

THE MODERATING EFFECTS OF RELIGIOUS COMMITMENT ON THE LINK  
BETWEEN PORNOGRAPHY USE AND NEGATIVE OUTCOMES

By

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## ABSTRACT

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Pornography use is widespread and may be associated with maladaptive outcomes, such as unhealthy attitudes toward women and unhealthy attitudes about sex. The links between pornography use and maladaptive outcomes may be particularly strong among individuals who adopt an identity that is opposed to the viewing of pornography, such as a faith-based identity. Couched in the context of cascade development theory, the present study examined associations between the age of onset of adolescent pornography use and maladaptive outcomes. Participants included males between the ages of 18 and 25 years recruited through Amazon.com's Mechanical Turk interface. Participants completed a battery of questionnaires that assessed pornography use and psychosexual attitudes and behaviors. Results revealed that individuals exposed to pornography prior to age 15 years were more likely to view pornography as adults, reported more hypersexual behavior, and were more likely to report a likelihood to rape. Self-reported religious commitment did not moderate associations between age of onset and adult psychosexual

outcomes, with one exception. Individuals with a high religious commitment were more likely to report hypersexual behaviors when age of onset was later in life. The findings from this study have implications for the development of healthy and unhealthy sexual attitudes and behaviors, as well as prevention and intervention efforts.

*Keywords:* pornography, cascade development, conflict, spiritual identity, religiosity

Timothy R. King's

Dissertation Dedication

My Mom Mary (1928-2011)—For her unconditional love. For teaching me to never quit. For modeling commitment to Christ and His teachings. You motivated me in life and now every day in your death.

My Children, Kyler, McKala, and Kaleigh—For your encouragement and sacrifice. You guys have taught me more about life than all of my formal education combined. I love you more than you know.

My wife Stacy—For your patience and never ending love. We did it. I got the Ph.D and you got the P.H.T. (push hubby through) Thank-you and I love you.

## TABLE OF CONTENTS

	Page
Abstract.....	iii
Dedication.....	v
List of Tables.....	x
List of Figures.....	xi
CHAPTER ONE: INTRODUCTION.....	1
Background.....	3
Pornography.....	3
Spirituality.....	6
Conflict.....	7
Potential Maladaptive Outcomes.....	9
Purpose Statement.....	11
Importance of the Study.....	11
Statement of Research Questions.....	14
CHAPTER TWO: LITERATURE REVIEW.....	16
Developmental Cascade Theory and Environmental Factors.....	18
Developmental Cascades.....	19
Social and Religious Communities in Adolescent Development.....	21
Physical and Online Communities in Adolescent Development.....	22

Developmental Models of Identity Development.....	23
Identity Versus Role Confusion in Developing Adolescents .....	25
Christian Identity Development.....	29
Religious Community and Adolescent Development.....	30
Online Sexual Identity Development.....	31
Public Perception of Pornography .....	32
Positive Claims .....	34
Negative Claims.....	36
Social and Behavioral Risk Factors From Early Pornographic Use.....	37
Sexual Identity Development: Exposure to Pornography in Childhood.....	39
Pornography and Religious Identity Development.....	41
Identity Conflict With Pornography Use and Religious Identity.....	41
Conflict From Pornography Use in Homes and Religious Communities.....	42
Strengths and Limitations .....	44
Chapter Summary .....	44
Hypotheses.....	45
Hypothesis 1.....	45
Hypothesis 2.....	46
 CHAPTER THREE: METHODOLOGY .....	 48
Definition of Terms.....	48
Participants.....	49

Materials .....	49
Procedures.....	52
Data Processing and Analysis.....	53
Ethical Concerns .....	55
Chapter Summary .....	56
CHAPTER FOUR: RESULTS .....	57
Early Onset Users vs Late Onset Users .....	57
Moderating Influence of Household Religiosity.....	60
Chapter Summary .....	70
Chapter 5: CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS.....	71
Outcomes Associated With Hypothesis 1.....	71
Evidence of Cascade Effects.....	74
Implications for Practice.....	80
Limitations of the Study.....	81
Recommendations for Future Research.....	82
Final Summary.....	82
REFERENCES .....	84

## Appendixes

Appendix A: Assessment Measure for Current Pornography Use and Age of Onset .....	97
Appendix B: Assessment Measure for Hypersexuality (Hypersexual Behavior Inventory).....	102
Appendix C: Assessment Measure for Coercive Sexual Fantasies (Proclivity to Rape) .....	104
Appendix D: Assessment Measure for Likelihood of Committing Rape .....	105
Appendix E: Assessment Measure for Household Religiosity (Religious Commitment Inventory).....	106

List of Tables

1.1 Definitions of Outcome Variables Assessed in This Study .....10

4.1 Results of Hierarchical Regression to Predict Current Pornography Use From Age of Onset and Household Religious Commitment.....62

4.2 Results of Hierarchical Regression to Predict HBI From Age of Onset and Household Religious Commitment.....65

4.3 Results of Hierarchical Regression to Predict CSF From Age of Onset and Household Religious Commitment.....67

4.4 Results of Hierarchical Regression to Predict ELR From Age of Onset and Household Religious Commitment.....69

## List of Figures

3.1	Visual depiction of hypotheses 1A through 1D.....	53
3.2	Visual depiction of family or household religiosity as a moderator of the influence of age of pornography onset on psychological outcomes (hypotheses ..... 2A through 2D).....	54
4.1	Age of onset x religious commitment on HBI.....	66

## **CHAPTER ONE: INTRODUCTION**

Nearly 800,000 teenage girls become pregnant unintentionally in the United States annually (Guttmacher Institute, 2010). Beyond pregnancy, adolescents are exposed to numerous other risks related to sex. For example, Weinstock, Berman, and Cates (2004) estimated that 19 million new diagnoses of sexually transmitted infections were spread annually among 15-24 year olds. Beyond medical diagnoses, a broader area of concern is the development of healthy attitudes and behaviors regarding sex (Chapman & Werner-Wilson, 2008). Maynard (1997) identified numerous studies that have addressed the public health, social, and economic impact that result from risky sexual behavior in adolescents. One area that has been identified as a major contributor to the influx of adolescent sexual behavior is the media (Collins, Martino, & Shaw, 2011). Brown and Strasburger (2007) found that media contributes to the formation of adolescent sexual identity and behavior in unhealthy ways (see also Brown, 2008). While the Internet was not a primary focus in the researcher's studies, it is reasonable to assume that many of these findings apply to online media, of which one form is pornography. Although pornographic material is available in many forms (e.g., magazines, offline videos), the widespread availability of pornography online has led to increased exposure of youth to pornographic material (Ybarra & Mitchell, 2005). Given the ever-presence of Internet access, one area of potential concern is the potential detrimental effects of viewing Internet pornography on developing adolescents.

Advances in communication technologies and increased accessibility of those technologies have been a boon to online providers of information and services. Over the last 20 years, with nearly 80% of the American public having access, the Internet has become the primary mechanism for delivery of electronic content (U.S. Census Bureau, 2012). The portability of Internet media also makes continuous accessibility an additional component to consider (Collins et al., 2011). Daily access to social media and smart phones has been identified as contributing factors to initiation of sexual activity as well as active contributors to the development of sexual behavior and attitudes (Collins et al., 2011). The manner in which the material is identified as positive or negative also contributes to the level of sexual risk-taking behavior and health outcomes for adolescents and young adults (Brown, 2008; Collins et al., 2011). Given the unprecedented availability and access to media via the Internet, one specific domain of content, pornography, is now more widely available to youth than ever before (Manning, 2006). Whether exposure to traditional, offline, forms of pornography is associated with maladaptive outcomes is a complex issue; the relationship between traditional and online exposure to pornography is not straightforward. For example, in a meta-analysis of males who were not identified as sexual offenders, Malamuth, Addison, and Koss (2000) concluded that there was no direct association for most men between exposure to pornography and sexual aggression, regardless of frequency of exposure. However, among men who were at high risks for sexual aggression toward women, they were four times more likely to engage in sexual aggression if they were frequent consumers of pornography, relative to men at high risk who did not consume pornography frequently.

Based on these patterns of results in previous research, it is important to study potential effects of online pornography use on maladaptive outcomes for several reasons: a) pornography is now more widespread than ever before due in large part to proliferation of material via the Internet (Wolak, Mitchell, & Finkelhor, 2007); b) pornography use is associated with maladaptive outcomes (e.g., Malamuth et al., 2000); and c) the link between pornography use and maladaptive outcomes may be moderated by other variables of individual differences (i.e., the association is likely not universal, Malamuth et al., 2000).

## **Background**

### **Pornography**

Providers of pornographic material have been on the leading edge of using the Internet as a means of marketing and servicing customers. Open 24 hours a day, 365 days a year, the Internet disseminates, on an annual basis, more than 90% of all pornographic materials through a diverse range of websites, including the popular video banks [www.youporn.com](http://www.youporn.com), [www.redtube.com](http://www.redtube.com) as well one-on-one video chat sites such as [www.livejasmine.com](http://www.livejasmine.com) (Samson, 2012).

Brown and L'Engle (2009) found that a large percentage of adolescent males are exposed to pornography in some form prior to attending college. In their longitudinal study media use, boys aged 12-14 years who had accessed sexually explicit material demonstrated a positive correlation with more permissive sexual norms, more frequent sexual harassment, as well as more experience with oral sex and intercourse than those

that accessed pornography later in life or those that had not accessed it at all. This seems to suggest that for pre-college aged students, early exposure to pornography is related to higher risk sexual behavior and objectifying attitudes towards women. In addition, Peter and Valkenburg (2008) found that adolescents are commonly uncertain about beliefs, values, and attitudes toward sexual exploration. Adolescents, still forming their views on sexuality, may not have had enough sexual experience to interpret the sexual images consumed when viewing pornography. This can potentially cause confusion rather than clarity over what the images mean to their sexual choices, beliefs, and developing expectations.

