



GRADUATE SCHOOL  
EAST TENNESSEE STATE UNIVERSITY

East Tennessee State University  
Digital Commons @ East  
Tennessee State University

---

Electronic Theses and Dissertations

Student Works

---

5-2021

## Intrinsic Religiousness and its Relation to Health Outcomes

Joseph Barnet  
*East Tennessee State University*

Follow this and additional works at: <https://dc.etsu.edu/etd>



Part of the [Health Psychology Commons](#), and the [Social Psychology Commons](#)

---

### Recommended Citation

Barnet, Joseph, "Intrinsic Religiousness and its Relation to Health Outcomes" (2021). *Electronic Theses and Dissertations*. Paper 3875. <https://dc.etsu.edu/etd/3875>

This Dissertation - embargo is brought to you for free and open access by the Student Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact [digilib@etsu.edu](mailto:digilib@etsu.edu).

# Intrinsic Religiousness and its Relation to Health Outcomes

---

A dissertation

presented to

the faculty of the Department of Psychology

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Philosophy in Psychology

---

by

Joseph Barnett

May 2021

---

Andrea Clements, PhD, Chair

Matt Palmatier, PhD

Meredith Ginley, PhD

Jon Ellis, PhD

Keywords: Intrinsic religiousness, illicit substance use, pornography use

## ABSTRACT

### Intrinsic Religiousness and its Relation to Health Outcomes

by

Joseph Barnett

Religiousness, broadly defined, has been shown to be predictive of a variety of health outcomes. Past literature surrounding religiousness research has utilized different definitions and measures for the meaning of religiousness. How religiousness is defined can influence its relationship in relation to health outcomes. The present study utilized a measure for intrinsic religiousness, which is defined as an internalization of the tenets of a particular faith. The present study examined whether intrinsic religiousness predicts problematic or illicit substance use or pornography use in a sample of participants that included mostly undergraduate students from the Appalachian region, as well as some participants surveyed with the use of social media advertisements. Participants self-reported their religiousness using the Religious Surrender and Attendance Scale – 3 (RSAS-3), which has been shown to measure intrinsic religiousness. Religiousness as measured by the RSAS-3 predicted lower levels of illicit and problematic substance use, as well as lower levels of pornography use. The present study extends findings regarding religiousness and health outcomes. Limitations and future research directions are discussed.

Copyright 2021 by Joseph A. Barnet

All Rights Reserved

## DEDICATION

I dedicate this work to my family. To my grandparents, Ann and Richard Barnet, and Antonio and Shirley Diaz for your exemplary work ethic throughout your lives. To my parents and sister, Michael, Isa and Johanna Barnet, for instilling in me a yearning for knowledge. To my wife Ruth and my daughter Grace for all of their support and love during this challenging process. I certainly could not have done this without them.

## ACKNOWLEDGEMENTS

There are so many people that deserve mention in this section. First and foremost, my wife Ruth and daughter Grace encouraged me and supported me even when I felt like I couldn't write anymore! I also acknowledge my parents for their consistent love and support. I especially appreciate my dad who, through his own doctoral work, understood my circumstances and encouraged me through it. I would like to acknowledge my advisor Dr. Clements for believing in me and helping me throughout the whole process. I appreciate the countless hours that she spent talking with me about research, teaching me new things, and providing feedback on my work. I also would like to acknowledge my committee members for all of their support and feedback. I acknowledge the professors in the experimental and clinical psychology programs that taught the courses I was in that served to be invaluable for my preparation in writing and defending my dissertation. I would like to thank my coach for providing complementary coaching sessions that helped me especially during the last few months of my dissertation work. Lastly, I thank God for his hand in all of this and for sustaining me and refining me throughout my work as a graduate student.

## TABLE OF CONTENTS

ABSTRACT .....	2
DEDICATION .....	4
ACKNOWLEDGEMENTS .....	5
LIST OF TABLES .....	9
Chapter 1. Introduction .....	10
Overview of Religiousness.....	10
Intrinsic vs. Extrinsic Religiousness.....	11
Addiction as a Health Outcome .....	15
Overview of Substance Use and Addiction .....	16
Overview of Pornography Use and Possible Addiction .....	18
Religiousness and Addiction .....	22
Religiousness in Relation to Substance Use and Addiction .....	23
Religiousness in Relation to Pornography Use.....	25
IR/ER in Relation to Addiction and Use.....	27
Measuring Intrinsic Religiousness (IR) .....	28
Measuring Substance Use .....	29
Measuring Pornography Use.....	31
Current Study .....	33
Chapter 2. Methods .....	34
Measures .....	34
Religious Surrender and Attendance Scale – 3 (RSAS-3).....	34
TCU Drug Screen-V .....	35

Problematic Pornography Consumption Scale .....	37
Data Cleaning.....	38
Analysis Plan .....	39
Demographics .....	39
Descriptive Analyses .....	39
Logistic Regression.....	40
Chapter 3. Results .....	41
Logistic Regression.....	44
Model 1 .....	44
Model 2 .....	45
Model 3 .....	46
Model 4 .....	47
Summary of Results.....	48
Chapter 4. Discussion .....	49
Limitations .....	51
Future Directions .....	53
Chapter 5. Conclusion.....	54
REFERENCES .....	55
APPENDICES .....	74
APPENDIX A: Demographic Questions .....	74
APPENDIX B: Religious Surrender & Attendance Scale-3 (RSAS-3).....	75
APPENDIX C: TCU Drug Screen V (TCUDS-V) .....	76
APPENDIX D: Problematic Pornography Consumption Scale (PPCS).....	77



VITA..... 78

LIST OF TABLES

Table 1. Characteristics of Study Sample Categorical Variables ..... 41

Table 2. Characteristics of Study Sample for Continuous Variables..... 43

Table 3. Logistic Regression Without Covariates Predicting Likelihood of Illicit or Problematic  
Substance Use.....45

Table 4. Logistic Regression Predicting Likelihood of Illicit or Problematic Substance Use ..... 46

Table 5. Logistic Regression Without Covariates Predicting Likelihood of Pornography Use ... 47

Table 6. Logistic Regression Predicting Likelihood of Pornography Use ..... 48

## **Chapter 1. Introduction**

### **Overview of Religiousness**

Most people throughout the world consider themselves to believe in some sort of transcendent being. Religiousness has been a part of the human experience for thousands of years. Greek philosophers such as Plato, Aristotle, Epicurus, and Socrates all at some point considered the nature of a divine being. With the inception of major religions such as Christianity and Islam around 2000 and 1500 years ago, respectively, whole cultures and societies have been dramatically influenced by religious tenets and beliefs (Smith, 2016). While individuals and societies have characterized themselves as believing in religious tenets for thousands of years, religiousness as a psychological construct remains rather novel. The Pew Research Center reports that around 77% of the United States population identified as religious (Hackett et al., 2016), and according to Hackett et al. (2015), rates of religious persons within populations will continue to increase. They projected a reduction in percentage of individuals not identifying with any religion to move from 16.4% identifying as unaffiliated in 2010 to around 13.2% in 2050. According to Diener et al. (2011), around 68% of the world's population views their religion to be an important component of their life. Despite the importance of religiousness to human anthropology and experience, consideration of the construct in the psychological sciences, particularly as related to health outcomes, is understudied. As such, religiousness merits consideration as a construct in the psychological sciences. According to Oman (2013), only in the past few decades have psychologists begun to consider valid psychological definitions of religiousness that can be assessed empirically. As a psychological construct, religiousness is a rather broad term that can have varied meanings. A wide-ranging, and common definition for religiousness generally involves identifying with a system of faith and worship that

recognizes and/or believes in a transcendent, higher power (Byrne, 1999). To compensate for the breadth of the construct of religiousness, one narrow aspect will be considered in the current study, namely intrinsic religiousness.

### **Intrinsic vs. Extrinsic Religiousness**

William James (1902) was one of the first psychologists to discuss how religion may manifest itself diversely in different individuals. James suggested that certain individuals are optimistic or “happy” towards God, while others have a “sick soul” and are not as optimistic in the way they view God (p. 60). An important development in the history of the psychology of religion involves the discussion and distinction of intrinsic and extrinsic religious orientations (Allport & Ross, 1967). Allport and Ross investigated possible reasons for why there were discrepant findings in the area of religiousness and prejudice. They found some studies demonstrating that religiousness was positively associated with prejudice whereas others demonstrated that religiousness was negatively associated with prejudice. These findings led Allport and Ross to dichotomize religious orientation into two separate categories in order to better explain these discrepant findings. Intrinsic religiousness (IR) refers primarily to an internalization of the tenets of a particular system of faith. This could be manifested in closely obeying the given tenets of the faith, as well as closely following the rules, customs or laws that are set out by the religion (Allport & Ross, 1967). Individuals that are high in IR see religion as an end to itself and thus an ultimate motive (Masters & Hooker, 2013). IR is also characterized by viewing religion as the framework for one’s life. According to Masters and Hooker (2013), a prototypic intrinsic religiousness test item would be, “my whole approach to life is based upon my religion.” Furthermore, individuals that are high in IR would attempt to consistently live their lives in accordance with the religion that they believe in (Masters & Hooker, 2013). On the other

hand, extrinsic religiousness (ER) refers to utilizing religion as more of a means to an end. ER often involves a utilitarian approach to religion, with the desire to maximize happiness or well-being (Jonas & Fischer, 2006). ER could manifest itself in viewing religion as fulfilling specific purposes, such as securing friendships and relationships (Gorsuch & McPherson, 1989) or viewing religion primarily as a means to attain a sense of peace and calm, attain financial security, or attain a higher status (Taunay et al., 2012).

Because religiousness has been defined in many ways, and there is disagreement about how to define and measure religiousness, it is helpful to focus on specific definitions for religiousness. The IR/ER distinction attempts to do this, and there is already empirical evidence suggesting different outcomes associated with this distinction (Gorsuch & McPherson, 1989; Mahmoodadad et al., 2016; Watson et al., 1988). The distinction between ER and IR is vastly important to the psychology and health field because, as Allport and Ross (1967) note, how religiousness is operationalized impacts how it relates to health outcomes.

There are many ways in which religious beliefs are manifested in the lives of individuals across the many different religions in the world (Greeley, 2017a; Greeley, 2017b). For instance, someone who identifies as a Christian may go to church every Sunday, may participate in weekly religious activities, may spend much time in prayer, and may suggest that their religious identity is an ontological category (a part of their very being) that informs everything they do, which would be reflective of an IR orientation. Conversely, one can identify as a Christian and not participate in any of the central tenets of the faith. For instance, a person identifying as a Christian may not think it important to go to church, to pray, or to submit to God's will or law, which would be reflective of someone who is not particularly religious at all. In both of these examples, the individual is identifying as a Christian, yet there are fundamental differences

between the religion that is being adhered to by each individual. This same distinction can be applied to other religions. While the importance of refining and operationalizing definitions of religiousness cannot be overstated, some past studies have defined religiousness broadly in relation to varying health outcomes (Grubbs et al., 2019; Whitehead & Perry, 2017), and secondary literature that disseminates peer-reviewed studies sometimes merely mention religiousness, without providing qualification. To combat this, the current study addresses the importance of distinguishing what is meant by the term “religion.”. Specifically, it highlights the value of considering the potential diverse outcomes predicted by particular aspects of religiousness, such as IR/ER motivations.

IR and ER are constructs that have been considered in a number of studies that investigate diverse outcome variables. As stated, the landmark work by Allport and Ross (1967) highlighted that ER, and not IR, predicted higher levels of prejudice. Studies beyond Allport and Ross’s original writings have also considered IR and ER in relation to prejudicial attitudes. According to Batson (1976), ER was found to be correlated with prejudicial attitudes, while IR was found to be uncorrelated with prejudicial attitudes. IR, more so than ER, has emerged as an important dimension of religiousness for predicting positive mental health and physical health outcomes (Koenig et al., 1997; Pirutinsky et al., 2011). Studies have found that IR predicted lower levels of anxiety, while ER predicted higher levels of anxiety (Maltby, 1999; Sturgeon & Hamley, 1979). IR has been shown to be positively correlated with positive mental health outcomes such as subjective well-being, self-regulation, and self-control, whereas ER was negatively related to these outcome variables (Maltby & Day, 2000). Maltby and Day (2004) further found that ER was related to negative religious coping, such as feeling punished by God and feeling conflicted and doubtful about issues concerning God, while IR was related to

positive religious coping, such as having a secure relationship with God which in turn predicted positive mental health. Furthermore, IR has been associated with emotional stability, whereas in the same study, ER was associated with higher levels of neuroticism compared to individuals that were high in IR (Saroglou, 2002). Furthermore, Ardel (2003) investigated differences between IR and ER orientations in connection to well-being and attitudes towards death. The study found that those that were high in IR had less fear of death and death avoidance. The varying outcomes associated with different definitions of religiousness further bolsters the perception that “religiousness” is far from a monolithic term. Thus, operationalizations of religiousness should be specific and not merely treat it as a broad, all-encompassing term. In light of this, it seems evident from the existing body of research that it is helpful to consider IR and ER as two different constructs when assessing outcomes.

In the literature, it seems as if there are more studies that consider IR exclusively in relation to outcome variables rather than considering both IR and ER, for good reason. IR has been considered as a buffer for stress in protestant churchgoers (Hettler & Cohen, 1998), as a life stress moderator (Park et al., 1990), as a predictor of assertiveness (Kraft et al., 1986), and, as mentioned, a predictor of mental health outcomes (Hroch et al., 2018). Findings using ER as a predictor have been far less consistent, and when outcomes are predicted, they tend to be in a less healthy (Ardelt, 2003; Koenig et al., 1997; Pirutinski et al., 2011) or more negative direction (Maltby & Day, 2000; Maltby & Day, 2004; Saraglou, 2002). Since this study is focused on finding factors that are protective against addiction, IR was the only aspect of religiousness considered.

## **Addiction as a Health Outcome**

The idea of addiction is not an easy one to define, nor are the definitions of addiction agreed upon (Skog, 2003). Nevertheless, some general themes that permeate definitions of addiction include excessive and compulsive behaviors that involve a stimulus. Some examples of addictions that have been recognized in the psychological literature as pathologies or as categorizations for future research include video game addiction/internet gaming disorder, gambling disorders, and substance disorders (APA, 2013; Griffiths, 1995; Griffiths, 2005). Griffiths (2005) argues that addictions are a part of the biopsychosocial process with evidence pointing towards all addictions consisting of a number of shared components. Furthermore, Griffiths argues that excessive behaviors vis-à-vis addiction seem to share many commonalities, namely salience, mood modification, tolerance, withdrawal, conflict, and relapse. Griffiths (2005) is one of multiple theories of addiction. For comparison with other theories of addiction, see West (2001) and West and Brown (2013).

