $p < .01$

Step 1 Test: ( $R^2 = .242$ ,  $F(14, 15) = 4.465$ ,  $p = .053$ )

Step 2 Test: ( $R^2 = .544$ ,  $F(13, 15) = 7.764$ ,  $p < .01$ )

Step 3 Test: ( $R^2 = .623$ ,  $F(12, 15) = 6.602$ ,  $p < .01$ )