Although not necessarily by design, the Internet has been a key player in how adolescents are exposed to pornography (Collins et al., 2011). The ability for the youth to privately experience the material or be mistakenly targeted by pornography solicitation is much higher than in any other media platform (Wolak et al., 2007). Using a database of 1,501 adolescents between 10 and 17 years of age who participated in a nationally representative telephone survey during the years 1999-2000, Ybarra and Mitchell (2005) reported that 25% of youth in this age group received unwelcome exposure to pornographic images. In a subsequent study, Wolak, Mitchell, and Finklehor (2006) found, that five years later, 42% adolescents had received unwelcome exposure to pornography. Such findings raise the question of whether there is an increasing proliferation of these experiences associated with widespread increases in access of pornography on the Internet.

Sabina, Wolak, and Finkelhor (2008) found that 93% of males and 62% of females have had some form of Internet pornography exposure before their 18<sup>th</sup> birthdays. Males were more likely to pursue online pornography (Valkenburg, 2006) and the majority of females who participated in a study by Sabina and colleagues (2008) reported involuntary exposure via the Internet as the only means by which they viewed pornography. Kaiser Family Foundation's research identified that accidental exposure to pornography while searching for other information, such as health information, exposed 70% of youth between the ages of 15-17 (Rideout, Foehr, & Roberts, 2010). More importantly, researchers have found that exposure to online pornography has been correlated to increased sexually permissive behavior and attitudes, even after controlling for factors such as traditional media exposure to pornography, sex, age, or religious beliefs (Lo & Wei, 2005). This certainly suggests that irrespective of age appropriateness or beliefs about the morality of using pornography (i.e., religious beliefs), early exposure to pornography is common and may impact both the behavior and attitude of those exposed.

For adults, religious populations report a much lower use of pornography (e.g., Regnerus, 2007). However, among users of pornography, those who are in religious populations are more likely to report perceived problems with use of pornography (Abell, Steenbergh, & Boivin, 2006; Grubbs, Sessoms, Wheeler, & Volk, 2010). Interestingly, religious beliefs have a positive effect among those who do not use pornography (i.e., religious beliefs discourage use) and a negative effect among those that do use (i.e., causing higher levels of psychological distress; Grubbs et al., 2010). This certainly

suggests that adolescent spirituality may play a key role in the development of their attitudes related to sexuality, and when they are inevitably exposed to pornography how they interpret and organize those media into their ongoing development.

## **Spirituality**

Concentrated attention to spiritual and religious development during childhood and adolescence can significantly enrich and strengthen an individual's understanding of the core processes of human development (Benson, Roehlkepartain, & Rude, 2003). King (2003) argued that religious and spiritual contexts during adolescence are important for various aspects of identity development. For example, King (2003) suggested that religious institutions offer a context for identity formation that embraces concerns for the well-being of society, which transcends an identity focused solely on the self. Kiesling, Sorell, Montgomery, and Colwell (2008) defined spiritual identity as the part of the self that addresses questions about the nature, purpose, and the meaning of life. A solidly formed identity promotes behaviors that are consistent with one's core beliefs and attitudes. In other words, there is no conflict between one's beliefs and actions. One's individual sense of spirituality, distinct from one's parents, is developed at the same time one's sexuality typically blossoms: adolescence. That is, adolescence is a time when an adolescent is beginning to develop her or his unique sense of self related to spirituality, and this time of identity exploration and development overlaps with a time when a significant portion of adolescents are exposed to pornography.

Holder and colleagues (2000) found a decreased association with voluntary sexual activity among youth who associate with spiritual interconnectedness among peers. Benson et al. (2003) found that focused spiritual development in adolescence and childhood significantly contributed to strengthened understanding of human development. Roeser et al. (2006) found that spiritual education also facilitated emotional self-regulation, which contributes to the manner in which self-development emerges, especially in sexual expression and attitude. Cotton, Zebracki, Rosenthal, Tsevat, and Drotar (2005) also found that when religion or spirituality is important to a young person, it serves as a protective factor against negative adolescent health outcomes that can include self-harm or experimentation with drugs or alcohol. As found in Markstrom's (1999) research, religious participation was identified as a contributor to psychosocial maturity in adolescents. Ego strength, general self-esteem, school self-esteem, and ideological identity were all examined and all but ideological identity were found to be associated with religious involvement of the students (Markstrom, 1999). While self-esteem did not appear to change, school self-esteem was significantly improved (Markstrom, 1999).

## **Conflict**

The focus of this paper was the conflict that emerges from spiritual or religious identity and exposure to online pornography. Those involved in religious affiliation during adolescent years will likely find themselves exposed to online pornography at some point. This study analyzed how they respond to this exposure and the potential

identity conflict that may emerge from receiving conflicting messages relating to sexuality and healthy sexual identity. From the perspective of cognitive dissonance (Festinger, 1962), conflicts occur when one engages in behaviors or holds attitudes simultaneously that are seemingly incompatible. For example, if an individual holds a belief that pornography is immoral, unhealthy, and inappropriate while simultaneously engaging in consumption of pornographic material, then the individual is experiencing a conflict between her or his beliefs and behaviors. According to Festinger (1957), when conflicts are present, an individual experiences psychological discomfort and will seek to reduce the conflict via various mechanisms, which may include a) changing one's behaviors, b) changing one's attitudes or beliefs, c) reprocessing events to reduce perceived dissonance, or d) avoiding situations that increase awareness of the conflict.

Applying these possibilities to pornography use, an individual with a strong religious identity may adopt a belief that pornography is immoral. If this person engages in consumption of pornographic material, conflict between her or his beliefs and behaviors is present. To alleviate the dissonance between these behaviors and beliefs, the individual could change her or his behavior (i.e., stop viewing pornography). However, previous research suggests that, for at least a portion of the population who engages willingly in consumption of pornography early in life, use of pornographic material becomes habitual and continues into adulthood (Carroll et al., 2008). Another alternative is that this individual could change her or his beliefs, which in this case would indicate a significant alteration of one's spiritual identity. Two other possibilities involve the continued dissonance between one's spiritual identity and engagement in pornographic

behavior. The individual could reinterpret the behavior, or rationalize the behavior, so that she or her interprets the behavior in a way that minimizes the distance (e.g., “I don’t watch violent pornography, so what I’m doing isn’t really that bad.”). Finally, the individual could avoid contexts that increase awareness of the dissonance. In this example, the individual could avoid church, discussions about sexuality, or disclosing the use to someone (e.g., act of repentance).

In many of these scenarios, the possibility for negative, cascading developmental outcomes exist. That is, the conflict between spiritual identity and pornographic behaviors could result in maladaptive outcomes. That was the focus of this study, and the results will be useful for developing future strategies designed to alleviate potential negative outcomes that may result.

### **Potential Maladaptive Outcomes**

Previous research indicates that pornography use is associated with various maladaptive outcomes, including risky and aggressive sexual attitudes and behaviors (e.g., Carroll et al., 2008; Malamuth et al., 2000) and unhealthy attitudes toward women, relationships, and cohabitation (e.g., Padgett, Brislin-Slütz, & Neal, 1989). In the present study, the following outcomes were examined empirically: current pornography use, hypersexual behaviors, coercive sexual fantasies, and likelihood to rape. Definitions of these constructs are offered in Table 1.1.

Table 1.1

*Definitions of Outcome Variables Assessed in This Study*

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Construct	Definition
Current pornography use	Use of pornography at time of study participation
Coercive sexual fantasies	Fantasies that include content such as violence toward women, bondage, or pain with regard to sexual activity (Greendlinger & Byrne, 1987)
Hypersexual behaviors	Sexual behaviors that include at least some of the following features; repetition, intense preoccupation with thoughts, urges, and behaviors; unsuccessful attempts to inhibit sexual thoughts or behaviors (Reid, Karim, McCrory, & Carpenter, 2010)
Likelihood to rape	In a hypothetical situation of ensured anonymity, how likely would someone be to commit rape against a woman (Malamuth, 1981)

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## **Purpose Statement**

The purpose of this study was to examine the relationship between pornography use and negative sexual behavior outcomes. More specifically, the researcher studied the relationship between the onset of pornography use and both current use and hypersexual behaviors in male and females. The relationship between pornography use, coercive sexual fantasies and likelihood to rape (in male participants) was also studied. Personal religious commitment and family religious commitment were also studied as moderators of the purported association between pornography use and negative sexual outcomes. In doing so, the researcher examined the potential spillover of continued pornography use into maladaptive sexual attitudes and behaviors.

## **Importance of the Study**

The period of transition between childhood and adulthood is important in many respects. It is during this time that individuals typically move into the adult roles modeled for them by the mature members of the broader society (Nelson & Barry, 2005). This period of identity development builds the foundation of an individual's self-identity and encourages personal exploration of values and beliefs. Waterman (1999) drew heavily on Erikson's writings when he made the assertion that "it is primarily the inability to settle on an occupational identity that disturbs young people. Without some ideological logical commitment, however implicit in a way of life, a youth will suffer from a confusion of values" (p. 69). Markstrom (1999) also tested Erikson's theory in his research and found school self-identity improved as a result of spiritual or religious study.

It would seem that the manner in which adolescents are focused on activities that foster positive self-identity and values would contribute to positive self-development. This would also contribute to the belief that negative exposure to material or information that poses derogatory or negative identity beliefs around one's own sexuality would simultaneously pose negative self-development and potentially contribute to behavior that can harm the self or others.

The Internet is increasingly the medium of choice for maintaining relationships and communicating identity to others (Rainie, 2010). As children today move into their teen years, the use of cell phones and social networking sites are widespread influences and mediums through which they gain knowledge and become known (Rideout et al., 2010). These and other factors have an effect on how young adults come to understand who they are and what social commitments to make. When asked, emerging adults see the integration of technology into their lives as the defining aspect of what sets them apart from other generations (Zickuhr, 2010). The high usage of such technology also contributes to increased exposure to information of all types. This can come in the form of religious or spiritual material all the way to violently explicit sexual material.