It is important to note, especially for the purposes of this study, that there is a pronounced distinction between the use of a stimulus and the addiction to a stimulus. For instance, many individuals utilize video games in healthy ways and some people have even benefitted from their use for disorders such as PTSD and ASD (Lau et al., 2017). Thus, not everyone who utilizes video games rises to the level of addiction. There have been studies that have suggested the possibility of video games as being addictive leading to inclusion of “Internet Gaming Disorder” as a category for future research in the DSM-5 (APA, 2013).

The distinction between use and abuse is brought up here because in the current study, use rather than abuse/addiction will be considered as the outcome variable for both pornography



and substances. This distinction is important especially for pornography as an outcome as “pornography addiction” is not a recognized pathology in the DSM-5.

### **Overview of Substance Use and Addiction**

As there are many ways to define religiousness, there are also different ways to define substance addiction. Substance addiction refers to the misuse of substances in a way that causes harm. The DSM-5 (APA, 2013) includes criteria describing substance use disorder that includes “craving or a strong desire to use substances, alongside of stopping or reducing important social, occupational or recreational activities due to substance abuse” (p. 492). Substance addiction generally begins with an individual engaging in use of a substance that they initially find to be pleasurable. Use, and preference towards the substance over other activities and responsibilities occurs early on. Afterwards, if the individual tries to terminate usage of the substance, it often proves to be very difficult to quit. Despite being aware of the negative effects of using the substance, the individual may have a strong compulsion to continue usage, with efforts to cease the activity proving continually difficult. Further criteria for identifying and defining substance use disorder include: feeling the need to use the drug regularly, having intense urges for the drug that block out other thoughts, needing more of the drug to get the same effect relative to the first use, and taking larger amounts of the drug in order to attain the same effect (APA).

There are different classifications for substances, with illicit drug taxonomies appearing in different epidemiological surveys that include the National Survey on Drug Use and Health (NSDUH) and the National Longitudinal Study of Adolescent Health (Lee & Antin, 2011). The NSDUH, which is said to be comprehensive and exhaustive, includes broad classifications of substances that include hallucinogens, inhalants, pain relievers, tranquilizers, stimulants, and sedatives. Some examples of illicit substances include marijuana, cocaine, LSD, PCP, peyote,

methamphetamine, amphetamines, and ecstasy (Lee & Antin, 2011; Mack et al., 2017).

Substances are said to be illicit because they are prohibited by national, state, or local law.

Furthermore, many substances are categorized as illicit because they have the potential to be abused as they can be highly addictive.

In terms of prevalence, substance addiction/illicit substance use remains a widespread problem worldwide, with around 240 million people suffering from substance use disorder (Gowing et al., 2015). According to the National Survey on Drug Use and Health (NSDUH) in 2017, 19.7 American adults battled a substance disorder. Of those, 74% of adults suffered from a substance use disorder involving alcohol, and 38% of adults battled with an illicit substance use disorder (Welty et al., 2016). In 2017, there were 70,237 drug overdose deaths in the United States, a 9.6% higher rate than the previous year (Hedegaard et al., 2017). The rate of drug overdose deaths involving synthetic opioids other than methadone (e.g., fentanyl, carfentanyl) increased by 10% from 2017 to 2018 (Hedegaard et al., 2020). While prevalence has waxed and waned in recent years, substance addiction remains an individual, familial and societal problem.

There are many societal and individual detriments related to illicit substance use and problematic use of legal substances such as alcohol and prescription medications. Substance addiction and illicit substance use can lead to poor physical and mental health outcomes (DeWall et al., 2014), as well as increase the likelihood for depression and mortality (Abbey, 2002; Arasteh et al., 2008; Hallfors et al., 2004; Kapner, 2008). Substance addiction is positively correlated with elevated rates of child abuse across different studies (Heffernan et al., 2000; Kendler et al., 2011). Substance addiction has also been related to an increased risk of sexual risk behavior, experience of violence, depression, and suicide (CDC, 2018). Lastly, substance

addiction and illicit substance use have been shown to predict lower levels of educational attainment (Grant & Chamberlain., 2014).

Substance addiction, using substances to the point of addiction, which can refer to the misuse of prescription drugs, illicit drugs, and alcohol, is detrimental to health. However, all addiction to substances begins with use of substances. In this study, use of substances will be used as the outcome of interest. Use of substances will be defined as the use of illicit substances, the problematic use of legal substances, or the self-reported overuse or addiction to mind altering substances.

### **Overview of Pornography Use and Possible Addiction**

Pornography use is a growing activity, with one study reporting around 70% of men and 40% of women using pornography in 2016 in a survey asking participants about their most recent use of pornography (Regnerus et al., 2016). In 2004, pornography was considered a billion-dollar industry, which has continued to grow in participation and in money spent (Stack et al., 2004). Although pornography had been used on personal computers and CD roms, the advent of the internet enabled pornography to be accessed for free and with relative ease (Carroll et al., 2008). In fact, in 2012, Ropelato reported 25% of total search engine requests included some sort of sex-related material in the query. PornHub, which is the largest pornography site on the internet, received 28.5 billion visits in 2017, with an average of 81 million visits per day (PornHub, 2018). During the onset of the COVID-19 worldwide pandemic in March 2020, PornHub reported an increase in traffic of 57% in Italy (which underwent a strict lockdown in March), and 11.6% worldwide (PornHub, 2020).

Pornography use has been variously defined by a number of scholars and studies. There is some disagreement as to whether definitions of pornography must include sexual acts or

whether mere nudity would qualify as pornography (McKee et al., 2020). Nevertheless, in the psychological literature, pornography generally refers to explicit images of exposed genitals, as well as depictions of sexual behaviors (Morgan, 2011; Wright & Randall, 2012) and the intent of pornography use is generally agreed to be to cause sexual arousal (Morgan, 2011).

There is a debate in academic circles whether excessive pornography use should be labeled as an addiction (Humphreys, 2018), but there is a growing number of researchers who believe that it should (Hilton, 2013). Currently, the DSM-5 does not include diagnostic criteria to diagnose pornography addiction, however, the ICD-11 released by the World Health Organization [WHO] (2018) has included proposed diagnostic criteria for compulsive sexual behavior disorder as an impulse control disorder. Some researchers suggest that the ICD-11 criteria subsume constructs of addictive or compulsive pornography use in its definition (Kraus et al., 2018). Nevertheless, the ICD-11 maintains that there has not been enough evidence to suggest that the processes involved in compulsive sexual behavior disorder are equivalent to those found in substance use disorders, gambling and even gaming disorders (Kraus et al., 2018). Hilton (2013) argues that there is inconsistency in having the DSM-5 view gambling but not pornography use as an addiction, as both are behavioral in nature and have reinforced rewards, albeit different ones. On the flipside, research surrounding pornography use is still rather novel, and there has not been enough documented harm in the general population in order for it to be considered an addiction. According to Ley et al. (2014), many of the proponents of a diagnosis of pornography addiction are hindered by poor experimental designs, limited methodological rigor, and a lack of model specification.

Despite whether or not pornography addiction should be recognized as a clinical disorder, there is ongoing scientific investigation into the phenomenon (Fernandez & Griffiths,

2019). Duffy, Dawson and Das Nair (2016) suggest that despite the widespread disagreement about whether pornography use rises to the level of addiction, a number of people are willing to identify as feeling compelled to utilize pornography. Moreover, there has been documented evidence that some individuals have sought treatment for what they perceived to be problematic excessive sexual behaviors, including excessive pornography use (Kraus et al., 2016; Reid et al., 2012). On the contrary, however, some researchers that reject any notion of categorization for sex or pornography addiction suggest that the best course of action for individuals that are distressed by their sexual or pornography use is to do nothing at all (Prause & Williams, 2020). They suggest this because they cite that most of distress goes away on its own naturally within five years (Prause & Williams, 2020). Discussions and debates surrounding whether excessive pornography use should be classified as a pathology are important. However, since studies surrounding pornography use and addiction are rather novel, the current study will focus on the broader variable of pornography use, which could possibly be harmful, rather than limit focus only on the disputed construct of pornography addiction.

An important consideration regarding addictive behavior is whether it is harmful. For instance, Griffiths (2005) suggests that implicit in understanding addiction is some measure of the negative consequences that must be experienced in order to warrant the use of the term in academic literature. Of course, it is evident that substance addiction, illicit substance use, and problematic use of legal substances can be harmful (e.g., contracting diseases, increased infection risk, death, unemployment, family discord), but can the same be said for pornography use? It is difficult to make the case that pornography use can be more harmful, let alone just as harmful, as something like substance addiction, yet some researchers argue that pornography use is harmful. Debate regarding to whether pornography use can rise to the level of addiction is

outside the purview of this paper. Despite this, it is worth mentioning that while some researchers do believe that excessive pornography use should be classified as an addiction (Hilton, 2013; Hilton & Watts, 2011), there are other researchers that are staunchly against such classification (Kor et al., 2013; Stein et al., 2000). Ley et al. (2014) argue that one of the issues with classifying pornography use as an addiction include the lack of a clear, falsifiable model of pornography addiction. Ley et al. (2014) also argue that despite possible consequences, distress, and dysfunction, interaction with “third variables,” such as relationship status and culture must be examined first. Despite the debate amongst researchers, there are a number of people that would be willing to self-identify as feeling addicted to pornography despite the debate surrounding the parameters of such construct (Grubbs et al., 2015; Grubbs et al., 2018).

Despite the ongoing debate of possible classification of pornography addiction, it would be appropriate to highlight some examples of reported societal harm of pornography use. For instance, a meta-analysis conducted by Hald et al. (2010) suggested that viewing pornography often increased attitudes of aggression towards women, an idea somewhat supported by Bridges et al. (2010) who found that an overwhelming amount of pornography portrays aggression towards women. Foubert et al. (2011) surveyed 62% of a fraternity population at a large Midwestern university about their pornography viewing habits, bystander efficacy, and bystander willingness to help others in potential rape situations. The results of the study revealed that men who viewed pornography were significantly less likely than men who did not to intervene as a bystander (Foubert et al., 2011). Furthermore, the study found that men who viewed pornography reported being more aggressive than men that did not view. While these societal harms are important factors in determining negative impacts of pornography use, individual harm is typically used in the determination of whether something rises to the level of addiction.

Some studies suggest that in some cases, continued excessive use of internet pornography use can lead to financial, occupational, and legal trouble (Keane, 2016). Individuals identified as being addicted to pornography and other forms of online sexual content reported lower levels of overall happiness and happiness within marriage (Doran & Price, 2014; Stack et al., 2004) than those not identified as such. Furthermore, according to Kleinplatz (2016), images in conventional pornography can inflate performance norms which can then lead to feelings of inadequacy vis-à-vis their sexual performance. Kleinplatz also notes that clients often regard the depictions of uncomplicated performance oriented sex on the internet as being accurate and normative rather than as being fictitious, further evidencing potential sexual problems that can stem from unrealistic depictions of sexual acts in pornography

While there are certainly researchers that contend that there are negative effects of pornography use, some researchers argue that some individuals use pornography without experiencing ill effects. Furthermore, some researchers advance positives associated with utilizing pornography, such as allowing people to explore sexuality in a way that is relatively harmless (Newman, 1997), and offering new, harmless options for romantic and sexual enactment (Cooper, 2003).

### **Religiousness and Addiction**

Generally speaking, religiousness, broadly defined, is predictive of good, positive health outcomes. Some of these health benefits include increased cardiovascular health, better psychological well-being outcomes, and faster recovery times from surgery (Miller & Thoresen, 2003; Powell et al., 2003; Seeman et al., 2003). Religiousness was found to be significantly inversely related to all-cause mortality in a meta-analysis (Chang et al., 2010). Of interest in the current study, religiousness often predicts lower substance use rates (Baena et al., 2018;

Clements & Cyphers, 2020; Park et al., 2017; Rehman & Asghar, 2016; Wang et al., 2015), but less is known about the relationship between religiousness and pornography use, and even less is known about the relationship between IR specifically and addictions.

### **Religiousness in Relation to Substance Use and Addiction**

In relation to substance use, religiousness has been found to serve a buffering effect between life stress and adolescent substance use in a cross-sectional analysis (Wills et al., 2003). Furthermore, a latent growth analysis showed that religiousness reduced the impact of life stress on initial levels of substance use and on rate of growth in substance use over time. In a random sample of 13,250 adolescents, religious students were significantly less likely to utilize drugs or have friends that used drugs when compared to nonreligious students (Bahr et al., 1998). In a study that considered marijuana, cocaine, and alcohol specifically, religious individuals were less likely to consume these substances compared to their non-religious counterparts (Jeynes, 2006). In a study that investigated 105 varsity athletes in high school, religiosity was inversely associated with abuse of alcohol, marijuana, and other drugs (Storch et al., 2003). Evidence from numerous scholarly articles seems to suggest that religiousness, broadly defined, is negatively related to substance addiction and illicit or problematic substance use (Rasic et al., 2011; Sekulic et al., 2009; Wang et al., 2015).

Not only is substance use in general predicted by religious variables. There is also evidence that individuals that are high in religiousness are less likely to start consuming substances in the first place. According to Shepperd et al. (2014), having a religious worldview, predicted decreased likelihood of starting drug use compared to non-religious counterparts. Another study that utilized a sample from a Brazilian university showed that religiousness was found to be a strong protective factor against substance use initiation (Gomes et al., 2013).



What is it about religiousness that may be affecting substance use rates? It could be related to the social support received within a religious group. Religious social support (RSS), defined as receiving support from a religious leader, faith community, or other faith avenue, has been shown to predict lower levels of substance use and addiction (Debnam et al., 2012). According to Avants et al. (2001), perceived RSS was a predictor of abstinence from illicit drugs during addiction treatment. In that study that utilized a sample of 851 individuals, participants underwent treatment in both public and private treatment programs. Participants completed church attendance and religious belief measures before and after treatment. Participants that reported more church attendance and greater participation in Alcoholics Anonymous (AA) programs, which typically have a faith component, had greater sobriety after treatment compared to participants with lower attendance (Roland & Kaskutas, 2002). Furthermore, individuals that had been involved in 12-step programs that include a religious component have higher predicted odds of abstinence from substances compared to individuals involved in 12-step programs not involving religious components (Zemore, 2007). Finally, in relation to substance use treatment programs, it has been documented that individuals are more likely to attain positive long-term recovery goals if they participate in a faith-based program in addition to a regular substance abuse treatment program (CASA, 2001).

Broadly speaking, it seems evident that there is a convincing body of research pointing to lower levels of illicit or problematic substance use for individuals that are higher in religiousness. While broad considerations of the construct of religiousness are helpful, it would be of benefit to determine what it is about religiousness that is protective against illicit or problematic substance use. Few studies have specifically studied IR in relation to illicit substance

use, but those that have report that higher levels of IR seem to predict lower levels of substance use/addiction (Barnet, 2019).

### **Religiousness in Relation to Pornography Use**

Use of pornography has been of particular concern to many individuals that would consider themselves religious. For example, religious individuals at both the community and national level have fought against pornography use through legislation and advocacy (Swatos, 1988; Wood & Hughes, 1984). One reason for this advocacy could be rooted in the emphasis placed on marriage and family within many religions. Pornography use can potentially be harmful to marriages and families (Manning, 2006). Specifically, Bridges et al. (2003) report that married women were significantly more distressed by a partner's online pornography consumption than women in dating relationships. Interestingly, the aforementioned study reports that the distress experienced by the individuals in the sample was not related to religion, but it does add support for the idea that pornography use can potentially be predictive of lower marital quality if used within a marriage (Perry, 2016).

Another reason why religious individuals may view pornography use negatively is because in many of the major world religions, an emphasis is placed on chastity (abstaining from sexual relations outside of marriage). Many of the major world religions have explicit commandments in their holy books prohibiting such activity. For instance, 1 Corinthians 6:18 says, "flee from sexual immortality. Every other sin a person commits is outside the body, but the sexually immoral person sins against his own body." To many interpreters of the Bible, this would include pornography use (Byrne, 1983). In Islam, while there is no explicit verse condemning the use of pornography, many interpreters have taken some verses to argue against pornography use. For instance, Quran 16:90 says: "Surely God enjoys justice, kindness, and the

doing of good, to kith and kin; and He forbids all that is shameful, indecent, evil, rebellious, and oppressive.” As evidence for the interpretation of these verses, the country of Indonesia, which has the largest Muslim population in the world, has laws banning the use of pornography (Allen, 2007). Individuals high in religiousness may be less likely to start viewing pornography in the first place if they adhere to their religious writings, which would lead to lower levels of pornography use.

Individuals that are religious tend to meet at a place for worship that also includes other individuals and families. One theoretical reason as to why religiousness may predict lower levels of pornography is that churches and other places of worship have been shown to provide benefits to members such as emotional support, role models, and resources (Dehejia et al., 2007). An individual that feels compelled to use pornography may seek out support from others within a faith context in order to combat that use, similarly to actions by those dealing with problematic substance use. Another theoretical reason as to why religiousness may predict lower levels of pornography use is that religious individuals strive to adhere to the commandments and tenets of the system of their faith. If someone is adhering to the tenets of the faith, they may internalize the warnings against “sexually immoral” behavior and actions in the holy books. As mentioned previously and will be elaborated on further, this would be descriptive of those high in IR.

Pornography use has been empirically studied in relation to religiousness. MacInnis and Hodson (2016) found that religious individuals were more likely to have negative beliefs about viewing sexual content online, and were also less likely overall to view sexual content online compared to non-religious individuals. Hardy et al. (2013) suggest that religiousness serves as a protective factor for adolescents, predicting abstinence from pornography use.

An important gap in recent research on religiousness and pornography use is studying the nuances in religious orientation and how those predict pornography use. Grubbs and Perry (2019) report that even though there have been studies examining religiousness in relation to pornography use, there are not many studies that are researching these constructs with nuance. Dichotomizing IR and ER provides some nuance into our definitions of religiousness and may provide insights into the relationship between religiousness and pornography use. Although religiousness in general has been shown to predict lower levels of pornography use, IR is presumed to have a strong inverse relationship with pornography use due to the internalization of the tenets of the faith (Allport & Ross, 1967) and because it is predictive of other positive health outcomes (Bergin et al., 1987; Sanders et al., 2015).

### **IR/ER In Relation to Addiction and Use**

Is there evidence that IR is a better predictor of addiction in general than ER? Only one study specifically comparing IR and ER as predictors in the realm of addiction was found. That recent study considered the relationships between IR, ER, perceived stress, and cigarette addiction in a sample of 572 students at the Kerman University of the Medical Sciences in Iran. The study found that the students that were higher in IR had lower levels of perceived stress and lower levels of cigarette addiction compared to students that were higher in ER (Banazadeh et al., 2019). While this is preliminary evidence that IR predicts lower levels of addiction than ER, more research is needed in this domain to confirm these findings.

While there is a substantial amount of evidence that seems to point to an inverse relationship between religiousness, broadly defined, and illicit or problematic substance use, less is known about the predictive value of the IR specifically. One of the limitations of the ER/IR dichotomy is that it is possible for someone to score similarly on both intrinsic and extrinsic

religiousness, yet IR has consistently been the dimension that has predicted positive outcomes. Additionally, ER has been a more difficult construct to measure (Kirkpatrick & Hood, 1990). Because of the measurement difficulties and the greater predictive power of IR, the current study will focus on IR, using an instrument purported to target “religious commitment” that has been shown to be highly correlated with measures of IR (Clements et al., 2015).

### **Measuring Intrinsic Religiousness (IR)**

Although religiousness has been measured using a variety of ways, a specific aspect of religiousness, IR, will be the focus of this study (Clements & Ermakova, 2012; Fetzer Institute/NIA, 1999; Wong-McDonald & Gorsuch, 2000; 2004), and there are only a few measures focused specifically on this construct. The *Gorsuch and McPherson Revised Intrinsic/Extrinsic Scale* (Gorsuch & McPherson, 1989) contains 20 items using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” The scale contains questions that target both ER, as well as IR. Some of the items targeting IR include “My whole approach to life is based on my religion” and “I try hard to live all my life according to my religious beliefs.” Some of the items targeting ER include “I go to church because it helps me to make friends” and “Prayer is for peace and happiness.” According to Gorsuch and McPherson (1989), the reliability is sufficient to recommend it for universal use ( $\alpha=.83$ ). Furthermore, Hill and Hood (1999) report that this scale is both reliable and valid.

The *Religious Surrender & Attendance Scale-3* (RSAS-3; Clements et al., 2015), which was developed from the *Surrender Scale* (SS, Wong-McDonald & Gorsuch, 2000; 2004) and *The Brief Multimodal Measure of Religiousness and Spirituality* [BMMRS] (Fetzer Institute, 1999), is a scale that is primarily a measure of IR (Clements et al., 2015), and will be used in this study. It has been found to be highly correlated with IR items ( $r = .65, p < .001$ ; Clements et al.,

2015) found in both the BMMRS and the *Gorsuch and McPherson Revised Intrinsic/Extrinsic Scale*. Its brevity, psychometric properties, and demonstration relationship to health outcomes support its use in this study. Conceptually, the RSAS-3 can be used both continuously, but can also be used dichotomously to capture a threshold for religious commitment. One of the advantages to this scale is that it is short and simplified compared to other scales. Furthermore, an added benefit to this scale is that it captures IR rather than a broader definition of religiousness.

As discussed previously, there are many ways in which religiousness has been operationally defined and measured in the literature. For more information on other measurements of religiousness and how they are defined and utilized, there are a number of systematic reviews that one can consult (Lucchetti et al., 2013; Monod et al., 2011; Thune-Boyle et al., 2006; Shaw et al., 2006).

### **Measuring Substance Use**

There has been a plethora of measures of substance addiction/illicit substance use. The *Alcohol, Smoking and Substance Involvement Screening Test* (ASSIST) is a validated instrument that is used to measure specific types of substance abuse (Humenuik et al., 2008). The instrument asks questions about use of specific types of drugs and asks participants if friends or relatives express concern about potential drug use of the participants. This measure is most commonly used in an interview format, making it a poor fit for this online survey.

The *Michigan Alcoholism Screening Test* (MAST; Selzer, 1971) was constructed to detect alcoholism in participants. The measure consists of 25 items that ask the participant to either answer “yes” or “no.” Questions pertain to specific drinking habits in participants, such as, “Do you ever feel bad about your drinking?” and, “Have you ever been a patient in a hospital

because of drinking?” Because drugs beyond alcohol are of interest in the current study, the MAST was not appropriate.

The *Alcohol Dependence Scale* (ADS; Ross et al., 1990) was created to be used in community settings. According to Peters et al. (2000), this scale has been used for detecting substance addiction under relatively rigorous methodological conditions. This scale also utilizes a cutoff score in order for there to be a threshold for addiction. Similar to the MAST, because the present study is interested in substances not exclusive to alcohol, the ADS scale was not appropriate for the current study.

The *Addiction Severity Assessment Tool* (Butler et al., 2005) is a 27-item multidimensional self-report scale that measures substance use in relation to problem severity in daily functioning, relational functioning, dependence severity, and recovery skill/self-efficacy. One of the advantages of this scale is that it can be completed in a short amount of time, thus, Butler et al. (2005) suggests that this scale be used in clinical settings. Another advance to this scale is that it measures substances, broadly defined, rather than a specific substance. The only potential shortcoming of utilizing this measure in this study is that it has been used mostly in clinical settings for clients that are in substance abuse treatment, not the general population.

The *TCU Drug Screen V* (TCUDS-V) is a recent version of the TCU Drug Screen II that was updated to reflect the recent diagnostic criteria in the DSM-5 (TCU, 2017). The TCUDS-V screens for substance use that ranges from mild to severe. Furthermore, the instrument is designed to be self-administered rather than to be used in interview format making it appropriate for an online survey. The current study is employing the use of the TCUDS-V for three reasons. First, it measures use of many types of substances. Second, the measure focuses on specific types of use rather than merely employing general questions surrounding use/nonuse. The measure

also employs a question that will allow for measuring whether a substance was used in the past 12 months. Finally, and perhaps most importantly, the measure was used in a previous study conducted by this same author, and therefore it would allow further comparisons to be made. Since this measure is being used in this study, it will be further described in the following section.

### **Measuring Pornography Use**

As discussed previously, pornography addiction is not considered to be an official addiction according to the DSM-5. Nevertheless, there have been a few instruments devised to measure pornography addiction and use. One such scale is the *Compulsive Pornography Consumption Scale* (CPC; Noor et al., 2014), which is a 5-item self-report scale that assesses excessive compulsive pornography consumption. It is largely based on diagnostic criteria in the DSM-5 for obsessive-compulsive disorder. Some of the items include: “I watched pornography even though I did not want to” and “I thought of pornography when I was trying to focus on other things.” The scale is based on a 7-point Likert scale from “never” to “frequently.” There is not a cut-off score for this scale to determine whether someone meets the “threshold” for excessive pornography use, and, although use is the variable of interest in the current study, these data may be examined for excessive use if, indeed, pornography addiction is determined to be a disorder. This made an excessive use indicator desirable.

The *Problematic Pornography Use Scale* (PPUS; Kor et al., 2014) is a self-report measure that assesses pornography use based on four factors, namely: distress and dysfunctional problems, excessive use, control difficulties, and use for escape/avoiding negative emotions. Some of the sample items include: “Using pornography has created significant problems in my personal relationship with other people, in social situations, at work or in other important aspects



of my life,” as well as “I have been unsuccessful in my efforts to reduce or control the frequency that I use pornography in my life.” The scale contains 12 items and it is rated on a 6-point Likert scale from “never” to “almost always true.” Some of the positive aspects of the scale are that it has demonstrated good internal consistency for total score and subscales ( $\alpha=.75-.93$ ). Another major benefit of this scale is that it is one of the few excessive pornography use scales to utilize the addiction criteria of “using despite harm.” A potential drawback of this scale is that some of the items seem vague and may be in need of further clarification (Fernandez & Griffiths, 2019).

The *Pornography Craving Questionnaire* (PCQ; Kraus & Rosenberg, 2014) is a self-report scale that assesses cravings for pornography consumption. Some of the sample items include: “I have an urge to watch pornography right now,” as well as “If I watched pornography now I would have difficulty stopping.” The scale contains 12-items rated on a 7-point Likert scale ranging from “disagree completely” to “agree completely.” In terms of reliability, the PCQ scale has high internal consistency ( $\alpha=.91$ ).

The *Pornography Consumption Inventory* (PCI; Reid et al., 2011) is a self-report scale that assesses motivation for the utilization of pornography. Some of the sample items include: “I turn to pornography when I am feeling down, sad or lonely” and “I use pornography to avoid feeling uncomfortable or unpleasant emotions.” The scale contains 15 items rated on a Likert scale ranging from “0 - never like me” to “5 - very often like me.” In terms of reliability, the scale has good internal consistency for the whole scale ( $\alpha=.83 - .93$ ). One of the benefits of this scale is that it is one of the only measures to consider motivation for pornography use. As a potential detriment, the scale may not be ideal for measuring addiction as it only contains one component of addiction (mood modification) in its assessment of addiction symptoms.

The *Problematic Pornography Consumption Scale* (PPCS; Bóthe et al., 2018), a self-

report measure that assesses excessive pornography use based on a conceptual addiction model from Griffiths (2005), will be used in the study and will be described more thoroughly in the next section. Similar to other criteria for addictions in the DSM-5, the scale measures components such as salience, mood modification, conflict, tolerance, withdrawal, and relapse in relation to pornography use. The PPCS is also based on a clear theoretical framework (Griffiths, 2005). While there are a few different scales that measure pornography addiction/use, the PPCS has some clear advantages over others. For instance, it is one of the few scales to provide a validated cutoff score to differentiate problematic use from non-problematic use. Again, use is of interest in the current study, but excessive use/addiction are areas of interest for future investigations.

### **Current Study**

In the current study, we will examine whether religiousness, specifically IR, will inversely relate to both illicit or problematic substance use and pornography use. The present hypothesis is that IR will predict lower levels of illicit or problematic substance use and pornography use scored dichotomously. In other words, greater IR utilizing a cutoff score will predict low levels of pornography use and illicit substance use.

## **Chapter 2. Methods**

After receiving study approval from the university's institutional review board, undergraduate students recruited through the online research management system (SONA) and the general public recruited through Facebook advertisements were directed to a Research Electronic Data Capture (REDCap) link that took them to an online survey. REDCAP is a secure web-based application that is used for the administration of surveys. SONA is a web-based application that is used by various institutions and universities in order to allow for the crediting of participation of undergraduate students who complete psychology studies. East Tennessee State University students who completed surveys through SONA received credit/extra credit that was applied to a grade in a class in which they were enrolled. No other incentives were offered for participation. No identifying information was collected, and therefore, responses were not linked to participants. Upon consent, participants completed the following measures and were also provided with the author's contact information should they have any questions regarding the study, or if they chose to retract their consent.