Technologically mediated interaction has become especially prevalent in the consumption, and to a lesser degree, production of sexually explicit content. Older teenagers and young adults are the most common consumers of sexually explicit Internet materials (Regnerus & Uecker, 2011). As spiritual and religious identity is still in formation during these years, it is likely that exposure to this powerful material has an effect on development of emerging identities. It would be especially important for this

relationship to be explored within contexts where pornography use is typically decried, such as in Christian context. The majority of Christian community members claim that pornography exerts a negative and disruptive influence on individuals and families (Hoffman, 2010). Yet, while almost all Christian family members claim an outward moral objection to pornography, Chelsen (2011) found that many religiously devout individuals frequently view sexually explicit material. This suggests that many individuals in Christian communities may experience an important disconnect, or conflict, between their overt beliefs and covert behaviors.

Virtually all of the Christian community has been influenced by the consequences of exposure to pornography or other sexually overt material. In a nationwide survey of young adults, 87% of male respondents agreed to viewing pornography at various frequency intervals (Carroll et al, 2008). Survey research revealed that almost half (48%) of males at Christian universities are willing to view pornographic content. In the case of males at evangelical Christian institutions, one study indicated that 79% of men viewed sexually explicit material at least once in the previous year, with 30% admitting to viewing it a minimum of once each month (Chelsen, 2011). Nelson, Padilla-Walker, & Carroll (2010) estimated that 85% of men have watched sexually overt material in the last year. These statistics correlate with the previous mentioned research studies that indicate most youth would be exposed to online pornography by the time they reached 18 years of age (Collins et al., 2011). This means that there is also a significant number of Christian youth who are exposed to online pornography.

As faith communities in general, and the Christian community in particular, are increasingly faced with the destructive influence of pornography among their young followers, the Christian research community should be directing its resources to better understand the dynamics and influence of pornography, specifically as it is delivered via the Internet. This study is an extension of two important studies that examined the role of pornography acceptance and use among young adults (Carroll, et al., 2008; Nelson, 2010).

### **Statement of Research Questions**

The primary goal of this research was to examine the potential role of religious identity on the association between age of pornography use onset and maladaptive sexual outcomes. Couched within the context of Cascade Development Theory (explored more fully in the following chapter), a particular interest of this study was whether age of pornography use onset is associated with risks in other domains of sexuality. That is, outcome variables include domains specific to pornography use (i.e., current pornography use), as well as additional domains that represent more maladaptive sexual behaviors, such as hypersexual behaviors and proclivity to commit rape. A potential moderating variable was included in the model under investigation to see if primary pathways vary as a function of individual differences. As a central focus of this study was identity formation, religiosity of household environment was used as a proxy for religious identity. The specific research questions are as follows:

RQ1: Is age of onset of pornography use associated with adult sexual behaviors and attitudes?

RQ1A: Is age of pornography use onset associated with higher levels of pornography use during adulthood?

RQ1B: Is age of onset of pornography use associated with adult hypersexual behaviors?

RQ1C: Is age of onset of pornography use associated with frequencies of coercive sexual fantasies during adulthood?

RQ1D: Is age of onset of pornography use associated with proclivity to rape during adulthood?

RQ2: Does household religiosity moderate the associations between age of onset of pornography use and maladaptive outcomes during adulthood?

RQ2A: Does the association between age of onset of pornography use and adult pornography use frequency depend on childhood household religious commitment?

RQ2B: Does the association between age of onset of pornography use and adult hypersexual behavior vary as a function of household religious commitment?

RQ2C: Is the association between age of onset of pornography use and adult frequencies of sexual fantasy moderated by household religious commitment?

RQ2D: Does household religiosity moderate the association between age of onset of pornography use and proclivity to rape during adulthood?

## CHAPTER TWO: LITERATURE REVIEW

Much attention has been given to the potential influence of adolescent identity formation on adult behavioral outcomes. The development cascade theory (DCT) is instrumental in providing a framework for identifying potential negative and positive influences in early development on adaptive and maladaptive outcomes later in life. Importantly, this model offers a heuristic for understanding how constructs in one domain can spillover to constructs in other domains (Burt, Obradovic, Long, & Masten, 2008; Cicchetti & Cannon, 1999; Cicchetti & Tucker, 1994; Dodge & Pettit, 2003; Dodge et al., 2009; Fry & Hale, 1996; Hanson & Gottesman, 2007; Hinshaw, 1992; Hinshaw & Anderson, 1996; Kagan, 2005; Masten & Coatsworth, 1998; Masten et al., 2005; Masten & Cicchetti, 2010; Patterson, Reid, & Dishion, 1992; Rutter, 1999; Rutter, Kim-Cohen, & Maughan, 2006; Rutter & Sroufe, 2000).

According to developmental cascade theory, “functioning in one domain of adaptive (or maladaptive) behavior spills over to influence functioning in other domains in a lasting way” (Masten et al., 2005, p. 734). One example from published literature that illustrates developmental cascades well comes from research on children’s externalizing behavior problems. Externalizing behavior problems can be conceptualized as a domain-specific form of maladaptive behavior. However, when externalizing behavior problems emerge in childhood, later academic achievement can be undermined. In other words, the maladaptive functioning that was once localized to the domain of

externalizing behavior problems spilled over to the domain of academic functioning. Further, there is evidence to suggest that the spillover effect in academic functioning cascades further, increasing the risk of later internalizing problems in young adulthood (Masten et al., 2005). As can be seen in this evidence-based example, problems that emerge in just one domain can spillover or cascade throughout multiple domains of development across time.

When ideological conflict is introduced during the important adolescent foundational years, DCT is useful in defining the adaptive or maladaptive shifts in personal identity (Cox, Mills-Koonce, Propper, & Gariépy, 2010). Adolescents who have grown up in Christian religious communities and who remain committed to the ethical and moral beliefs therein are likely to experience identity conflict if simultaneously engaging in online pornography (Carroll et al., 2008; Crane, 2010). Pornography itself is counter to Christian faith praxis (Crane, 2010). The complex association faced by Christian adolescents who often seek online pornographic material offers the potential for application of DCT. There are studies tying DCT and academic achievement in relation to emotional conflict (Masten & Coatsworth, 1998; Masten, Roisman, Long, Burt, Obradović, Riley, Boelcke-Stennes, & Tellegen, 2005). As such and according to DCT, it is quite possible to postulate that timing of pornography, in the context of Christian identity, could lead to problematic outcomes in adulthood, even in domain separate from pornography use. Through proper application of DCT, as described by Cox et al. (2010), well-timed and targeted intervention methods for counteracting negative effects from online pornography use can be utilized.

In the present study, these concepts were applied to the domain of early onset of pornography use and later adult sexual attitudes and behaviors. Specifically, the association between age of onset of pornography use and adulthood pornography use, maladaptive sexual behaviors and attitudes were examined empirically. In this chapter, developmental cascade theory was reviewed and applied to the context under investigation in this study. The key focus was developing a rationale to explain why occurrences in one domain of development (pornography use) could cascade or spillover to another domain of development (such as likelihood of committing rape).

### **Developmental Cascade Theory and Environmental Factors**

Important questions regarding adolescent pornography use, and subsequent outcomes associated with this use, remain. Few longitudinal studies have been conducted to address the use and consequences of online pornography use in adolescent peer groups; studies have tended to be cross-sectional in their nature without targeting historical onset, use, and potential impact (Carroll et al., 2008). DCT provides a framework for examining historical influence on the present functioning of individuals, and therefore this can be examined with retrospective reports (Burt et al., 2008; Cicchetti & Cannon, 1999; Cicchetti & Tucker, 1994; Cox et al., 2010; Dodge et al., 2009; Dodge & Pettit, 2003; Fry & Hale, 1996; Hanson & Gottesman, 2007; Hinshaw, 1992; Hinshaw & Anderson, 1996; Kagan, 2005; Masten & Cicchetti, 2010; Masten & Coatsworth, 1998; Masten et al., 2005; Patterson et al., 1992; Rutter, 1999; Rutter et al., 2006; Rutter & Sroufe, 2000). DCT has been studied in various other capacities, which lends

applicability for the purpose of this study. The manner in which the various studies have utilized this theory facilitates the understanding of how it can be applicable to this particular research (Burt et al., 2008; Cicchetti & Cannon, 1999; Cicchetti & Tucker, 1994; Cox et al., 2010; Dodge et al., 2009; Dodge & Pettit, 2003; Fry & Hale, 1996; Hanson & Gottesman, 2007; Hinshaw, 1992; Hinshaw & Anderson, 1996; Kagan, 2005; Masten & Cicchetti, 2010; Masten & Coatsworth, 1998; Masten et al., 2005; Patterson et al., 1992; Rutter, 1999; Rutter et al., 2006; Rutter & Sroufe, 2000).

Competence, socialization, and pornography use are contributing factors to overall identity formation and interact particularly with the spirituality of religious youth (Carroll et al., 2008; Crane, 2010). The religious aspect of this study offers an unique perspective for considering potential individual differences that may change the way in which developmental processes cascade into other domains, because the Christian moral ethic creates a base framework from which deviant behaviors can be interpreted (Carroll et al., 2008; Crane, 2010).

### **Developmental Cascades**

Researchers and practitioners of psychology understand that development of every individual behavior does not occur as the singular result of one single and simple cause. The term, developmental cascades, represents the awareness that behaviors, or behavioral effects, have multiple and interacting causes (Burt et al., 2008; Cicchetti & Cannon, 1999; Cicchetti & Tucker, 1994; Cox et al., 2010; Dodge et al., 2009; Dodge & Pettit, 2003; Fry & Hale, 1996; Hanson & Gottesman, 2007; Hinshaw, 1992; Hinshaw &

Anderson, 1996; Kagan, 2005; Masten & Cicchetti, 2010; Masten & Coatsworth, 1998; Masten et al., 2005; Patterson et al., 1992; Rutter, 1999; Rutter et al., 2006; Rutter & Sroufe, 2000). A developmental cascade refers to a system of developmental phenomena where someone will, from one's own life experience, understand that multiple challenges (or comorbid causes) can "snowball" (Masten & Cicchetti, 2010) to create and exacerbate negative consequences or effects. For example, parental relationships, peer relationships, and socio-economic circumstances all play a role in how well a child does in school by the way in which they influence the student's focus and self-identity formation. The systematic study and analysis of developmental cascades is the way in which cumulative or interrelated behavioral factors are both central and fundamental to processes of human development.