### **Measures**

#### **Religious Surrender and Attendance Scale – 3 (RSAS-3)**

The RSAS-3 scale, based off of the 12-item surrender scale (Wong-McDonald & Gorsuch, 2000; 2004), was designed to capture religious commitment, and is highly correlated with IR (Clements et al., 2015) (See Appendix B). In total, the scale contains three Likert-scale items, two regarding surrender to God, and one regarding religious service attendance frequency. The first surrender question states, "When my understanding of a problem conflicts with God's revelation, I will submit to God's definitions." Possible responses range from 1 "never true of me" to 5 being "always true of me." The second states, "Although I may not see the results from

my labor, I will continue to implement God’s plans as long as God directs me to do so,” and is rated on the same scale. The participant then rates “How often do you go to religious services” on a Likert scale (1 “never” to 6 “more than 1 time a week”). Attendance was originally included because religious attendance is highly predictive of health outcomes and reflects internalization of one tenet of the Christian faith, gathering together. Due to the ongoing COVID-19 worldwide pandemic, many individuals that ordinarily attended services frequently have reduced attendance due to a number of factors, such as risk of infection and state and local mandates. As a result, attendance was omitted from analyses as the two surrender-focused items in the RSAS-3 have been shown to be highly correlated with IR ( $r=.60, p< .001$ ). The RSAS-3 has been found to have strong construct validity and be strongly inversely related to stress (Clements et al., 2015), and has recently begun to be investigated as a predictor of problematic substance use. The measure can be self-administered online or on paper and can be scored continuously by totaling all responses then calculating the mean or dichotomously. Participants can be categorized as high IR or low IR by grouping those who answer 4 or 5 to both surrender questions and choose once per week or more on the attendance question as high IR and all others as low IR. For the current study, participants were coded as “high IR” if they selected a 4 or 5 on both surrender questions (“Although I may not see the results from my labor, I will continue to implement God’s plans as long as God directs me to do so,” and “When my understanding of a problem conflicts with God’s revelation, I will submit to God’s definitions”). Participants were coded as “low IR” if they answered less than 4 on either of the two surrender questions.

### **TCU Drug Screen-V**

The current study employed the TCUDS-V, which is a 17 item-scale measure of substance use, updated from the TCU Drug Screen II that reflects the diagnostic criteria in the

DSM-5 (TCU, 2017) (See Appendix C). The TCUDS-V screens for substance use that ranges from mild to severe by asking questions related to drug use. The first 11 items are answered by responding “yes” or “no” to the question posed. Question 12 asks specifically about which drug has caused the most serious problems in the last 12 months, and participants are asked to choose from a list of drugs. Question 13 asks how often the participant used each type of drug in the last 12 months. Question 14 asks if participants have ever been to a drug treatment program. Question 15 asks on a Likert scale from “not at all” to “extremely,” “how serious do you think your drug problems are?” The scale is scored by assigning 1 point for each question answered “yes” from questions 1-11. Participants can be categorized as having an addiction if they answer “yes” to at least 3 items. Items 12-17 are not included as part of the total TCUDS-V score, but they do provide additional insight that can be used in treatment decisions. The TCUDS has been shown to be both reliable ( $\alpha=.95$ ) and valid (Peters et al., 2000). An added rationale for incorporating the TCUDS-V is that this instrument measures substance use across many substances including alcohol. Lastly, the TCUDS-V’s value for the current study is that it was used in a previous study and therefore would increase the overall data set and allow further analyses to be conducted. Since illicit or problematic substance use is an outcome of interest in this study, results were coded as whether or not the participant used an illicit drug in the past 12 months or if they indicated problematic use of a legal substance. For illicit substance use, participants were classified as having “illicit use” if they reported using an illicit substance which was defined as: marijuana, hashish, synthetic marijuana, heroin, fentanyl, powder cocaine, crack cocaine, amphetamines, methamphetamines, bath salts, ecstasy, ketamine, LSD, or solvents. While there is debate as to whether to regard marijuana as illicit due to the legalization and decriminalization of this specific substance in parts of the United States, marijuana still remains

illegal in the state of Tennessee where most of the participants were recruited. Furthermore, as recently as 2018, marijuana was categorized as an illicit substance in the SAMSHA 2018 National Survey on Drug Use and Health (SAMSHA, 2018). Participants were categorized as having problematic substance use if they selected prescription medications or alcohol within the question that asked, “how often did you use each type of drug during the last 12 months” and indicated that substance was the cause “of the most serious problem in the last 12 months.” This decision was made because prescription medications and alcohol, can be used in ways that are not unhealthy. In fact, some studies have reported health benefits to smaller quantities of alcohol use (Klatsky, 2010). Alcohol does have the potential to be abused and misused, and has been documented in this way in a variety of studies (Clay & Parker, 2020; Hawkins et al., 1997; Perkins, 2002). As a result, it was deemed appropriate to include alcohol is problematic if and only if the participant specified that alcohol was the cause “of the most series problem in the last 12 months.”

### **Problematic Pornography Consumption Scale**

The current study employed the use of the Problematic Pornography Consumption Scale (PPCS; Bóthe et al., 2018) (See Appendix D). Some sample questions include “I felt that pornography is an important part of my life” and “I felt that I had to watch more and more porn for satisfaction.” This scale is an 18-item scale rated on a 7-point Likert scale ranging from “never” to “all the time” and can be scored by adding up the ratings for each item. This scale was chosen over others for a few reasons, with one reason being that this scale included a validated cut-off score to differentiate problematic use from non-problematic use. The authors suggest that a cutoff score of 76 points out of 126 points identifies problematic pornography use. Some of the strengths of this scale are that it contains good internal consistency ( $\alpha=.93$ ) and it contains

evidence of good convergent validity. Since pornography use, rather than pathology, is of concern in this study, the current study will code pornography use as utilizing pornography in the last 12 months. Pornography use was classified as any participant that responded they had used pornography in the last 12 months to one question that asked, “How often have you used pornography in the last 12 months?” This question was not part of the original scale, but it was included to reflect a question with similar wording within the TCUDS-V that enquires about substance use within the past 12 months. This was done for the sake of consistency when analyzing results. While the PPCS score was not used as an outcome variable in this study, its findings were analyzed in order to give a picture of use among respondents.

### **Data Cleaning**

Prior to running analyses, data cleaning was conducted in order to resolve potential issues involving inaccurate and incomplete data. Prior to data cleaning, the current study had an initial sample size of 542. Responses of 67 participants were removed for failing to respond to any of the items. This left 476 participants that consented to the survey. Most variables were coded automatically within REDCap. Prior to analyzing data, the final sample of 476 participants were sorted as either being intrinsically religious or not, whether the participant had used an illicit substance or reported using alcohol or prescription medications in a problematic way, and whether the participant had reported pornography use. There were 157 participants that were coded as using an illicit or problematic substance, and 290 participants that were coded as not using an illicit substance or using alcohol or prescription medications in a problematic way. There were 212 participants that were coded as not using pornography, and 232 participants that were coded as using pornography.

## Analysis Plan

### Demographics

The following demographic variables were included in the administered survey: student status, race, ethnicity, gender, work status, housing status, and whether survey was taken through SONA. Student status was coded as “yes, part time,” “yes, full time,” or “no.” Race was coded as “White,” “Black,” “Asian,” “Multiracial,” “Native American/Pacific Islander,” or “other.” Ethnicity was coded as “Hispanic,” or “not Hispanic.” “Housing Status” was coded as “Live with parents/guardian,” “Live alone,” “Live with roommate(s),” “Live with spouse,” “Live with romantic partner,” or “no permanent address.” Gender was coded as “male,” “female,” or “other”, with a write-in option. Work status was coded as “do not work,” “work part-time,” and “work full time.” Whether the survey was taken through SONA was coded as “Yes,” or “No.” Participants could write-in the state in which they currently reside. Any demographic variables found to be significantly related to the outcome variables, were considered for inclusion as covariates in each model. Use versus nonuse were the outcome variables in models investigating illicit or problematic substance use and pornography use.

### Descriptive Analyses

Utilizing a conservative Cohen’s  $d$  score (0.2) that is reflective of general social scientific enquiry, as well as utilizing a two-tailed test, a power analysis run in *G power* revealed a needed sample size of 395. Appropriate descriptives (e.g., percentages, means, standard deviations) and intercorrelations were reported for demographic variables as well as for the three measures being used in this study (e.g., PPCS, TCUDS-V, RSAS-3). Each instrument was scored dichotomously (e.g., pornography use/non-use, illicit or problematic substance use/non- illicit or problematic



substance use, high/not high on IR). Chi Squared Tests of Independence were conducted to evaluate relationships for dichotomous scores.

### **Logistic Regression**

Four logistic regression models were conducted to determine whether dichotomous RSAS-3 scores (classified as “surrendered, intrinsically religious” versus “non-surrendered, non-intrinsically religious”) predicted the the outcomes of interest, each run with and without covariates. The two outcomes were likelihood of pornography use and likelihood of illicit or problematic substance use. The demographic variables described above that were found to be significantly related to either of the outcome variables were included as covariates in each respective model after running each the model without covariates. The tested hypothesis was that high IR as measured by the surrender questions from the RSAS-3 would predict a lower likelihood of pornography use and illicit or problematic substance use.

### Chapter 3. Results

After data cleaning, there were a total of 476 useable responses, which was an adequate sample size according to a priori *G Power* power analysis. Demographic variables for participants are in Table 1. Males constituted 33.6% of the sample while females constituted a total of 66.4% of the sample. Participants identifying as other constituted 0.2% of the total sample. As only one participant identified as other, the case was left out in the logistic regression analyses. For race, White constituted the majority of the sample (87%) followed by Black (6.5%). The majority of the sample consisted of full-time students (79.6%) with the largest proportion of participants reporting that they lived with their parents (40%). It is possible that this statistic is affected by the ongoing COVID-19 pandemic, which likely reduced the number of individuals living on campuses, alone, and with roommates. Participants that reported using an illicit substance or using alcohol or prescription medication problematically in the past 12 months constituted 35.1% of the total sample. Participants that reported using pornography in the past 12 months constituted 52.3% of the sample.

**Table 1**

*Characteristics of Study Sample Categorical Variables*

		Religious Commitment		
		Total	IR <i>n</i> (% within column)	Non-IR <i>n</i> (% within column)
Student status				
	Not a student	48 (10.7%)	30 (18.9%)	18 (6.3%)
	Full-time student	356 (79.6%)	113 (71.1%)	243 (84.4%)
	Part-time student	43 (9.6%)	16 (10.1%)	27 (9.4%)
Race				
	White	387 (87%)	140 (88.6%)	247 (86.1%)
	Black	29 (6.5%)	12 (7.6%)	17 (5.9%)
	Asian	9 (2%)	2 (1.3%)	7 (2.4%)
	Multiracial	9 (2%)	2 (1.3%)	7 (2.4%)

	Native American/Pacific Islander	3 (.7%)	0 (0%)	3 (1%)
	Other	8 (1.8%)	2 (1.3%)	6 (2.1%)
Ethnicity				
	Hispanic	23 (5.2%)	7 (4.4%)	16 (5.6%)
	Not Hispanic	422 (94.8%)	152 (95.6%)	270 (94.4%)
Gender				
	Male	150 (33.6%)	54 (34%)	96 (33.3%)
	Female	296 (66.4%)	105 (66%)	191 (66.3%)
	Other	1 (.2%)	0 (0%)	1 (.3%)
Work status				
	Full Time	88 (19.7%)	37 (23.3%)	51 (17.7%)
	Part Time	192 (43%)	60 (37.7%)	132 (45.8%)
	No Work	167 (37.4%)	62 (39%)	105 (36.5%)
Housing status				
	Live with Parents/Guardian	178 (40%)	59 (37.3%)	119 (41.5%)
	Live Alone	72 (16.2%)	26 (16.5%)	46 (16%)
	Live With Roommates	118 (26.5%)	42 (26.6%)	76 (26.5%)
	Live with Spouse	47 (10.6%)	26 (16.5%)	21 (7.3%)
	Live with Romantic Partner	25 (5.6%)	2 (1.3%)	23 (8%)
	No Permanent Residence	5 (1.1%)	3 (1.9%)	2 (.7%)
Substance Use				
	Illicit or Problematic Substance Use	157 (35.1%)	28 (17.6%)	129 (44.8%)
	No Illicit or Problematic Use	290 (64.9%)	131 (82.4%)	159 (55.2%)
Pornography Use				
	Pornography Use	232 (52.3%)	55 (34.8%)	177 (61.9%)
	No Pornography Use	212 (47.7%)	103 (65.2%)	109 (38.1%)
SONA				
	Yes	388 (86.8%)	122 (76.7%)	266 (92.4%)
	No	59 (13.2%)	37 (23.3%)	22 (7.6%)

Descriptive statistics were reported for continuous variables. Since use rather than addiction was the focus of the current study, cutoff scores indicating addiction were not used. Rather, the descriptive table below (see Table 2) reports descriptive statistics for continuous PPCS scores to provide further descriptive information in relation to participants and pornography use. The scores were computed by adding up scores for each item that were scored on a 7-point likert scale.

**Table 2***Characteristics of Study Sample for Continuous Variables*

	N	Minimum	Maximum	Mean	Std. Deviation
PPCS Total	424	18.00	86.00	24.540	13.218
Age	475	18	90	22	8.093

Bivariate relationships were examined for variables of interest and potential covariates. A Chi-Squared Test of Independence was performed to examine the relationship between gender and each outcome variable of interest. The relationship between gender and pornography use was significant, with males being more likely to utilize pornography  $X^2(2, N = 444) = 29.897, p < .000$  but gender was not significantly related to illicit or problematic substance use,  $X^2(2, N = 442) = 6.073, p = .299$ . Race was not significantly related to illicit or problematic substance use,  $X^2(5, N = 452) = 6.418, p = .268$  or pornography use  $X^2(5, N = 442), 6.073, p = .299$ . Ethnicity was not significantly related to illicit or problematic substance use,  $X^2(5, N = 452) = 3.160, p = .075$  or pornography use,  $X^2(5, N = 442) = .683, p = .408$ . Student status was not significantly related to illicit or problematic substance use  $X^2(2, N = 454), 5.213, p = .073$ , but was related to pornography use with students being more likely to use pornography,  $X^2(2, N = 444), 6.212, p = .045$ . Work status was not significantly related to illicit or problematic substance use  $X^2(2, N = 454), 4.160, p = .125$  or pornography use  $X^2(2, N = 444), .866, p = .649$ . Whether or not the participant took the survey through SONA was significantly related to illicit or problematic substance use,  $X^2(1, N = 453), 9.775, p = .002$ , but not related to pornography use,  $X^2(1, N = 444), 2.699, p = .100$ . Housing status was significantly related to pornography use, with individuals living at home and with a romantic partner being more likely to use pornography,  $X^2(5, N = 442), 20.842, p = .001$  and illicit or problematic substances  $X^2(5, N = 452), 11.490, p =$

.042. Finally, intrinsic religiousness was significantly related to both pornography use  $\chi^2(5, N = 444), 29.910, p < .0001$  and illicit or problematic substance use  $\chi^2(5, N = 447), 33.216, p < .0001$ , with those high in IR being much less likely to report pornography use or to report illicit or problematic substance use. Finally, the relationship between pornography use and illicit or problematic substance use was significant,  $\chi^2(1, N=443), 25.215, p < .0001$

### **Logistic Regression**

Four logistic regression models were performed in order to assess the ability of IR to predict the likelihood of illicit or problematic substance use without covariates and with covariates and to predict the likelihood of pornography use without covariates and with covariates. Binary logistic regression requires dependent variables to be binary which is appropriate for dichotomized pornography use and dichotomized illicit or problematic substance use.

#### ***Model 1***

The first model utilized IR as a predictor variable and illicit or problematic substance use as an outcome variable. Assumptions for this model were checked and none of the assumptions were violated. These assumptions include: a binary dependent variable, independent observations, an absence of multicollinearity, and an adequate sample size. In addition, these assumptions were checked for all four logistic regression and none of the models were in violation of any of the aforementioned assumptions. IR was found to be a significant predictor of illicit or problematic substance use,  $\chi^2(1, N=445) = 35.367, p < .0001$  (OR=3.796, 95% CI [2.374, 6.070]), meaning that individuals that were not intrinsically religious were 3.796 times more likely to report illicit or problematic substance use (See Table 2). The model as a whole explained between 7.8% (Cox and Snell R Square) and 11.0% (Nagelkerke R Squared) of the

variance in illicit or problematic substance use, and it correctly classified 68.2% of cases. Due to the degrees of freedom being 0, a Hosmer Lemeshow score is not reported.

**Table 3**

*Logistic Regression Without Covariates Predicting Likelihood of Illicit or Problematic Substance Use*

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Intrinsic Religiousness	1.334	.240	31.004	1	.000	3.796	2.374	6.070

**Model 2**

Logistic regression was performed to assess the impact of IR along with significantly related covariates on the likelihood that respondents would report illicit or problematic substance use. The demographic variables that were significantly related to illicit or problematic substance use during initial testing were: SONA, and housing status. Several of the demographic variables (e.g., student status, SONA, housing status) are highly intercorrelated, so only the one that was most strongly related to illicit or problematic substance use (housing status) was included in the model. The full model was statistically significant  $\chi^2(6, N=445) 44.853, p < .0001$ . The Hosmer-Lemeshow test revealed that the model had good fit  $\chi^2(6, N = 445), 2.076, p = .913$ . The fact that the  $p$  value is greater than .05 further demonstrates support for the model. The model as a whole explained between 9.6% (Cox and Snell R Square) and 13.4% (Nagelkerke R Squared) of the variance in illicit or problematic substance use, and it correctly classified 66.3% of cases.

IR, along with housing status as a covariate was found to be a significant predictor of illicit or problematic substance use. The full model was statistically significant  $\chi^2(6, N=445) 44.853, p < .0001$ . As shown in Table 2, only two independent variables made a unique statistically significant contribution to the model (IR (OR=3.880, 95% CI [2.394, 6.286]), living

with roommate(s) (OR=1.927). This indicates that individuals that were not intrinsically religious were 3.880 times more likely to report illicit or problematic substance use when controlling for housing status (See Table 3).

**Table 4**

*Logistic Regression Predicting Likelihood of Illicit or Problematic Substance Use*

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Housing Status								
Referent (Parents)			10.257	5	.068			
Alone	.327	.304	1.158	1	.282	1.387	.764	2.519
Roommates(s)	.656	.257	6.518	1	.011	1.927	1.165	3.189
Spouse	-.276	.408	.460	1	.498	.759	.341	1.686
Romantic Partner	-.261	.465	.315	1	.575	.770	.309	1.917
No Residence	.784	.982	.638	1	.424	2.191	.320	14.998
Intrinsic Religiousness	1.356	.246	30.305	1	.000	3.880	2.394	6.286

**Model 3**

The third model tested the likelihood of pornography use in individuals who are intrinsically religious. IR was found to be a significant predictor of pornography use,  $X^2(1, N=445) = 35.367, p < .0001$  (OR=3.041, 95% CI [2.028, 4.560]), meaning that individuals that were intrinsically religious were 3.041 times less likely to utilize pornography compared to individuals who were not intrinsically religious. The model as a whole explained between 6.6% (Cox and Snell R Square) and 8.8% (Nagelkerke R Squared) of the variance in illicit or problematic substance use, and it correctly classified 52.3% of cases. Due to the degrees of freedom being 0, a Hosmer Lemeshow score is not reported.

**Table 5***Logistic Regression Without Covariates Predicting Likelihood of Pornography Use*

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Intrinsic Religiousness	1.112	.207	28.959	1	.000	3.041	2.028	4.560

**Model 4**

Logistic regression was performed to assess the impact of IR along with significantly related covariates on the likelihood that respondents would report that they had utilized pornography. The demographic variables that were significantly related to the outcome variable in initial testing were: housing status, gender and student status. Two of these (e.g., student status and housing status) are highly intercorrelated, so only the one that was most strongly related to pronography use (housing status) was included in the model.” Gender was also included in the model since it was significantly related to the outcome in initial analysis, with males being more likely to report utilizing pornography. The full second model was statistically significant,  $X^2(7, N=442) = 80.364, p < .0001$ . This model explained between 16.6% (Cox and Snell R Square) and 22.2% (Nagelkerke R Squared) of the variance in pornography use, and it correctly classified 64.5% of cases. The Hosmer-Lemeshow test revealed that the model had good fit  $X^2(8, N = 442), 8.211, p = .413$  as evidenced by the  $p$  value being above .05. The strongest predictors for pornography use was gender and IR. The odds ratio for gender predicting pornography use was  $OR=3.533$  95% CI [2.248, 5.551], meaning that males were 3.533 times more likely to report using pornography. The odds ratio for intrinsic religiousness on pornography use was  $OR=3.305$ , 95% CI [2.113, 5.170], meaning that individuals that were not intrinsically religious were 3.305 times more likely to report using pornography when controlling for gender and housing status.



**Table 6***Logistic Regression Predicting Likelihood of Pornography Use*

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Housing Status								
Referent (Parents)			17.076	5	.004			
Alone	1.195	.328	13.257	1	.000	3.304	1.736	6.288
Roommates(s)	.210	.255	.679	1	.410	1.234	.749	2.033
Spouse	.131	.371	.124	1	.725	1.140	.551	2.358
Romantic Partner	1.070	.488	4.811	1	.028	2.915	1.121	7.584
No Residence	.936	1.010	.860	1	.354	2.551	.353	18.460
Gender	1.262	.231	29.960	1	.000	3.533	2.248	5.551
Intrinsic Religiousness	1.196	.228	27.45	1	.000	3.305	2.113	5.170

**Summary of Results**

All four models demonstrated that IR was a significant predictor of both substance use and pornography outcomes. Adding in the covariates did not reduce these relationships. IR predicted illicit or problematic substance use a bit more strongly than it predicted pornography use, but it was still significantly related to pornography use.

## Chapter 4. Discussion

As expected, IR, as measured by two questions from the RSAS-3, predicted less pornography use in the past 12 months and predicted less illicit or problematic substance use in the past 12 months. Findings concerning religiousness in relation to substance use have generally been in support of this (Chawla et al., 2007), but this research further contributes to the literature by utilizing a measure for IR rather than a more general measure of religiousness. Furthermore, this study utilized illicit or problematic substance use, rather than addiction, as the outcome variable, which further adds to the literature by suggesting that IR predicts lower levels of illicit or problematic substance use even when it doesn't rise to the level of addiction.

Theoretically, it makes sense that IR would be predictive of less illicit or problematic substance use because those high in IR tend to internalize the tenets of the faith and as such are more likely to follow religious teachings. Furthermore, religious teachings for the two largest religions in the world, namely Islam and Christianity, discourage drunkenness (Michalak & Trocki, 2006). Therefore, if those tenets are internalized, one would expect less alcohol (and relatedly other substance) use in the first place. Secondly, illicit substance use is generally used in reference to illegal usage of substances. Illegal behavior is discouraged in the major religions of the world, which further supports the potential reasons for why intrinsically religious individuals would be less likely to utilize illicit substances.

According to Clements and Ermakova (2012), surrender reflects a deep commitment to following God's will and therefore should predict a greater adherence to religious tenets (Wong-McDonald & Gorsuch, 2004). That is one possible reason as to why individuals high in IR are less likely to utilize illicit or problematic substances, as well as pornography. Another possible explanation is that individuals may turn to religion when facing stressful situations (Clements &

Ermakova) instead of utilizing illicit substances when stressed. While social support is a factor in explaining why individuals engage in some healthier behaviors, Debnam et al. (2012) demonstrated that religious social support predicted decreased alcohol consumption over and against general social support.

In addition to illicit or problematic substance use as an outcome variable, the current study also utilized pornography use as an outcome variable. IR was inversely related to pornography use. This result was expected for similar reasons as to why an inverse relationship between IR and illicit or problematic substance use was expected. Religious teachings for the two largest religions in the world (Islam and Christianity) discourage sexual acts outside of marriage, which includes the use of pornography (Finke & Adamczyk, 2008).

The current study adds further clarification to some seemingly contradictory pieces of evidence. For instance, past literature has suggested that states with higher levels of evangelical protestants, theists, and persons who believe the Bible should be interpreted literally had higher search rates for the term “porn” (Whitehead & Perry, 2017). Similarly, in another study, MacInnis and Hodson (2016) found that states that had higher percentages of Americans who self-identified as “very religious” had higher search rates for the term “sex” on the web and in Google Images. Another study has shown that religious people did not differ in regards to pornography use and masturbation in comparison to non-religious individuals (Reid et al., 2016). The aforementioned study, however, utilized a more general religiousness scale that does not necessarily tap into IR, specifically (Worthington et al., 2003). IR, as compared to broadly defined religiousness, helps to hone in on important aspects of “internalization” that helps to explain why there was less pornography use reported amongst this particular subset of religious individuals. The current study, utilizing a measure for intrinsic religiousness rather than terms

such as “evangelical Protestant” or “very religious” suggest an inverse relationship between said orientation and pornography use outcomes.

### **Limitations**

The current study is not without limitations. First, the majority of the sample contained undergraduate students. There are a few reasons for why this exists as a limitation. One reason is that undergraduate students tend to be younger and therefore it is more difficult to generalize to older populations. In particular, undergraduate students and individuals in that age range are more likely to use illicit substances or use substances problematically. As a result, it is possible that rates of illicit or problematic substance usage for the current study are higher than if the study had a more representative sample of the population. Undergraduate students tend to be single and therefore the results are less able to generalize to married populations. Another limitation is the racially homogenous nature of the sample. Approximately 87% of participants reported that they are “White.” While the majority racial demographic in the United States is “White,” the study had an overrepresentation of participants identifying as “White” in comparison to the overarching population of the United States. Although it is outside the scope of this study, it is worth mentioning that different cultures and racial backgrounds can have different experiences vis-à-vis religion and spirituality.

Another set of limitations resulted from the ongoing COVID-19 pandemic that has affected the world in myriad ways. The current study collected data from the summer of 2020 to December 2020, which would place data collection within the time frame of the pandemic, as well as within the time frame of certain lockdowns and restrictions. One significant impact that the pandemic may have had on the current study is the diminishment of attendance at religious services. Religious service attendance is highly related to IR (Clements & Ermakova, 2012), but

was impacted by the current pandemic. As stated earlier, in order to help mitigate this, the current study did not utilize attendance when measuring religious orientation. Another possible impact (which is also stated above) are the elevated rates of pornography use during the time in which surveys were administered/taken (Pornhub, 2020), which is possibly explained, at least in part, by isolation imposed by the ongoing pandemic.

Another limitation of the study pertains to views of the etiology of addiction. The current study did not enter into the debate as to whether addiction is primarily biological in nature, or if environmental stressors and behavioral/social interactions contain explanatory power. The reason for the absence of the topic is primarily because the current study assessed use rather than addiction. Despite this, it is worth mentioning that different paradigms exist in regard to the understand of the etiology of addiction. One such model is the disease model of addiction that views addiction primarily as a brain disease characterized by altered brain structures and functioning (Bell et al., 2014). While there exist some ardent supporters for this model (Berridge, 2017; Leshner, 1997), there are numerous criticisms of this model (Levy, 2013). Other researchers suggest that it is simply an a priori, or an assumption before evidence is presented, to subscribe to the brain disease model (Satel & Lilienfeld, 2014). Others suggest that subscribing to the brain disease model promotes social injustice (Hart, 2017), although there has also been rebuttal to this point (Bedi et al., 2017). Nevertheless, although addiction etiology is outside the purview of this study, it is worth mentioning that this debate over origins and etiology of addiction shapes any study that utilizes addiction outcome variables. Lastly, the study employed the use of logistic regression analyses, a correlational procedure, to investigate the relationships between variables. Due to the nature of correlational research, the results cannot establish causality or make causal claims.

## **Future Directions**

While religious belief has been present in the world for thousands of years, only recently have there been efforts to empirically study outcomes and consequences of religious belief. While there have been numerous studies in recent years concerning religiousness, broadly defined, as well as spirituality, there are fewer studies that look specifically at IR. More research in relation to IR specifically is welcome as it is an important way to identify religious individuals that internalize the tenets of their faith. IR as a construct can be illuminating when studying future health outcomes as it appears to be more predictive of health outcomes than is self-identification with labels such as “evangelical Protestant” or “very religious.”

While it is helpful to study religiousness and spirituality broadly, substance use disorder continues to harm the lives of many individuals. The Appalachian region in particular continues to deal with an increasing opioid epidemic, and empirically confirming predictors and particularly protective factors continues to be important. Although negative outcomes are not as clear for pornography use, and many may be societal rather than individual, it is still noteworthy to see the similarity in relationships found in the current study.