In terms of an explicit definition, developmental cascades refer to the cumulative consequences for development of the many interactions and transactions occurring in developing systems that result in spreading effects across levels, among domains at the same level, and across different systems or generations. (Masten & Cicchetti, 2010, p. 491)

While the general concept of developmental cascades concept was not completely novel, Masten et al. (2005) consolidated thinking regarding cumulative consequences in a way that has galvanized the field of developmental psychology. Developmental cascades, as a systems approach (Cox et al., 2010), has proven to be a particularly useful framework of study for psychologists devoted to the understanding of childhood development and, especially, behavioral psychopathology.

## **Social and Religious Communities in Adolescent Development**

Adolescents who define themselves as religious tend to avoid activities that put their moral beliefs into question (Paloutzian & Park, 2005). They are less likely to associate with those of whom their parents would disapprove (Paloutzian & Park, 2005). They even score higher on a range of competence dimensions, as evidenced in bolstered self-confidence and successfulness in social circles (Paloutzian & Park, 2005).

Achievements outside of religious activities seem to enhance their religious identity, and participation in religious moral structures help guide through life's challenges (Levenson, Aldwin, & D'Mello 2005). Religious activities tend to involve socialization within religious communities, which reinforces social codes and conduct as well as facilitates personal religious identity formation (Levenson et al., 2005). It is this identity formation paired with a sense of belonging that can lead to healthy social relationships. Lack of this identity formation or sense of belonging can be a risk factor for maladaptive behaviors.

Levenson and colleagues (2005) studied the role religion plays in the protection against antisocial and deviant behavior. The protective effect religion has against risky behaviors precipitates from the larger community to an individual level (Levenson et al., 2005). The transmission can also occur within a family, as evidenced by the fact that religiously devout families tend to have higher numbers of adolescents who also participated in religious activity. Christian identification can range from the devout sense of "I am religious," to "I merely engage in religious activities"; however, level of belief corresponds to higher competence levels, which in turn stabilizes identity (Levenson et

al., 2005). Other factors may influence the core of Christian belief, especially in social environments that are not cohesive, such as public schools and online communities.

### **Physical and Online Communities in Adolescent Development**

In many contemporary households, children and adolescents grow up surrounded by communities that are both physical and virtual. Kinney (1993) noted that the identity one forms during adolescence tends to be the one that most people adopt for the rest of their lives. “Teenagers are about to crystallize an identity, and for this they need others in their peer group to act as models, mirrors, helpers, testers, foils” (Kinney, 1993, p. 34). Interactions can shape identity. Recent analyses demonstrate primary desire for physical interaction between adolescents; however much of the environments adolescents spend time in are found online (Kinney, 1993). Chou, Hunt, Beckjord, Moser, and Hesse (2009) found that approximately 69% of adults in the United States had access to the Internet with 23% making use of a social networking site. Participation in social networking sites has more than quadrupled since its inception, with up to 90% of youth having access to these sites. It is clear that the Internet use has become commonplace among preteen and teenage populations in the United States.

The largest group of world Internet users are young, affluent, and highly-educated men; the same population that also views the most pornographic material (Hargittai, 2004). According to Braun-Courville and Rojas (2009), a high majority of college-age males use sexually explicit websites to enhance arousal and aid in masturbation. This is innocuous in and of itself, yet as Davis (2001) has shown, pathological Internet use

including online sex and pornography viewing are often compulsive Internet behaviors. Brown and L'Engle (2009) established that the majority of college students were exposed to Internet pornography before 18 years of age. Due to pervasiveness of Internet pornography, Cooper, Delmonico, and Burg (2000) called it the Triple-A Engine which refers to its affordability, anonymity, and accessibility, religious youth are increasingly coming in contact with explicit sexual material on the web. With the ubiquitous presence of the Internet and few guidelines and regulations on what is posted on the Internet, pornography can be easily accessed by anyone who uses the Internet.

### **Developmental Models of Identity Development**

One of the principle values of DCT has been its utility in terms of intervention development (Masten & Cicchetti, 2010). DCT proposes specific paths that map onto effective strategies to mitigate harmful influences and suppress the likelihood of negative developmental patterns (Masten & Cicchetti, 2010). Developmental models of competence help address three stages of action which influence identity development and contribute to issues therein. In Kohlberg, LaCrosse, and Ricks' (1972) seminal review of longitudinal data on adjustment, they determined the predictive validity of positive cognitive competence and positive socialized conduct against antisocial and deviant behaviors. Adolescents who found that they were involved in positive religious peer relationships performed better in social contexts than their non-religious peers (Kinney, 1993; Levenson et al., 2005; Parke et al., 2006). The possibility that adaptive and maladaptive functions and behaviors are influenced by religious belief has important

implications. It suggests that religious contexts hold potential for preventing risky behaviors, and based on DCT, preventing developmental problems in one stage could likewise spillover to prevent problems in other domains.

Frequent online pornography use may be one defining predictor for risky or deviant behaviors when paired with poor relationships with peers or parents, lack of parental involvement, peer pressure, and type of community involvement (Carroll et al., 2008, Cox et al., 2010; Levenson et al., 2005). Adolescents that grow up in a religious household and who participate in online pornography viewing may find that they struggle with issues in the religious setting as well as other social environments (Carroll et al., 2008). Clinicians report an influx of issues that stem from or manifest themselves in “online sexual compulsivity” (Abell et al., 2006, p. 166). The level of online pornography use will likely influence areas of identity development and important social behaviors, which can manifest in adolescence or adulthood (Abell et al., 2006). This notion is consistent with the central features of DCT.

For adolescents that grow up in a religious household in particular, a conflict with religious identity can produce sensitivity to maladaptive adjustments in addressing problems with compulsive Internet pornography use. As mentioned previously, the increased participation in religious activity interplays with outside activity and the moral conflict presented by the use of Internet pornography may potentially generate internalized negative feelings about one’s value. Also as discussed previously, this conflict is consistent with Festinger’s (1957) notion of cognitive dissonance. The perpetuation of the addictive use of the pornography, which does feed into a natural

curiosity and instinctive desire to reproduce, contradicts the discipline guidance provided by the religious beliefs (Abell et al., 2006). Hiding or suppressing behavior can generate conflicting feelings, which can ultimately manifest in less desirable reactionary behaviors (Levenson et al., 2005). The ultimate outcome would never be easily resolved in a way Festinger (1957) might suggest, as the moral compass of the religion will never align with the way in which sex is represented in the pornography. Thus, maladaptive outcomes may result from the perpetual conflict between moral beliefs and engagement in behaviors he views as immoral.

### **Identity Versus Role Confusion in Developing Adolescents**

Erikson suggested that success at each stage of development is determined not by the passage of time but by the successful navigation through a series of conflicts and crises, which leads to new senses of maturity (Erikson & Coles, 2000). For Erikson, the developmental stage that most exemplifies the period of adolescence is the “Identity versus Role Confusion” stage (Erikson & Coles, 2000). During this stage, adolescents need to develop a sense of self and a personal identity. Role confusion is “the inability to conceive of oneself as a productive member of one’s own society” (Engler, 2008, p. 157). As much of identity formation takes place at the communal level, validity of public and peer opinion is often indexed by personal feelings of success and cohesive identity formation. Failure to conform to public and peer structures can lead to further conflicts within social and community relationships. The potential for pornography use to be influenced by peer pressure from classmates or friends is a likely contributing factor to

generating self-identity formulation conflict. This potential for conflict may also be particularly great for people who come from conservative, religious backgrounds.

The self-identity formulation conflict is further evidenced by Masten et al.'s (2005) foundational study using developmental cascade theory to assess adult issues stemming from childhood. Drawing from a sample (N = 205) of normative urban youth, it was highly focused on social adaptation and cognitive adaptation (the latter measured by evaluating academic achievement) in relation to externalizing and internalizing symptoms and behaviors. The study was the first to track uni-directional and bi-directional influences over a long period (20 years) and examined the possibility of developmental cascades from childhood through young adulthood. One of the most intriguing results of this study was that “[e]xternalizing problems evident in childhood appeared to undermine academic competence by adolescence, which subsequently showed a negative effect on internalizing problems in young adulthood” (Masten et al., 2005, p. 734). The authors’ analysis suggested future study focusing on academic achievement, more specifically, the key moments for gaining competence in primary developmental tasks. As exemplified here, problems with normative developmental tasks cascaded into other domains, thus spurring the development of psychopathological behaviors and symptoms (Masten et al., 2005). Further challenges posed by this study include the need to gain an understanding of the relationship between age-salient developmental tasks regarding children in at-risk versus normative circumstances.

Eccles and colleagues’ (1993) suggested that negative changes during adolescence occur due to a discrepancy between the physical, emotional, and psychological needs of

youths and the opportunities available within their environment. Due to the unstable nature of adolescent identity, teenagers are highly susceptible to become easily influenced by others (Erikson & Coles, 2000). Arnett (2000) discussed how industrialized societies often create an extended adolescence, offering a psychosocial moratorium to youths and delaying maturity. In other words, many young people in their late teens and early twenties are still experiencing the developmental crises of the Identity versus Role Confusion stage. As young people continue to explore friendships, love, work, spirituality, politics, and other aspects of public interactions which make up personal identity, they may either develop a secure sense of self, fail to create a solid understanding of who they are, or they may even swing between the two. Identity formation through education remains questionable without further evidence of its effectiveness.