Given that the current study recruited participants during the COVID-19 worldwide pandemic, it would be helpful to replicate and/or run a study utilizing intrinsic religiousness after the pandemic subsides. Attendance at religious services is an item that is part of the RSAS-3, and although the intrinsic religiousness can be captured without an attendance item, it would be insightful to utilize this measure when attendance at religious services is more normative.

Suggesting future research is complicated when the predictor of interest is as personal and controversial as IR. One possible future research direction would be to compare a broader religiosity scale such as the BMMRS to the RSAS-3 when predicting different health outcomes.

Causal research in which the IR variable is manipulated is likely impossible and many would see it as unethical.

### **Conclusion**

The current study not only supported previous study findings of a relationship between religiousness and substance use, but added to those in two important ways. IR was shown to be a significant aspect of religiousness that predicts illicit and problematic substance use, and it also predicts use of pornography in a similar way. In fact, other than slight differences in magnitude, the models for substance use and pornography were practically identical. To conclude, IR strongly predicted lower usage of both illicit and problematic substance use, as well as pornography use. While these findings are helpful for future research, future considerations are warranted concerning the ever-evolving nature of the field of religiousness and health outcomes.

## References

- Abbey, A. (2002). Alcohol-related sexual assault: A common problem among college students. *Journal of Studies on Alcohol, supplement*, (14), 118-128.
- Allen, P. (2007). Challenging diversity?: Indonesia's anti-pornography bill. *Asian Studies Review*, 31(2), 101-115.
- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, 5(4), 432.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)*. American Psychiatric Pub.
- Arasteh, K., Des Jarlais, D. C., & Perlis, T. E. (2008). Alcohol and HIV sexual risk behaviors among injection drug users. *Drug and Alcohol Dependence*, 95, 54–61.  
doi:10.1016/j.drugalcdep.2007.12.008
- Ardelt, M. (2003). Effects of religion and purpose in life on elders' subjective well-being and attitudes toward death. *Journal of Religious Gerontology*, 14(4), 55-77.
- Avants, S. K., Warburton, L. A., & Margolin, A. (2001). Spiritual and religious support in recovery from addiction among HIV-positive injection drug users. *Journal of Psychoactive Drugs*, 33(1), 39-45.
- Baena, B. C., Meneses, C., Caperos, J. M., Prieto, M., & Uroz, J. (2019). The role of religion and religiosity in alcohol consumption in adolescents in Spain. *Journal of Religion and Health*, 58(5), 1477-1487.
- Bahr, S. J., Maughan, S. L., Marcos, A. C., & Li, B. (1998). Family, religiosity, and the risk of adolescent drug use. *Journal of Marriage and the Family*, 979-992.
- Banazadeh, N., Sabahi, A., Ziaadini, H., Jalali-Khalilabadi, A., & Banazadeh, M. (2019). The



- Relationship between Extrinsic and Intrinsic Religious Orientation with Perceived Stress and Cigarette Addiction among University Students. *Addiction & Health*, 11(2), 73.
- Barnet, J. (2019). *Exploring the Relationship Between Religiousness and Video Game Addiction* (Masters Thesis, East Tennessee State University).
- Batson, C. D. (1976). Religion as prosocial: Agent or double agent?. *Journal for the Scientific Study of Religion*, 29-45.
- Bóthe, B., Tóth-Király, I., Zsila, Á., Griffiths, M. D., Demetrovics, Z., & Orosz, G. (2018). The development of the problematic pornography consumption scale (PPCS). *The Journal of Sex Research*, 55(3), 395-406.
- Beckwith, H. D. (2006). Risky behavior in college students: The influence of religiosity and spirituality. *ProQuest*.
- Bedi, G., Martinez, D., Levin, F. R., Comer, S., & Haney, M. (2017). Addiction as a brain disease does not promote injustice. *Nature Human Behaviour*, 1(9), 610-611.
- Bell, S., Carter, A., Mathews, R., Gartner, C., Lucke, J., & Hall, W. (2014). Views of addiction neuroscientists and clinicians on the clinical impact of a 'brain disease model of addiction'. *Neuroethics*, 7(1), 19-27.
- Bergin, A. E., Masters, K. S., & Richards, P. S. (1987). Religiousness and mental health reconsidered: A study of an intrinsically religious sample. *Journal of Counseling Psychology*, 34(2), 197.
- Berridge, K. C. (2017). Is addiction a brain disease?. *Neuroethics*, 10(1), 29-33.
- Braithwaite, S. R., Coulson, G., Keddington, K., & Fincham, F. D. (2015). The influence of pornography on sexual scripts and hooking up among emerging adults in college. *Archives of Sexual Behavior*, 44(1), 111-123.

- Bridges, A. J., Bergner, R. M., & Hesson-McInnis, M. (2003). Romantic partners' use of pornography: Its significance for women. *Journal of Sex & Marital Therapy, 29*, 1–14.
- Bridges, A. J., Wosnitzer, R., Scharrer, E., Sun, C., & Liberman, R. (2010). Aggression and sexual behavior in best-selling pornography videos: A content analysis update. *Violence Against Women, 16*(10), 1065-1085.
- Butler, S. F., Budman, S. H., McGee, M. D., Davis, M. S., Cornelli, R., & Morey, L. C. (2005). Addiction severity assessment tool: Development of a self-report measure for clients in substance abuse treatment. *Drug and Alcohol Dependence, 80*(3), 349-360.
- Byrne, P. (1999). The definition of religion. *The pragmatics of defining religion: Contexts, Concepts, and Contests, 84*, 379.
- Byrne, B. (1983). Sinning against One's Own Body: Paul's Understanding of the Sexual Relationship in 1 Corinthians 6: 18. *The Catholic Biblical Quarterly, 45*(4), 608-616.
- Califano Jr, J. A., Bush, C., Chenault, K. I., Dimon, J., Fisher, M., Fraser, D. A., Kelmenson, L.A., Keough, D.R., Kessler, D.A., Lefall, L.D., & Pacheco, M. T. (2001). So help me god: Substance abuse, religion and spirituality. *The National Center on Addiction and Substance Abuse at Columbia University*.
- Carroll, J. S., Padilla-Walker, L. M., Nelson, L. J., Olson, C. D., McNamara Barry, C., & Madsen, S. D. (2008). Generation XXX: Pornography acceptance and use among emerging adults. *Journal of Adolescent Research, 23*(1), 6-30.
- Chang, C. K., Hayes, R. D., Broadbent, M., Fernandes, A. C., Lee, W., Hotopf, M., & Stewart, R. (2010). All-cause mortality among people with serious mental illness (SMI), substance use disorders, and depressive disorders in southeast London: a cohort study. *BMC Psychiatry, 10*(1), 77.

- Chawla, N., Neighbors, C., Lewis, M. A., Lee, C. M., & Larimer, M. E. (2007). Attitudes and perceived approval of drinking as mediators of the relationship between the importance of religion and alcohol use. *Journal of Studies on Alcohol and Drugs, 68*(3), 410-418.
- Clay, J. M., & Parker, M. O. (2020). Alcohol use and misuse during the COVID-19 pandemic: a potential public health crisis?. *The Lancet Public Health, 5*(5), e259.
- Clements, A. D., & Cyphers, N. A. (2020). Prenatal substance use: Religious women report lower use rates, but do they use less?. *Journal of Prevention & Intervention in the Community, 48*(1), 47-63.
- Clements, A. D., & Ermakova, A. V. (2012). Surrender to God and stress: A possible link between religiosity and health. *Psychology of Religion and Spirituality, 4*(2), 93.
- Clements, A. D., Fletcher, T. R., Cyphers, N. A., Ermakova, A. V., & Bailey, B. (2015). RSAS-3: Validation of a very brief measure of religious commitment for use in health research. *Journal of Religion and Health, 54*(1), 134-152.
- Debnam, K., Holt, C. L., Clark, E. M., Roth, D. L., & Southward, P. (2012). Relationship between religious social support and general social support with health behaviors in a national sample of African Americans. *Journal of Behavioral Medicine, 35*(2), 179-189.
- Dehejia, R., DeLeire, T., & Luttmer, E. F. (2007). Insuring consumption and happiness through religious organizations. *Journal of Public Economics, 91*(1-2), 259-279.
- DeWall, C. N., Pond Jr, R. S., Carter, E. C., McCullough, M. E., Lambert, N. M., Fincham, F. D., & Nezlek, J. B. (2014). Explaining the relationship between religiousness and substance use: Self-control matters. *Journal of Personality and Social Psychology, 107*(2), 339.

- Diener, E., Tay, L., & Myers, D. G. (2011). The religion paradox: If religion makes people happy, why are so many dropping out?. *Journal of personality and social psychology, 101*(6), 1278.
- Dodor, B. (2012). The impact of religiosity on health behaviors and obesity among African Americans. *Journal of Human Behavior in the Social Environment, 22*(4), 451-462.
- Doran, K., & Price, J. (2014). Pornography and marriage. *Journal of Family and Economic Issues, 35*(4), 489-498.
- Duffy, A., Dawson, D. L., & Das Nair, R. (2016). Pornography addiction in adults: A systematic review of definitions and reported impact. *The journal of Sexual Medicine, 13*(5), 760-777.
- Fernandez, D. P., & Griffiths, M. D. (2019). Psychometric instruments for problematic pornography use: A systematic review. *Evaluation & the Health Professions, 0163278719861688*.
- Fetzer Institute/National Institute on Aging Working Group. (1999). Multidimensional measurement of religiousness/spirituality for use in health research. *John E. Fetzer Institute*.
- Finke, R., & Adamczyk, A. (2008). Cross-national moral beliefs: The influence of national religious context. *The Sociological Quarterly, 49*(4), 617-652.
- Foubert, J. D., Brosi, M. W., & Bannon, R. S. (2011). Pornography viewing among fraternity men: Effects on bystander intervention, rape myth acceptance and behavioral intent to commit sexual assault. *Sexual Addiction & Compulsivity, 18*(4), 212-231.
- Grant, J. E., & Chamberlain, S. R. (2014). Impulsive action and impulsive choice across

- substance and behavioral addictions: cause or consequence?. *Addictive Behaviors*, 39(11), 1632-1639.
- Gomes, F. C., de Andrade, A. G., Izbicki, R., Almeida, A. M., & de Oliveira, L. G. (2013). Religion as a protective factor against drug use among Brazilian university students: a national survey. *Revista Brasileira de Psiquiatria*, 35(1), 29-37.
- Gorsuch, R. L., & McPherson, S. E. (1989). Intrinsic/extrinsic measurement: I/E-revised and single-item scales. *Journal for the Scientific Study of Religion*, 348-354.
- Gowing, L. R., Ali, R. L., Allsop, S., Marsden, J., Turf, E. E., West, R., & Witton, J. (2015). Global statistics on addictive behaviours: 2014 status report. *Addiction*, 110(6), 904-919.
- Griffiths, M. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance use*, 10(4), 191-197.
- Griffiths, M. (1995). Technological addictions. In *Clinical Psychology Forum* (pp. 14-14). Division of Clinical Psychology of the British Psychol Soc.
- Greeley, A. M. (2017). *Religion in Europe at the End of the Second Millenium: A Sociological Profile*. Routledge.
- Greeley, A. M. (2017). The religions of Ireland. In *Religion in Europe at the End of the Second Millenium* (pp. 133-154). Routledge.
- Grubbs, J. B., Kraus, S. W., & Perry, S. L. (2019). Self-reported addiction to pornography in a nationally representative sample: The roles of use habits, religiousness, and moral incongruence. *Journal of Behavioral Addictions*.
- Grubbs, J. B., & Perry, S. L. (2019). Moral incongruence and pornography use: A critical review and integration. *The Journal of Sex Research*, 56(1), 29-37.
- Grubbs, J. B., Perry, S. L., Wilt, J. A., & Reid, R. C. (2018). Pornography problems due to moral

- incongruence: An integrative model with a systematic review and meta-analysis. *Archives of Sexual Behavior*. Advance online publication. doi:10.1007/s10508-018-1248-x
- Grubbs, J. B., Wilt, J. A., Exline, J. J., Pargament, K. I., & Kraus, S. W. (2018). Moral disapproval and perceived addiction to Internet pornography: A longitudinal examination. *Addiction*, 113(3), 496–506. doi:10.1111/add.14007
- Hackett, C., Stonawski, M., Potančoková, M., Grim, B. J., & Skirbekk, V. (2015). The future size of religiously affiliated and unaffiliated populations. *Demographic Research*, 32, 829-842.
- Hackett, C., Grim, B., Stonawski, M., Skirbekk, V., Potancokova, M., & Abel, G. (2012). The global religious landscape. Retrieved Jan 1, 2016, from <http://www.pewforum.org/global-religious-landscape.aspx>
- Hald, G. M., Malamuth, N. M., & Yuen, C. (2010). Pornography and attitudes supporting violence against women: Revisiting the relationship in nonexperimental studies. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, 36(1), 14-20.
- Hallfors, D. D., Waller, M. W., Ford, C. A., Halpern, C. T., Brodish, P. H., & Iritani, B. (2004). Adolescent depression and suicide risk: association with sex and drug behavior. *American Journal of Preventive Medicine*, 27(3), 224-231.
- Hardy, S. A., Steelman, M. A., Coyne, S. M., & Ridge, R. D. (2013). Adolescent religiousness as a protective factor against pornography use. *Journal of Applied Developmental Psychology*, 34(3), 131-139.

- Harkness, E. L., Mullan, B., & Blaszczynski, A. (2015). Association between pornography use and sexual risk behaviors in adult consumers: a systematic review. *Cyberpsychology, Behavior, and Social Networking, 18*(2), 59-71.
- Hart, C. L. (2017). Viewing addiction as a brain disease promotes social injustice. *Nature Human Behaviour, 1*(3), 1-1.
- Hawkins, J. D., Graham, J. W., Maguin, E., Abbott, R., Hill, K. G., & Catalano, R. F. (1997). Exploring the effects of age of alcohol use initiation and psychosocial risk factors on subsequent alcohol misuse. *Journal of Studies on Alcohol, 58*(3), 280-290.
- Hedegaard, H., Miniño, A. M., & Warner, M. (2020). Drug overdose deaths in the United States, 1999-2018.
- Heffernan, K., Cloitre, M., Tardiff, K., Marzuk, P. M., Portera, L., & Leon, A. C. (2000). Childhood trauma as a correlate of lifetime opiate use in psychiatric patients. *Addictive Behaviors, 25*(5), 797-803.
- Hettler, T. R., & Cohen, L. H. (1998). Intrinsic religiousness as a stress-moderator for adult Protestant churchgoers. *Journal of Community Psychology, 26*(6), 597-609.
- Hill, P. C., & Hood, R. W. (Eds.). (1999). Measures of religiosity (pp. 119-58). Birmingham, AL: *Religious Education Press*.
- Hilton Jr, D. L. (2013). Pornography addiction—a supranormal stimulus considered in the context of neuroplasticity. *Socioaffective Neuroscience & Psychology, 3*(1), 20767.
- Hilton Jr, D. L., & Watts, C. (2011). Pornography addiction: A neuroscience perspective. *Surgical Neurology International, 2*.
- Hoots, B. E., Xu, L., Kariisa, M., Wilson, N. O., Rudd, R. A., Scholl, L., Schieber, L., & Seth, P.