Perhaps for this very reason, it is not surprising that research suggests that education directed at preventing risky behavior in adolescents is not effective, despite the massive efforts and 25 or more years of extensive research (Steinberg, 2008). Research has not found any relevant answers using presupposed assertions involved assuming that teens were less risk-averse, viewed risk differently, are more deficient or irrational in processing information than adults (Steinberg, 2008). There are empirical studies that indicate teens and adults tend to overestimate danger in similar manners, are equally capable of realizing their vulnerability, and are equally capable of making dangerous or poor decisions (Millstein & Halpern-Felsher, 2002; Reyna & Farley, 2006; Steinberg & Cauffman, 1996). Of course, it may be that adolescents and adults are not fundamentally

different in these regards. Instead, there may be a subpopulation of teens that develop into a subpopulation of adults who are at increased risks of developing addictive, obsessive, or compulsive behaviors. This notion would be consistent with what Blum, Cull, Braverman, and Comings (1996) coined as the “reward deficiency syndrome” (p. 132). Specifically, Blum and colleagues summarized evidence indicating that a constellation of risk factors, such as low serotonin levels, exists among people at higher risk for disorders of addiction. Spear (2000) extended the notion to explain increases in risk-taking among adolescents more generally, arguing that binding in serotonin receptors (5-HT, specifically) is lower during adolescence, and low levels of serotonin correlate with disorders of behavioral control and impulsivity.

Indeed, adolescents appear to show some signs of attaining less appetitive value from a variety of stimuli relative to individuals at other ages, perhaps leading them to seek additional appetitive reinforcers via pursuit of new social interactions and engagement in risk taking or novelty seeking behaviors. Such adolescent-typical features may have been adaptive evolutionarily in helping adolescents to disperse from the natal unit and to negotiate with success the developmental transition from dependence to independence. In the human adolescent, these propensities may be expressed, however, in alcohol and drug use, as well as a variety of other problem behaviors. (Spear, 2000, pp. 446–447)

Those who receive adequate encouragement and reinforcement through social exploration and positive public and peer response will more likely develop a sense of independence and self-control; those who remain uncertain of their beliefs, feeling the

need to be told how to feel, will often feel confused and ambivalent about themselves and their future. Examples of confusion can include various manifestations. Teens who are easily adapted to approval and rewards may feel internal conflict with regard to their identity (Roehlkepartain, 2006). This can be seen in peer relationships, especially with those who have strong religious affiliation.

The manner in which religion is used to help derive self-control is the antithesis itself to the use of pornography. Pornography is absolutely free of self-control and represents full release of deeper desires and thoughts that religious adolescents are normally taught to repress and control. This can feed into the developmental crisis of self-identity. During this stage of development, the understanding of one's social role, how one is perceived by others, what is expected behavior versus what is instinctive can create a form of identity crisis. This is especially true when youth are not supported by a peer group or social group that offers positive association with their identity development (Eccles et al, 1993). Without this positive social association, the conflict lies between the expected behavior and the instinct.

### **Christian Identity Development**

Religion is part of the community identity. The role that religion plays in identity formation can be explained in King's research where it is stated that identity exploration can be established through the setting provided by religious commitment (King, 2010). This setting offers contexts pertaining to spiritual, social and ideological identity far surpassing the focus on the self (King, 2010). This focus away from the self also

supports healthy concern for social welfare of others (King, 2010). Establishment of this type of religious focus is often done early in the child's life by family members.

Religious belief is often developed during childhood when family involvement in a religious community or parental belief systems is integrated into a child's life.

Christian communities provide for adolescents the solid framework of an already established moral code from which to build a religious identity. For the adolescent, negotiating the boundaries of the code is important in discerning personal belief and in forming that cohesion within the mores of the greater community. Erikson's identity versus Role Confusion stage is particularly relevant in understanding the development of Christian religious identity (Arnett, 2000). Roehlkepartian (2006) stated that if a stable spiritual identity is developed, it fosters appropriate choices and behaviors. During this time, adolescents seek meaning and purpose in life and experience a strong desire to make sense of the world around them, striving for discovered ideas that enhance their evolving worldviews.

### **Religious Community and Adolescent Development**

Spiritual and religious communities may act as safe havens for youths to explore the difficult aspects and issues inherent within the process of identity development. Many religious communities often foster peer groups united by common values and moral codes. As previously mentioned, teens often turn to their peers for guidance in identity formation. In seeing their peers engaging in leadership roles or community service activities often offered in religious and spiritual organizations, adolescents

discover their ability to participate in a group. In addition to peer role models, adolescents often see adults in their religious communities as spiritual role models.

Identity development is a confounding and troubling period for most adolescents, as they begin to face life challenges, make decisions based on their evolving perspective on life, and explore their own methods of navigating their place within their peer groups and society at large. These challenges drive some youths to develop spiritual connections, and spiritual communities provide a distinct setting for identity exploration. The beliefs and values found within a religious or spiritual community provide the necessary context for teens to find their place in the world and develop a sense of meaningful identity (King, 2010). By integrating the moral codes and ethics of these communities, a teenager can develop a corresponding identity anchored within a belief system based on a coherent worldview. Religious identity development requires a precarious navigation through a series of crisis confrontations and resolutions, which is necessary in the development of identity.

### **Online Sexual Identity Development**

Because sexual identity is part of the concern, adolescents must learn to live within the moral codes accepted by society and their primary community group. Within the scope of the defined group, online sexual encounters comprise much of early exposure to sexual issues. Subrahmanyama, Greenfield, and Tynes (2004) conducted a study of adolescents' Internet use and identity development concluding that adolescents' online interactions are significant in sexuality and identity formation. Sexual identity

development is one of the key components of identity formation, as sexual desire and urges are newly developing at this time (Konik & Stewart, 2004).

Most adolescents become curious about sex long before they are able to experiment sexually with others (Ybarra & Mitchell, 2005). Often, the Internet becomes a source of sexual information for curious teenagers, providing a fairly safe place to practice new types of sexual relationships (Subrahmanyama et al., 2004). The impact of the discovery of sexual material on the Internet may depend on the individual youth's existing belief systems and sense of identity relationships (Subrahmanyama et al., 2004). This is becoming a larger concern with the accessibility of such material becoming more prevalent.

With a majority of adolescents in the United States having access to the Internet at home, adolescents are free to explore their sexual identities, using the Internet to ask questions and experiment with various sexual ideas. Depending on the advice, information, and opinions the teenagers receive, they may see pornography as an opportunity to explore different sexual preferences or in expressing the desire to marginalize and subjugate women. The identity development stage of adolescence is a unique and ever-changing time period, and the expression of individual sexuality weighs heavily on the values formed during this developmental time period.

### **Public Perception of Pornography**

The subject of pornography is greatly contested in the public sphere, with secular responses being more in favor of exposing the positive effects of online pornography,

while most religious groups favor declaiming it (Abell et al., 2006; Brown & L'Engle, 2009; Cooper et al., 2000; Davis, 2001; Subrahmanyama et al., 2004). For adolescents in religious communities the range of opinions can be difficult to assess on a personal level. Some describe pornography as the ultimate expression of sexual freedom with real benefits including liberation, freedom of expression, and personal power (Abell et al., 2006; Brown & L'Engle, 2009; Cooper et al., 2000; Davis, 2001; Williams, 1999) while others suggest a deleterious degradation of women and children as objects (Abell et al., 2006; Brown & L'Engle, 2009; Cooper et al., 2000; Davis, 2001; Russell, 1993). Religious communities' opinion generally coincides with the latter.

In either case, the Internet has been demonstrated as an enabling mechanism with a disinhibiting affect, by which people can engage in activities that are not something they would have normally done (Cooper, Delmonico, Griffin-Shelley, & Mathy, 2004). On an individual level, pornography viewing is rarely seen as wholly good or wholly bad (Cooper et al., 2004). There are negative and positive aspects of the viewing that are reflected not only in the material, but in the personal engagement with the material. Indirect risk factors leading to the compulsive use or abuse of viewing pornographic material may coincide with whatever public perception (be it positive or negative) is the norm of a particular community. Thus, religious adolescents growing up with the values which censure pornographic viewing may potentially have a higher risk factor for maladaptive social behaviors in response to the conflict that arises due to continued pornographic use. This needs to be further investigated to substantiate the potential validity of this possibility.

## **Positive Claims**

There are many arguments in favor of pornography use as a tool for exploration and as an expression of free speech and sexual autonomy. Hald and Malamuth (2008) found that both male and female pornography viewers reported more positive than negative effects from pornography use in relation to sex life, sexual attitude, perceptions towards sex, and general quality of life. Additionally, pornography can expand an individual's understanding and experience of sexuality. McElroy's (2004) study found that pornography creates a more complete view of the world's sexual possibilities and allows people to safely experience sexual alternatives and satisfy curiosity.

In a literature review of 20 studies on rape fantasies, Critelli and Bivona (2008) found that up to 57% of women report having rape fantasies on multiple occasions. McElroy (2004) explained that the most important thing to understand in this situation is that a rape fantasy does not represent a desire for the real thing. Through the sexual expression allowed in pornographic material, people can explore fantasies which they would not normally carry out, but which can be normal and healthy aspects of one's sexual identity (McElroy, 2004). Encouraging discussion on the use of pornographic materials may normalize and de-stigmatize its use and also to create a venue for the discussion of the more confusing aspects of sexual identity such as so-called "deviant" tendencies (McElroy, 2004). Others support beneficial use of pornography for other reasons, such as self-reported perceptions that pornography use enhances attitudes toward sex (Hald & Malamuth, 2008).

Another argument on the benefits of pornography comes from the political argument that pornography is a First Amendment right of free speech. “Pro-sex” females believe that the pornography industry should have protection as political heresy to protect women from being controlled sexually (Strossen, 1995). Strossen argued that women’s rights are endangered through censorship more than they are by exposure to the sexual images and that protection is needed. The violation does not come from the media produced by the pornography industry, but from the infringement upon freedom of speech and sexual autonomy (Strossen, 1995). This argument asserts that women need more protection from the government’s regulations and their degradation of identity and expression than from the pornographic industry itself, which is only degrading towards women’s sexuality.

McElroy (2004) argued that viewing pornography may have a cathartic effect on men who have violent urges towards women,; thus, restricting the use of pornography removes a protective barrier between the potential for abusive behavior. By finding release through viewing violent pornography, these men are able to find a safe and non-harmful outlet for their urges. This is not unlike women who have rape fantasies. Men who have violent fantasies and are able to explore them in non-harmful ways through viewing pornography can develop an appropriate outlet that does not hurt others. The question remains whether pursuing these urges at all is healthy.