- (2018). 2018 Annual surveillance report of drug-related risks and outcomes--United States.
- Hroch, P., Kalcza-Janosi, Kinga, & Tamas, B. (2018). Relations between religiousness, mental health and coping strategies in adults. *Transylvanian Journal of Psychology*, (1).
- Humeniuk, R., Ali, R., Babor, T. F., Farrell, M., Formigoni, M. L., Jittiwutikarn, J., De Lacerda, R.B., Ling, W., Marsden, J., Monteiro, M., & Nhiwatiwa, S. (2008). Validation of the alcohol, smoking and substance involvement screening test (ASSIST). *Addiction*, 103(6), 1039-1047.
- Humphrey, R. A. (1980). Traditional religion in Southern Appalachia. *Currents in Theology and Mission*, 7(3), 150-165.
- Humphreys, K. (2018). Of moral judgments and sexual addictions. *Addiction*, 113(3), 387-388.
- Institute of Behavioral Research. (2017). *Texas Christian University Drug Screen 5*. Fort Worth: Texas Christian University, Institute of Behavioral Research. Available at [ibr.tcu.edu](http://ibr.tcu.edu)
- James, W. (1902). The variety of religious experience. *Library of America*.
- Jeynes, W. H. (2006). Adolescent religious commitment and their consumption of marijuana, cocaine, and alcohol. *Journal of Health & Social Policy*, 21(4), 1-20.
- Jonas, E., & Fischer, P. (2006). Terror management and religion: evidence that intrinsic religiousness mitigates worldview defense following mortality salience. *Journal of Personality and Social Psychology*, 91(3), 553.
- Kapner, D. A. (2008). Alcohol and Other Drugs on Campus: The Scope of the Problem. Infofacts/Resources. *Higher Education Center for Alcohol and Other Drug Abuse and Violence Prevention*.
- Keane, H. (2016). Technological change and sexual disorder. *Addiction*, 111(12), 2108-2109.



- Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2011). Toward a comprehensive developmental model for alcohol use disorders in men. *Twin Research and Human Genetics, 14*(1), 1-15.
- Kirkpatrick, L. A., & Hood Jr, R. W. (1990). Intrinsic-extrinsic religious orientation: The boon or bane of contemporary psychology of religion?. *Journal for the Scientific Study of Religion, 442-462*.
- Klatsky, A. L. (2010). Alcohol and cardiovascular health. *Physiology & Behavior, 100*(1), 76-81.
- Kleinplatz, P. J. (2016). Optimal erotic intimacy: Lessons from great lovers. In *Handbook of Clinical Sexuality for Mental Health Professionals* (pp. 342-354). Routledge.
- Koenig, H., Parkerson Jr, G. R., & Meador, K. G. (1997). Religion index for psychiatric research.
- Kor A, Fogel YA, Reid RC, Potenza MN (2013). Should hypersexual disorder be classified as an addiction? *Sex Addict Comp. 20*(1–2), 27–47.
- Kor, A., Zilcha-Mano, S., Fogel, Y. A., Mikulincer, M., Reid, R. C., & Potenza, M. N. (2014). Psychometric development of the problematic pornography use scale. *Addictive Behaviors, 39*(5), 861-868.
- Kraft, W. A., Litwin, W. J., & Barber, S. E. (1986). Relationship of intrinsic-extrinsic religiousness and assertiveness. *Psychological Reports, 59*(3), 1115-1118.
- Kraus, S., & Rosenberg, H. (2014). The pornography craving questionnaire: Psychometric properties. *Archives of Sexual Behavior, 43*(3), 451-462.
- Kraus, S. W., Krueger, R. B., Briken, P., First, M. B., Stein, D. J., Kaplan, M. S., Voon, V., Abdo, C.H., Grant, J.E., Atalla, E., & Reed, G. M. (2018). Compulsive sexual behaviour disorder in the ICD-11. *World Psychiatry, 17*(1), 109-110.

- Kraus, S. W., Martino, S., & Potenza, M. N. (2016). Clinical characteristics of men interested in seeking treatment for use of pornography. *Journal of Behavioral Addictions, 5*(2), 169-178.
- Lau, H. M., Smit, J. H., Fleming, T. M., & Riper, H. (2017). Serious games for mental health: are they accessible, feasible, and effective? A systematic review and meta-analysis. *Frontiers in Psychiatry, 7*, 209.
- Lee, J. P., & Antin, T. M. (2011). How do researchers categorize drugs, and how do drug users categorize them?. *Contemporary Drug Problems, 38*(3), 387-427.
- Levy, N. (2013). Addiction is not a brain disease (and it matters). *Frontiers in psychiatry, 4*, 24.
- Ley, D., Prause, N., & Finn, P. (2014). The emperor has no clothes: A review of the ‘pornography addiction’ model. *Current Sexual Health Reports, 6*(2), 94-105.
- Leshner, A. I. (1997). Addiction is a brain disease, and it matters. *Science, 278*(5335), 45-47.
- Lucchetti, G., Lucchetti, A. L. G., & Vallada, H. (2013). Measuring spirituality and religiosity in clinical research: a systematic review of instruments available in the Portuguese language. *Sao Paulo Medical Journal, 131*(2), 112-122.
- MacInnis, C. C., & Hodson, G. (2016). Surfing for sexual sin: Relations between religiousness and viewing sexual content online. *Sexual Addiction & Compulsivity, 23*(2-3), 196-210.
- Mack, K. A., Jones, C. M., & Ballesteros, M. F. (2017). Illicit drug use, illicit drug use disorders, and drug overdose deaths in metropolitan and nonmetropolitan areas—United States. *American Journal of Transplantation, 17*(12), 3241-3252.
- Mahmoodabad, S. S. M., Ehrampoush, M. H., Tabei, S. Z., Nami, M., Fallahzadeh, H., Namavarjahromi, B., Shayan, A., & Forouhari, S. (2016). Extrinsic or intrinsic religious

- orientation may have an impact on mental health. *Research Journal of Medical Sciences*, 10(4), 232-236.
- Manning, J. C. (2006). The impact of internet pornography on marriage and the family: A review of the research. *Sexual Addiction & Compulsivity*, 13(2-3), 131-165.
- Maltby, J. (1999). Personality dimensions of religious orientation. *The Journal of Psychology*, 133(6), 631-640.
- Maltby, J., & Day, L. (2000). Depressive symptoms and religious orientation: Examining the relationship between religiosity and depression within the context of other correlates of depression. *Personality and Individual Differences*, 28(2), 383-393.
- Maltby, J., & Day, L. (2004). Forgiveness and defense style. *The Journal of Genetic Psychology*, 165(1), 99-112.
- Masters, K. S., & Hooker, S. A. (2013). *Religion, spirituality, and health*. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the Psychology of Religion and Spirituality* (p. 519–539). The Guilford Press.
- McKee, A., Byron, P., Litsou, K., & Ingham, R. (2020). An interdisciplinary definition of pornography: Results from a global Delphi panel. *Archives of Sexual Behavior*, 49(3), 1085-1091.
- Michalak, L., & Trocki, K. (2006). Alcohol and Islam: an overview. *Contemporary Drug Problems*, 33(4), 523-562.
- Miller, W. R., & Thoresen, C. E. (2003). Spirituality, religion, and health: An emerging research field. *American Psychologist*, 58(1), 24.

- Monod, S., Brennan, M., Rochat, E., Martin, E., Rochat, S., & Büla, C. J. (2011). Instruments measuring spirituality in clinical research: a systematic review. *Journal of General Internal Medicine*, 26(11), 1345.
- Morgan, E. M. (2011). Associations between young adults' use of sexually explicit materials and their sexual preferences, behaviors, and satisfaction. *Journal of Sex Research*, 48(6), 520-530.
- Noor, S. W., Rosser, B. S., & Erickson, D. J. (2014). A brief scale to measure problematic sexually explicit media consumption: Psychometric properties of the Compulsive Pornography Consumption (CPC) scale among men who have sex with men. *Sexual Addiction & Compulsivity*, 21(3), 240-261.
- Oman, D. (2013). Defining religion and spirituality. *Handbook of the psychology of religion and spirituality*, 2, 23-47.
- Park, C., Cohen, L. H., & Herb, L. (1990). Intrinsic religiousness and religious coping as life stress moderators for Catholics versus Protestants. *Journal of Personality and Social Psychology*, 59(3), 562.
- Park, C. L., Masters, K. S., Salsman, J. M., Wachholtz, A., Clements, A. D., Salmoirago-Blotcher, E., Trevino, K., & Wischenka, D. M. (2017). Advancing our understanding of religion and spirituality in the context of behavioral medicine. *Journal of Behavioral Medicine*, 40(1), 39-51.
- Perkins, H. W. (2002). Surveying the damage: a review of research on consequences of alcohol misuse in college populations. *Journal of Studies on Alcohol, supplement*, (14), 91-100.
- Perry, S. L. (2016). From bad to worse? Pornography consumption, spousal religiosity, gender, and marital quality. In *Sociological Forum*, 31(2), 441-464.

- Peters, R. H., Greenbaum, P. E., Steinberg, M. L., Carter, C. R., Ortiz, M. M., Fry, B. C., & Valle, S. K. (2000). Effectiveness of screening instruments in detecting substance use disorders among prisoners. *Journal of Substance Abuse Treatment, 18*(4), 349-358.
- Pirutinsky, S., Rosmarin, D. H., Holt, C. L., Feldman, R. H., Caplan, L. S., Midlarsky, E., & Pargament, K. I. (2011). Does social support mediate the moderating effect of intrinsic religiosity on the relationship between physical health and depressive symptoms among Jews?. *Journal of Behavioral Medicine, 34*(6), 489-496.
- Peter, J., & Valkenburg, P. M. (2011). The influence of sexually explicit internet material on sexual risk behavior: A comparison of adolescents and adults. *Journal of Health Communication, 16*(7), 750-765.
- Pornhub.com. (2018, January 9). 2017 year in review. Retrieved from <https://www.pornhub.com/insights/2017-year-in-review>
- Pornhub.com (2020, March 23). 2017. *Coronavirus Insights*. Retrieved from <https://www.pornhub.com/insights/corona-virus>. Coronavirus Insights.
- Powell, L. H., Shahabi, L., & Thoresen, C. E. (2003). Religion and spirituality: Linkages to physical health. *American Psychologist, 58*(1), 36.
- Prause, N., & Williams, D. J. (2020). Groupthink in sex and pornography “addiction”: Sex-negativity, theoretical impotence, and political manipulation. In *Groupthink in Science* (pp. 185-200). Springer, Cham.
- Rasic, D., Robinson, J. A., Bolton, J., Bienvenu, O. J., & Sareen, J. (2011). Longitudinal relationships of religious worship attendance and spirituality with major depression, anxiety disorders, and suicidal ideation and attempts: Findings from the Baltimore epidemiologic catchment area study. *Journal of Psychiatric Research, 45*(6), 848-854.

- Regnerus, M., Gordon, D., & Price, J. (2016). Documenting pornography use in America: A comparative analysis of methodological approaches. *The Journal of Sex Research*, 53(7), 873-881.
- Rehman, S., & Asghar, M. (2016). Religiosity and Addiction Among Medical Students. *Peshawar Journal of Psychology and Behavioral Sciences (PJPBS)*, 2(1), 59-70.
- Reid, R. C., Carpenter, B. N., Hook, J. N., Garos, S., Manning, J. C., Gilliland, R., Cooper, E.B., McKittrick, H., Davtian, M., & Fong, T. (2012). Report of findings in a DSM-5 field trial for hypersexual disorder. *The Journal of Sexual Medicine*, 9(11), 2868-2877.
- Reid, R. C., Li, D. S., Gilliland, R., Stein, J. A., & Fong, T. (2011). Reliability, validity, and psychometric development of the Pornography Consumption Inventory in a sample of hypersexual men. *Journal of Sex & Marital Therapy*, 37(5), 359-385.
- Roland, E. J., & Kaskutas, L. A. (2002). Alcoholics Anonymous and church involvement as predictors of sobriety among three ethnic treatment populations. *Alcoholism Treatment Quarterly*, 20(1), 61-77.
- Ross, H. E., Gavin, D. R., & Skinner, H. A. (1990). Diagnostic validity of the MAST and the alcohol dependence scale in the assessment of DSM-III alcohol disorders. *Journal of Studies on Alcohol*, 51(6), 506-513.
- SAMHSA (2018). Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health. *The Substance Abuse and Mental Health Services Administration*.
- Sanders, P. W., Allen, G. K., Fischer, L., Richards, P. S., Morgan, D. T., & Potts, R. W. (2015).

- Intrinsic religiousness and spirituality as predictors of mental health and positive psychological functioning in Latter-day Saint adolescents and young adults. *Journal of religion and health*, 54(3), 871-887.
- Saroglou, V. (2002). Religion and the five factors of personality: A meta-analytic review. *Personality and Individual Differences*, 32(1), 15-25.
- Satel, S., & Lilienfeld, S. O. (2014). Addiction and the brain-disease fallacy. *Frontiers in Psychiatry*, 4, 141.
- Seeman, T. E., Dubin, L. F., & Seeman, M. (2003). Religiosity/spirituality and health: a critical review of the evidence for biological pathways. *American psychologist*, 58(1), 53.
- Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry*, 127(12), 1653-1658.
- Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion & Culture*, 8(1), 1-11.
- Shepperd, J. A., Miller, W. A., Smith, C. T., & Algina, J. (2014). Does religion offer worldviews that dissuade adolescent substance use?. *Psychology of Religion and Spirituality*, 6(4), 292.
- Sekulic, D., Kostic, R., Rodek, J., Damjanovic, V., & Ostojic, Z. (2009). Religiousness as a protective factor for substance use in dance sport. *Journal of Religion and Health*, 48(3), 269-277.
- Skog, O. J. (2003). Addiction: definitions and mechanisms. In *Choice, Behavioural Economics and Addiction*, 157-182.
- Smith, C. W. (2016). *Empiricist devotions: Science, Religion, and poetry in early eighteenth-century England*. University of Virginia Press.