Proponents of pornography believe that pornography has no positive correlation with rape, sex crimes, or negative views of women (Hald & Malamuth, 2008; Strossen, 1995). In a literature review of pornography studies, Ybarra and Mitchell (2005) studied

adolescent sex offenders and found no relationship between prior exposure to pornography and the number of victims. They also cite another substantial interview with youth sex offenders who self-reported that their use of pornography in no way led to their subsequent sex crimes (Ybarra & Mitchell, 2005). Additionally, Barak, Fisher, Belfry, & Lashambe (1999) conducted two separate studies of men viewing Internet pornographic materials and found no significant correlation between pornography use and attitudes towards women or likelihood to sexually abuse or harass women. In a similar study, McKee (2007) reported no relationship between attitudes towards women and amount of pornography viewed. Those who view pornography as a positive industry with benefits and merits believe that sexual fantasy can absolutely be separated from sexual act, that all people are entitled to enjoy a full spectrum of sexual expression without giving up personal security.

### **Negative Claims**

While some see pornography as an expressive freedom without adverse effects, others see pornography as an expression of male culture through which women are commoditized and exploited. “Citing the Playboy Bunny as the ultimate in sexualizing and fetishizing women to a second-class status, Russell (1994, p. 66) asserted that pornography institutionalizes a form of sexuality where men are supreme and women are inferior; where women are objectified sluts.” Even the name “Bunny” implies that women are less than human, that they are animals who crave sex constantly. This argument against woman-as-sex-object holds that pornography creates a social institution

of male supremacy similarly to the way that segregation institutionalizes white supremacy (Russell, 1993). This does not necessarily imply the potential for abuse.

Whether pornography use causes sexual abuse and rape or simply normalizes these behaviors, there is ample research on the correlation between pornographic viewing and sexual violence (Bergen & Bogle, 2000; Boyle, 2000). Additionally, female victims were often displayed as secretly desiring the abusive treatment and deriving pleasure from it. Raquel and Bogel's (2000) study of data collected from a rape support center found that 28% of rape victims disclosed that their abuser regularly used pornography. However, the use of pornography has been found to be inconsequential to actual abuse as cited earlier (Hald & Malamuth, 2008; McElroy, 2004; McKee, 2007; Strossen, 1995; Ybarra & Mitchell, 2005). As such, it seems there are equal amounts of support for and against pornography as a contributing factor to the abuse of women.

### **Social and Behavioral Risk Factors From Early Pornographic Use**

Early pornographic use can greatly affect a child or adolescent's developmental path and interfere with appropriate social interactions and personal relationships (Alexy, Burgess, & Prentky, 2009). Exposure at a young age can also lead to higher risk factors for abuse, Internet addiction, and aggressive sexual behaviors (Alexy et al., 2009). The cascading consequences flow into conduct issues which can directly influence success in school, social settings, and issues with internalization, as many studies in developmental cascades show. While studies have shown that youth who have been exposed early to pornography are more vulnerable to experience damaging effects from it (Alexy et al.,

2009), religious youth are both potentially advantaged and potentially disadvantaged in the previously mentioned protective and risk-producing factors from their beliefs and social community. As Ybarra and Mitchell (2005) found in their study of 1,501 children aged 10-17, intentional pornography viewing led to a reportage of higher previous delinquent behavior and substance abuse. This could potentially lead to other disruptive behaviors at home and in the classroom.

Religious involvement can sometimes serve as a protector from many deviant behaviors such as drug use, crime, and other problem areas (Bachman et al., 2002). With a cohesive religious family and community, struggles are less likely to arise that would enhance risk factors among adolescents areas (Bachman et al., 2002). Antisocial behavior, engaging in other deviant behaviors, experiencing low-self-esteem, and depression may all increase the risk of seeking out Internet pornography to damaging effect areas (Bachman et al., 2002). Associating with other deviant adolescents may also increase the risk for this behavior. According to the cascade model, these consequences may lead to similar issues as an adult, such as low self-esteem, feelings of shame, uninhibited sexual conduct, and aggressive sexual behavior. Patients seeking treatment for hypersexual behaviors report intense feelings of shame (Reid, 2010). Garcia and Thibaut (2010) also found that feelings of shame are a consequence of hypersexual behaviors. Furthermore, Fossum and Mason (1986) argued that addiction and shame are inseparable.

Stack, Wasserman, and Kern, (2004) found that the most compelling predictors of Internet pornography use were among men with poorly formed religious identities whose

marriage was reported as “unhappy.” As depression studies, violence studies, and pornography addiction studies have shown, exposure to one negative element correlates to an increase in similar behavior later on (Capaldi, 1992; Masten & Cicchetti, 2010; Patterson, DeBaryshe, & Ramsay, 1989). Behavior problems emerging from familial issues are carried over into the school context by the child, which undermines competence in success at school both academically and socially (Dishion, Spracklen, Andrews, & Patterson, 1996). In the same way, pornography use as a behavioral problem affects more than just the individual identity and later development into adulthood. Early prevention among children may aid in bolstering the protective factors and lower the risky behaviors associated with a cascading decline. Strengthening religious ties and ensuring a cohesive family and social community may be key in developing a successful prevention and treatment model.

### **Sexual Identity Development: Exposure to Pornography in Childhood**

Children who have been intentionally exposed to pornography are significantly more likely to exhibit delinquent behavior and substance abuse (Alexy et al., 2009; Bachman et al., 2002; Ybarra & Mitchell, 2005). Greenfield’s (2004) literature review on children and pornography found a strong correlation between sexually related media viewing and sexual attitudes and values, sexual violence, and early onset of sexual activity in children and adolescents. Additionally, online pornography users are more likely to exhibit features associated with clinical depression. There is concern as to the

negative effects on sexual development such as callous attitudes and behaviors in regards to sex as pornography tends to normalize violence in sex.

The roles that men and women play in pornography are not very reflective of real life scenarios. If adolescents are exposed to these scenes at a young age, they may develop the belief that this type of behavior is acceptable or desired, and it can ultimately invite violation from predators who are seeking an overly sexualized youth who is unaware of what they have inadvertently participated in (Flood, 2009; Levy, 2002). This includes the way in which adolescents dress, speak, move, and act. Adolescence is a time of sexual discovery and exploration as the human body goes through puberty. This developmental period is related to issues related to body image.

Girls are most susceptible to this as they are exposed to the sexualization of women in advertising, television, film, and the clothing that they buy (Levy, 2002). The sudden changes in their body will also elicit sudden attention from males, young and older (Levy, 2002). This blossoming effect on men can be a sense of empowerment for girls. This is especially true if they had an absent father in their household (Ellis et al., 2003). Exposure to pornography for girls and boys at this age fosters a skewed view of what healthy sexual relations actually look like in the real world, encourage victimization of youth by teaching sexualized mannerisms that can be exploited by predatory adults, and does little to establish identity that demonstrates self-respect of one's own body (Flood, 2009). Sexual identity development is at its peak during adolescence.

## **Pornography and Religious Identity Development**

Pornography is widely accessible and available online. The manner in which youth are engaged in technology during this identity development phase can impact exposure to pornography for youths who are attempting to develop and solidify a spiritual and/or religious identity that does not subscribe to a positive view of pornography. The lack of research pertaining to identity development, pornography use, and religious identity formation renders this research necessary to more deeply understand the potential effects that this combination of factors has upon the identity development of the youth. Application of DCT to this area may explain how maladaptive outcomes beyond habitual use of pornography could result, particularly in the context of and through the identity conflict born from the intersection of religious identity formation and frequent pornography use.

### **Identity Conflict With Pornography Use and Religious Identity**

It is hypothesized that young adults who have a strong spiritual component to their identity development are more likely to suffer negative psychological effects from the use of pornography than those who do not have a significant spiritual component integrated with their identity development. This juxtaposition of beliefs and values can leave many religious adolescents feeling bewildered when viewing pornographic material. It can also be said that the purpose in developing a spiritual identity is to address conflicting messages experienced in life (Roehlkepartain, 2006). In these

specific cases, the overlapping and conflicting identities are spirituality and sexual identity.

In many instances, it is possible that engaging in the viewing of pornographic material may prevent some youths with strong spiritual and religious beliefs from engaging in the sexual practices they see in such material (Nelson et al., 2010). However, these researchers have found a negative association between religiosity and pornography use, generally because those who are religious in nature tend to avoid pornographic material due to their religious and moral beliefs (Nelson et al., 2010). Nelson and colleagues found that religious men who used pornography were much more likely to suffer from depression, have lower self-esteem, and less clearly defined identities with regard to dating and family than religious young men who abstained from pornography use. A similar study conducted by Balthazar, Helm, McBride, Hopkins, and Stevens (2010) collected data that suggest a strong negative influence on religious identity and social behaviors, while at the same time, revealing the protective benefits that can come from religious belief. Abell and colleagues (2006) suggested that Christians feel Internet pornography is more permissible in Christian communities as an alternative to premarital sex.

### **Conflict From Pornography Use in Homes and Religious Communities**

Viewing pornographic material can potentially impact value formation in adolescents and cause conflicts between these adolescents and their religious parents (Hoge, Petrillo, & Smith, 1982). Adolescents were reported to be typically more tolerant

of sexual freedoms than their parents, perhaps due to generational discrepancies. In addition to having more liberal views on sexuality and pornography, these youths also attended church and religious services less frequently than their parents (Hoge et al., 1982). Adolescents who view pornography are more likely to have lower levels of emotional bonding with their caregivers than those who do not view pornography (Ybarra & Mitchell, 2005). Many parents avoid discussing pornography with their children due to the awkwardness of the subject for them.

In terms of spiritual development, Hoge et al. (1982) found that most significant value transmission comes from parents and how they integrate religion into their children's lives. The combination of spiritual values and pornographic material can create tremendous confusion for adolescents who attempt to integrate both into their identity development. This has the potential to generate great conflict between parents and children as teenagers seek methods of rebellion against their upbringing, including parental religious influences. This would suggest that the use of pornographic materials by religious youths might create more distance between them and their parents than for non-religious youths.

Studies have also shown that religious young men who are struggling to cease their use of pornographic material are less able to spend time and energy focusing on their spiritual development (Burford, 2005; Carnes, 2003). Due to the dissonance between the practices of pornography and the tenets of spirituality and religion, these young men come to see their behavior as compulsive and undesirable. Since many of the studies mentioned herein corroborate negative effects on adults from an early onset of

pornography use in adolescents, this collective information would then suggest that early acknowledgement of issues of conflict and shame might also provide more successful rehabilitation efforts.

### **Strengths and Limitations**

In the body of literature on the topic of adolescent spirituality and pornography use, strong correlations between the protective factors of religion on behavioral development suggest the conclusion that the Christian religion can be a tool for prevention. However, this area of discourse could greatly benefit by more focused, longitudinal studies, providing more concrete evidence of the success or failures of predicted outcomes. The developmental cascade model greatly enhances the credibility of the argument by pursuing multiple angles of research in social and religious environments and the function the variables therein play on the role of identity development.

### **Chapter Summary**

This review offers a comprehensive analysis of the literature relating to adolescent exposure to pornography, conflicts relating to religious beliefs and self-development. The results broaden the discourse on pornography use and religious identity by exposing the dual nature of religion's risk-protective role, the importance of a cohesive identity in childhood and adolescence, and offering intervention and prevention methods based on enhancing areas of competence and socialization. Though the

available literature supports contradictory viewpoints regarding the general effects of pornography, there is far less contradiction in regards to the effects of pornography on adolescent development in general and on the deleterious effects of pornography on spiritual and religious development in young people specifically. The sexual and religious identity capacities in the development of adolescents are immediately placed in conflict when considering Christianity and pornography together. In assessing the material, indicators of adult success or problems can be seen to correlate with level of religious belief, desire for public acceptance, and pornography use. Further, religious practices are compromised when the prevalence of use is high, and when the individual is in rehabilitation causing more conflict. Intervention methods may reduce the maladaptive responses to pornographic use.

## **Hypotheses**

### **Hypothesis 1**

It is hypothesized that age of onset of pornography use will have a cascading of effect on future attitudes and behaviors.

H1A: It is hypothesized that current pornography users (used in the last six months) who started using pornography prior to age 15 will be more likely to experience higher levels of pornography use as adults than current pornography users that started using pornography after they turned 17.

H1B: It is hypothesized that current pornography users (used in the last six months) who started using pornography prior to age 15 will be more likely to report

hypersexual behaviors than current male pornography users that started using pornography after they turned 17.

H1C: It is hypothesized that current male pornography users (used in the last six months) who started using pornography prior to age 15 will be more likely to report coercive sexual fantasies than current male pornography users that started using pornography after they turned 17.

H1D: It is hypothesized that current male pornography users (used in the past six months) who started using pornography prior to age 15 will be more likely to report expanded likelihood to rape than current male pornography users that started using pornography after they turned 17.

## **Hypothesis 2**

H2: It is hypothesized that household religiosity will moderate the impact of age onset on cascading negative outcomes related to early pornography use.

H2A: It is hypothesized that the relationship between age of onset and current pornography use will be moderated by religious commitment, such that individuals with early onset of pornography use will be more likely to have a higher frequency of current pornography use when household religious commitment was low than when household religious commitment was high.

H2B: It is hypothesized that the relationship between age of onset and adult hypersexual behaviors will be moderated by religious commitment, such that individuals with early onset of pornography use will be more likely to report more hypersexual

behaviors when household religious commitment was low than when household religious commitment was high.

H2C: It is hypothesized that the relationship between age of onset and adult coercive sexual fantasies will be moderated by religious commitment, such that individuals with early onset of pornography use will be more likely to have a higher frequency coercive sexual fantasies when household religious commitment was low than when household religious commitment was high.

H2D: It is hypothesized that the relationship between age of onset and current likelihood to rape will be moderated by religious commitment, such that individuals with early onset of pornography use will be more likely to report a higher likelihood to rape when household religious commitment was low than when household religious commitment was high.

## **CHAPTER THREE: METHODOLOGY**

As noted, the purpose of this study was to explore age of onset of pornography use as a predictor of adult maladaptive outcomes in various domains of sexual behaviors and attitudes. To test these hypotheses, male participants were asked to participate in an online survey. Although the study is technically cross-sectional (i.e., all questionnaires assessed at the same timepoint), retrospective reports were utilized to assess age of onset of pornography use. This use of retrospective reports enabled an appropriate temporal order of variables, with the independent variable (age of onset of pornography use) occurring first, followed by the dependent variables (current pornography use, attitudes and behaviors).

### **Definition of Terms**

For the purposes of this study, the following terms are operationalized as follows:

**Adolescence:** Adolescence is defined as the developmental stage between the ages of 12 and 17 years.

**Early onset pornography use:** Self-reported first exposure to pornography when it occurred prior to age 15 years.

**Late onset pornography use:** Self-reported first exposure to pornography when it occurred after age 17 years.

## **Participants**

A sample of male adults aged 18 years to 25 years was recruited through Amazon.com's Mechanical Turk (Mturk) system, an online data collection service that enables "requesters" to pay "workers" for completing tasks. Researchers in the behavioral and social sciences can leverage this system to recruit large samples in relatively short periods of time and with relatively small costs (Buhrmester, Kwang, & Gosling, 2011). According to Buhrmester and colleagues, research conducted via the Mturk system yield data that are at least as reliable as and more diverse than traditional methods of participant recruitment (such as recruiting undergraduate students from courses). To be eligible for the present study, participants must be citizens and residents of the United States, and they must self-identify as frequent users of pornography. The socio-demographic characteristics of participants will be compared with demographic characteristics reported by the U.S. Census Bureau in 2013, which represents the most recently available estimates.

## **Materials**

Participants were asked to complete the following measures following informed consent procedures. All measures are presented in the Appendixes.

**Demographic information.** Participants will be asked basic demographic information, including gender, age, race or ethnicity, relationship status, living status (i.e., "living with a significant other?"), religion, and belief in God.

**Pornography use: current.** A 6-item questionnaire was used to assess current pornography use (see Appendix A). The first four items assess frequency of intentional online pornography use during the past six months, three months, past month, and past week, respectively, using a Likert-type scale ranging from 0 (*0 times*) to 5 (*10 or more times*). The final two items are open-ended and ask participants to estimate the amount of time in hours that they spend per day and week, respectively, viewing pornography online.

**Pornography use: age of onset.** To assess age of onset of pornography exposure, participants were asked, “How old were you when you first were exposed to pornography?” (see Appendix A).

**Hypersexuality.** Reid, Carpenter, and Lloyd’s (2009) Hypersexual Behavior Inventory (HBI) was used to assess hypersexual behavior (sample item: “I sacrifice things I really want in life in order to be sexual”). Participants responded to the 19 items using a Likert-type scale ranging from 1 (*Never*) to 5 (*Very Often*). Scores ranged from 19 to 95, with higher scores signifying greater hypersexual behavior. The scale items are taken from the DSM-5 proposed classification criteria for hypersexuality (American Psychiatric Association, 2013). The HBI has been used in college and community settings and has shown high reliability ( $\alpha = .95$ ). The total score correlates strongly ( $r$ 's > .80) with theoretically related constructs, such as compulsive sexual behavior (Reid et al., 2009; see Appendix B).

**Coercive sexual fantasies.** Eleven items from the original Coercive Sexual Fantasies Scale (Greendlinger & Byrne, 1987) were used to assess aggressive sexual

beliefs and attitudes (sample item: “It would be exciting to use force to subdue a woman”). The 11 items with highest factor loadings in the original evaluation of the scale were selected (Greendlinger & Byrne, 1987). Participants responded to these items using a 6-point Likert-type scale ranging from 1 (*very true*) to 6 (*very untrue*). Items are reverse scored so that higher scores indicate greater endorsement of coercive sexual fantasies, with total scores ranging between 11 and 66. Previous research documented that higher scores on this scale correlate significantly ( $r = .51$ ) with likelihood of raping a woman in the future and with retrospective reports of previous coercive sexual behavior ( $r = .21$ ; Greendlinger & Byrne, 1987; see Appendix C).

**Likelihood to rape.** A single item measure adapted from previous research in this field was used to assess likelihood of engaging in rape: “If you could be assured that no one would know and that you could in no way be punished for engaging in rape, how likely would you be to commit such acts?” (Briere & Malamuth, 1983; Malamuth, 1981; Malamuth, Haber, & Feshback, 1980). Responses to this question are made using a 4-point scale ranging from 1 (*not at all*) to 4 (*very likely*). In previous research, responses to this single item correlated significantly with other theoretically relevant measures, including assessments of rape myth acceptance, the extent to which men accept violence against women, and sexual arousal to aggressive stimuli (Malamuth, 1981; see Appendix D).

**Household religious commitment.** This construct was assessed with an adapted version of the 10-item Religious Commitment Inventory (RCI-10; Worthington et al., 2003). Two subscales are available: a 6-item Intrapersonal Religious Commitment

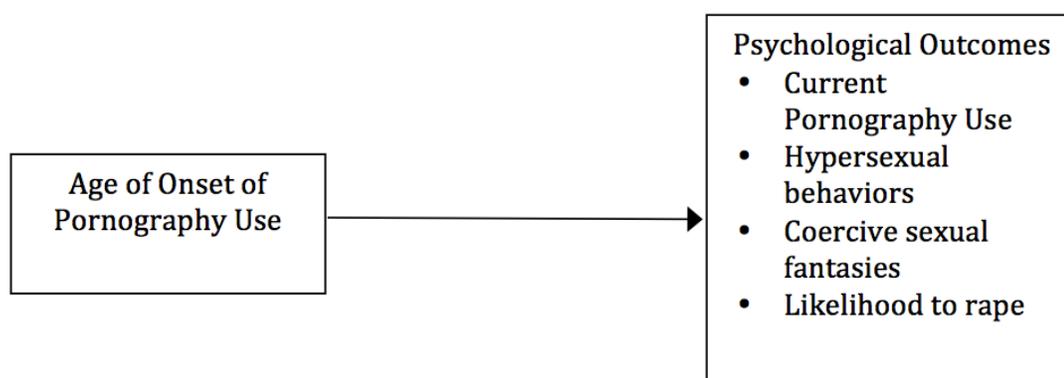
subscale (sample item: “I often read books and magazines about my faith”) and a 4-item Interpersonal Religious Commitment subscale (sample item: “I enjoy spending time with others of my religious affiliation”). Previous research demonstrated that these two scales are strongly correlated, and the authors of the scale have recommended adoption of the full 10-item scale instead of scoring the subscales (Worthington et al., 2003). Total scores on the RCI-10 correlate significantly and strongly with attendance at religious services ( $r = .76$ ), measures of religious commitment ( $r = .82$ ), and assessments of the intensity of one’s spiritual life ( $r = .66$ ). In the present study, the RCI-10 was adapted to assess religious commitment of an individual’s family. The measure was similar to the original RCI-10, except that items were anchored to reflect views and habits of the family unit instead of the individual (see Appendix E).