- Stack, S., Wasserman, I., & Kern, R. (2004). Adult social bonds and use of internet pornography. *Social Science Quarterly*, 85(1), 75-88.
- Stein DJ, Black DW, Pienaar W. (2000). Sexual disorders not otherwise specified: compulsive, addictive, or impulsive? *CNS Spectr.* 5(1), 60–4.
- Storch, E. A., Storch, J. B., Kovacs, A. H., Okun, A., & Welsh, E. (2003). Intrinsic religiosity and substance use in intercollegiate athletes. *Journal of Sport and Exercise Psychology*, 25(2), 248-252.
- Sturgeon, R. S., & Hamley, R. W. (1979). Religiosity and anxiety. *The Journal of Social Psychology*.
- Swatos Jr, W. H. (1988). Picketing Satan enflashed at 7-Eleven: A research note. *Review of Religious Research*, 73-82.
- Tapanya, S., Nicki, R., & Jarusawad, O. (1997). Worry and intrinsic/extrinsic religious orientation among Buddhist (Thai) and Christian (Canadian) elderly persons. *The International Journal of Aging and Human Development*, 44(1), 73-83.
- Taunay, T. C., Cristino, E. D., Machado, M. O., Rola, F. H., Lima, J. W., Macêdo, D. S., Gondin, F.D.A.A., Moreira-Almeida, A., & Carvalho, A. F. (2012). Development and validation of the Intrinsic Religiousness Inventory (IRI). *Brazilian Journal of Psychiatry*, 34(1), 76-81.
- Thune-Boyle, I. C., Stygall, J. A., Keshtgar, M. R., & Newman, S. P. (2006). Do religious/spiritual coping strategies affect illness adjustment in patients with cancer? A systematic review of the literature. *Social Science & Medicine*, 63(1), 151-164.
- Townsend, L., Jewkes, R., Mathews, C., Johnston, L. G., Flisher, A. J., Zembe, Y., & Chopra, M. (2011). HIV risk behaviours and their relationship to intimate partner violence (IPV)



- among men who have multiple female sexual partners in Cape Town, South Africa. *AIDS and Behavior*, *15*(1), 132-141.
- Wang, Z., Koenig, H. G., & Al Shohaib, S. (2015). Religious involvement and tobacco use in mainland China: A preliminary study. *BMC Public Health*, *15*(1), 155.
- Watson, P. J., Morris, R. J., & Hood Jr, R. W. (1988). Sin and self-functioning, part 1: Grace, guilt and self-consciousness. *Journal of Psychology and Theology*, *16*(3), 254-269.
- Welty, L. J., Harrison, A. J., Abram, K. M., Olson, N. D., Aaby, D. A., & McCoy, K. P. (2019). Substance Abuse and Mental Health Services Administration.(2017). Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health (HHS Publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved. *College of Health Sciences*, *106*(5), 128.
- West, R., & Brown, J. (2013). *Theory of Addiction*. John Wiley & Sons.
- West, R. (2001). Theories of addiction. *Addiction*, *96*(1), 3–13
- Whitehead, A. L., & Perry, S. L. (2017). Unbuckling the Bible belt: A state-level analysis of religious factors and Google searches for porn. *The Journal of Sex Research*, *55*(3), 273-283.
- Wills, T. A., Yaeger, A. M., & Sandy, J. M. (2003). Buffering effect of religiosity for adolescent substance use. *Psychology of Addictive Behaviors*, *17*(1), 24.
- Wilson Chialepeh, N., & Sathiyasusuman, A. (2015). Associated risk factors of STIs and multiple sexual relationships among youths in Malawi. *PloS One*, *10*(8).
- Wong-McDonald, A., & Gorsuch, R. L. (2000). Surrender to God: An additional coping

- style?. *Journal of Psychology and Theology*, 28(2), 149-161.
- Wong-McDonald, A., & Gorsuch, R. L. (2004). A multivariate theory of God concept, religious motivation, locus of control, coping, and spiritual well-being. *Journal of Psychology and Theology*, 32(4), 318-334.
- Wood, M., & Hughes, M. (1984). The moral basis of moral reform: Status discontent vs. culture and socialization as explanations of anti-pornography social movement adherence. *American Sociological Review*, 86-99.
- World Health Organization. (2018). *International Classification of Diseases for Mortality and Morbidity Statistics* (11th Revision).
- Worthington Jr, E. L., Wade, N. G., Hight, T. L., Ripley, J. S., McCullough, M. E., Berry, J. W. Schmitt, M.M., Berry, J.T., Bursley, K.H., & O'Connor, L. (2003). The Religious Commitment Inventory--10: Development, refinement, and validation of a brief scale for research and counseling. *Journal of Counseling Psychology*, 50(1), 84.
- Wright, P. J., & Randall, A. K. (2012). Internet pornography exposure and risky sexual behavior among adult males in the United States. *Computers in Human Behavior*, 28(4), 1410-1416.
- Zaleski, E. H., & Schiaffino, K. M. (2000). Religiosity and sexual risk-taking behavior during the transition to college. *Journal of Adolescence*, 23(2), 223-227.
- Zemore, S. E. (2007). Acculturation and alcohol among Latino adults in the United States: a comprehensive review. *Alcoholism: Clinical and Experimental Research*, 31(12), 1968-1990.

## APPENDICES

### Appendix A: Demographic Questions

#### Demographic Questions

Age \_\_\_\_\_

#### Gender

- 0. Female
- 1. Male
- 2. Choose not to answer

#### Race

- 0. White
- 1. Black
- 2. Asian
- 3. Multiracial
- 4. Native American/Pacific Islander
- 5. Other

#### Ethnicity

- 0. Hispanic
- 1. Not Hispanic

#### Housing status

- 0. Live with parent(s)/guardian(s)
- 1. Live alone
- 2. Live with roommate(s)
- 3. Live with spouse
- 4. Live with romantic partner
- 5. No permanent residence

If you attend church or other religious service, what type of church or service? \_\_\_\_\_

#### Are you a student?

- 0. No
- 1. Yes, full time
- 2. Yes, part time

#### If so, check what type of student

- 0. Do not attend school
- 1. Technical School
- 2. Community college
- 3. Four-year college or university
- 4. Graduate/medical/professional school

#### Do you work?

- 0. Do not work
- 1. Work part time
- 2. Work full time

Appendix B: Religious Surrender & Attendance Scale-3 (RSAS-3)

**Religious Surrender & Attendance Scale – 3**

<b>Circle the Statement That Best Describes You</b>					
	Never True of Me	Occasionally True of Me	Fairly Often True of Me	Very Often True of Me	Always True of Me
When my understanding of a problem conflicts with God's revelation I will submit to God's definitions.	1	2	3	4	5
Although I may not see results from my labor, I will continue to implement God's plans as long as God directs me to do so.	1	2	3	4	5

<b>Circle the Statement That Best Describes You</b>						
	Never	1-2 times a year	Every month	1-2 times a month	Every week	More than 1 time/week
How often do you go to religious services?	1	2	3	4	5	6

## Appendix C: TCU Drug Screen V (TCUDS-V)

### TCU Drug Screen V

During the last 12 months

	No	Yes
1. Did you use larger amounts of drugs or use them for a longer time than you planned or intended? .....	<input type="radio"/>	<input type="radio"/>
2. Did you try to control or cut down on your drug use but were unable to do it? .....	<input type="radio"/>	<input type="radio"/>
3. Did you spend a lot of time getting drugs, using them, or recovering from their use? .....	<input type="radio"/>	<input type="radio"/>
4. Did you have a strong desire or urge to use drugs? .....	<input type="radio"/>	<input type="radio"/>
5. Did you get so high or sick from using drugs that it kept you from working, going to school, or caring for children? .....	<input type="radio"/>	<input type="radio"/>
6. Did you continue using drugs even when it led to social or interpersonal problems? ...	<input type="radio"/>	<input type="radio"/>
7. Did you spend less time at work, school, or with friends because of your drug use? ....	<input type="radio"/>	<input type="radio"/>
8. Did you use drugs that put you or others in physical danger? .....	<input type="radio"/>	<input type="radio"/>
9. Did you continue using drugs even when it was causing you physical or psychological problems? .....	<input type="radio"/>	<input type="radio"/>
10a. Did you need to increase the amount of a drug you were taking so that you could get the same effects as before? .....	<input type="radio"/>	<input type="radio"/>
10b. Did using the same amount of a drug lead to it having less of an effect as it did before? .....	<input type="radio"/>	<input type="radio"/>
11a. Did you get sick or have withdrawal symptoms when you quit or missed taking a drug? .....	<input type="radio"/>	<input type="radio"/>
11b. Did you ever keep taking a drug to relieve or avoid getting sick or having withdrawal symptoms? .....	<input type="radio"/>	<input type="radio"/>
12. Which drug caused the most serious problem during the last 12 months? [CHOOSE ONE]		
<ul style="list-style-type: none"> <li><input type="radio"/> None</li> <li><input type="radio"/> Alcohol</li> <li><input type="radio"/> Cannabinoids – Marijuana (weed)</li> <li><input type="radio"/> Cannabinoids – Hashish (hash)</li> <li><input type="radio"/> Synthetic Marijuana (K2/Spice)</li> <li><input type="radio"/> Opioids – Heroin (smack)</li> <li><input type="radio"/> Opioids – Opium (tar)</li> <li><input type="radio"/> Stimulants – Powder Cocaine (coke)</li> <li><input type="radio"/> Stimulants – Crack Cocaine (rock)</li> <li><input type="radio"/> Stimulants – Amphetamines (speed)</li> </ul>	<ul style="list-style-type: none"> <li><input type="radio"/> Stimulants – Methamphetamine (meth)</li> <li><input type="radio"/> Bath Salts (Synthetic Cathinones)</li> <li><input type="radio"/> Club Drugs – MDMA/GHB/Rohypnol (Ecstasy)</li> <li><input type="radio"/> Dissociative Drugs – Ketamine/PCP (Special K)</li> <li><input type="radio"/> Hallucinogens – LSD/Mushrooms (acid)</li> <li><input type="radio"/> Inhalants – Solvents (paint thinner)</li> <li><input type="radio"/> Prescription Medications – Depressants</li> <li><input type="radio"/> Prescription Medications – Stimulants</li> <li><input type="radio"/> Prescription Medications – Opioid Pain Relievers</li> <li><input type="radio"/> Other (specify) _____</li> </ul>	

## Appendix D: Problematic Pornography Consumption Scale (PPCS)

	1	2	3	4	5	6	7
	Never	Rarely	Occasionally	Sometimes	Often	Very Often	All the Time
	1	2	3	4	5	6	7
1. I felt that porn is an important part of my life	0	0	0	0	0	0	0
2. I used porn to restore the tranquility of my feelings	0	0	0	0	0	0	0
3. I felt porn caused problems in my sexual life	0	0	0	0	0	0	0
4. I felt that I had to watch more and more porn for satisfaction	0	0	0	0	0	0	0
5. I unsuccessfully tried to reduce the amount of porn I watch	0	0	0	0	0	0	0
6. I became stressed when something prevented me from watching porn	0	0	0	0	0	0	0
7. I thought about how good it would be to watch porn	0	0	0	0	0	0	0
8. Watching porn got rid of my negative feelings	0	0	0	0	0	0	0
9. Watching porn prevented me from bringing out the best in me	0	0	0	0	0	0	0
10. I felt that I needed more and more porn in order to satisfy my needs	0	0	0	0	0	0	0
11. When I vowed not to watch porn anymore, I could only do it for a short period of time	0	0	0	0	0	0	0
12. I became agitated when I was unable to watch porn	0	0	0	0	0	0	0
13. I continually planned when to watch porn	0	0	0	0	0	0	0
14. I released my tension by watching porn	0	0	0	0	0	0	0
15. I neglected other leisure activities as a result of watching porn	0	0	0	0	0	0	0
16. I gradually watched more "extreme" porn, because the porn I watched before was less satisfying	0	0	0	0	0	0	0
17. I resisted watching porn for only a little while before I relapsed	0	0	0	0	0	0	0
18. I missed porn greatly when I didn't watch it for a while	0	0	0	0	0	0	0

*Scoring:* Add the scores of the items of each factor. For the total score, add all the scores of the items. A score of 76 or higher indicates possible problematic pornography use. Factors: salience = 1, 7, 13; mood modification = 2, 8, 14; conflict = 3, 9, 15; tolerance = 4, 10, 16; relapse = 5, 11, 17; withdrawal = 6, 12, 18.

## VITA

### JOSEPH BARNET

- Education: B.A. Psychology, University of Maryland, College Park,  
College Park, Maryland, 2015  
M.A. Psychology, East Tennessee State University, Johnson City,  
Tennessee, 2019  
Ph.D. Psychology, East Tennessee State University, Johnson City,  
Tennessee, 2021
- Professional Experience: Research Assistant, University of Maryland, College Park,  
College Park, Maryland, 2014-2016  
Graduate Assistant, East Tennessee State University,  
HeART Lab, 2017-2020
- Publications: Norman, K., Wang, Y., **Barnet, J.**, Mahmud, R. (2016) Assessing  
the Necessary Skill Profiles for Playing Video Games.  
Technical Report submitted at the Human-Computer  
Interaction Conference, College Park, Maryland.  
Clements, A. D., Cyphers, N., Hoots, V., & **Barnet, J.**  
(2019). Readiness of the Southern Appalachian Church to  
Address the Opioid Crisis. [Abstract]. *Annals of Behavioral  
Medicine*, 53, Supplement 1, S537.  
Hoots, V. M., **Barnet, J.**, Morelen, D., Haas, B., &  
Clements, A. D. (2019). Self-Assessed Change Attributed  
to Trauma-Informed Care (TIC) Training [Abstract].  
*Annals of Behavioral Medicine*, 53, Supplement 1, S595.  
Clements, A. D., Haas, B., Cyphers, N. A., Hoots, V., &  
**Barnet, J.** (2020). Creating a communitywide system of  
trauma informed care. *Progress in Community Health  
Partnerships: Research, Education, and Action*, 14, 499-  
507. doi:10.1353/cpr.2020.0055.
- Honors and Awards: 12/19/16 | Dean's list, University of Maryland  
Awarded to students who receive at least a 3.5 GPA for the  
semester.