### **Procedures**

All procedures for this study, including recruitment, consent, participation, and payment occurred online via Amazon Mechanical Turk (e.g., Buhrmester et al., 2011). Approximate time to complete all measures was 20 minutes. Requests for survey participation was posted on Mturk, and all participants self-selected into the study. Participants were paid \$1.00 via the Mturk system for their participation. This amount is slightly higher than previous research of similar length (Buhrmester et al., 2011), which increased the likelihood of rapid data collection.

## Data Processing and Analysis

For Hypotheses 1A through 1D, current pornography users who started viewing pornography prior to age 15 years were compared to pornography users who started viewing pornography after age 17 years. Specific dependent variables of comparison include frequency of pornography use (H1A), hypersexual behaviors (H1B), coercive sexual fantasies (H1C) and likelihood of committing rape (H1D). These hypotheses are summarized visually in Figure 3.1, where age of pornography use is depicted as the independent variable.

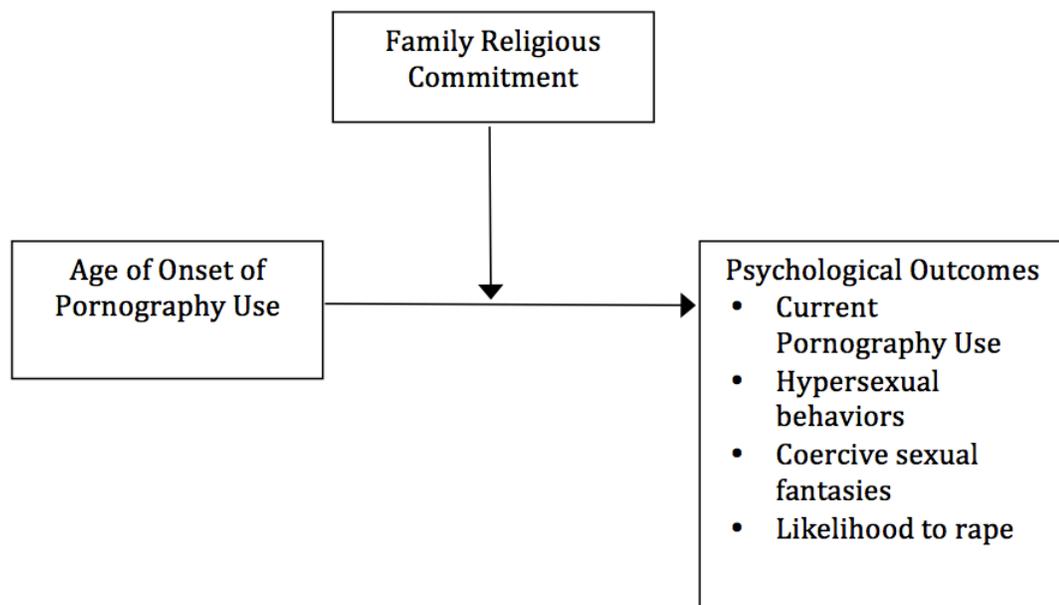


*Figure 3.1.* Visual depiction of hypotheses 1A through 1D.

Each of these hypotheses were tested with an independent samples *t* test. To protect against the possibility that the hypothesized directionality was incorrect, all analyses were 2-tailed, with alpha set at .05.

For hypotheses 2A through 2D, moderation was proposed. As can be seen in Figure 3.2, household religiosity was hypothesized as a moderator between the influence of age of onset of pornography use and current maladaptive sexual behaviors and

attitudes. Hypotheses 2A through 2D were tested using a series of hierarchical regression analyses for each respective outcome (Holmbeck, 1997). In each analysis, age of pornography onset and the household religiosity was entered in step 1. The R-square value associated with this step in the analysis represents the amount of variance in the respective dependent variable that is explained by age of pornography use onset. In this step, an interaction term (age of pornography use onset X family household religiosity) was introduced to the model. Variables were centered prior to creation of the interaction term.



*Figure 3.2.* Visual depiction of family or household religiosity as a moderator of the influence of age of pornography onset on psychological outcomes (hypotheses 2A through 2D).

At this step, R-square represents the total variance in respective dependent variables explained by all steps of the model. The change-in-R-square value represent the unique variance that is accounted for by the interaction term. Whether or not the additional

variance explained in step 3 is statistically significant is determined with the F-change statistic. If the interaction term is significant, then there is evidence of moderation, and published procedures for determining the directionality of the moderation effect are followed (i.e., post-hoc probing; Holmbeck, 2002).

### **Ethical Concerns**

All procedures in this study were submitted for review to an Institutional Review Board. The methods in this study involve participants disclosing sensitive information, such as sexual fantasies, likelihood of committing rape, and historical and current use of pornography. In order to minimize potential risks to participants, all aspects of the study were completely anonymous. Payments to participants were made through the Amazon.com Mturk system, which masks participant identity to any third party, including researchers. As a result, no information can be paired with individual identifying information. This is true for information collected within the Mturk system, as well as datasets that are downloaded for analysis. As a result, all datasets generated from this study were completely anonymous.

It is possible that participants could experience discomfort or psychological distress during this study. In particular, engagement in the study may raise to conscious awareness issues that the participant might not have otherwise considered. This was a particularly important risk in the current study, given the sensitivity and privacy of the questions. However, this risk was minimized in the present study via use of standard questionnaires that have been used extensively in research.

These relatively minor risks were appropriate in this context given the potential benefits of this research. The targeted variables are understudied, and thus the results from this study may be useful for raising awareness of both risk and protective factors of maladaptive sexual development. The conclusions of this study may also be beneficial for developing effective prevention or intervention efforts.

### **Chapter Summary**

To summarize, the purpose of this study was to investigate a) the association between age of onset of pornography use and adult pornography use and maladaptive sexual attitudes and behaviors, and b) whether household religiosity moderates these associations. To investigate this area of inquiry, a cross-sectional survey that includes retrospective reports of age of pornography use onset was administered to males of age 18 years or older who self-identified as frequent users of pornography. Data were analyzed using a series of independent *t* tests and hierarchical regression. All regression procedures were based on published methods for testing moderation.

## CHAPTER FOUR: RESULTS

The purpose of this study was to test DCT in the context of online pornography use. Adult males reported the age of onset of pornography use, and they completed various measures of current sexual functioning in various domains, including current pornography use, hypersexual behaviors, coercive sexual fantasies, and likelihood to rape. In this chapter, results of the study are presented in the following order: preliminary screening, hypotheses 1A through 1D, and hypotheses 2A through 2D.

Prior to conducting inferential statistics, all variables were screened for missing data and univariate normality. Screening procedures revealed that all variables to be included in hypothesis testing were sufficiently normally distributed, using standard criteria of Skewness values between -2 and 2 and Kurtosis values between -7 and 7 (Tabachnick & Fidell, 2013). Screening also revealed that there were 57 missing datapoints (< 5%) on the variables of interest in this study.

### **Early Onset Users vs Late Onset Users**

**Adult pornography use.** It was hypothesized that current pornography users (used in the last six months) who started using pornography prior to age 15 will be more likely to experience higher levels of pornography use as adults than current pornography users that started using pornography after they turned 17. An independent samples *t* test was performed to assess whether mean frequency of current pornography use differed

significantly for a group of 155 participants who used pornography for the first time before the age of 15 from a group of 98 participants who first used pornography when they were 17 years or older. The assumption of homogeneity of variance was assessed by the Levene test,  $F = 2.72$ ,  $p = .100$ ; this indicated no significant violation of the equal variance assumption; therefore, the pooled variances version of the  $t$  test was used. The mean current pornography use in the last week differed significantly,  $t(251) = 3.99$ ,  $p < .001$ . Mean current pornography use for the early onset group ( $M = 3.19$ ,  $SD = 1.4$ ) was .70 hours higher than mean for current pornography use for the late onset group ( $M = 2.49$ ,  $SD = 1.3$ ). The effect size, as indexed by  $\eta^2$ , was .06; this is a medium effect size. This suggests that early onset of pornography use may influence use later in life

**Hyper-Sexual Behavior Inventory.** It was hypothesized that current male pornography users (used in the last six months) who started using pornography prior to the age of 15 will be more likely to report hypersexual behaviors than current male pornography users that started using pornography after they turned 17. H1B is supported. An independent samples  $t$  test was performed to assess whether mean frequency hypersexual behavior differed significantly for a group of 157 participants who used pornography for the first time before the age of 15 from a group of 94 participants who first used pornography when they were 17 years or older. The assumption of homogeneity of variance was assessed by the Levene test,  $F = 2.26$ ,  $p = .134$ ; this indicated no significant violation of the equal variance assumption; therefore, the pooled variances version of the test was used. The mean hypersexual behavior differed significantly,  $t(249) = 2.62$ ,  $p < .01$ . Mean hypersexual behavior for the early onset

group ( $M = 2.6$ ,  $SD = .9$ ) was .30 units higher than mean hypersexual behavior for the late onset group ( $M = 2.3$ ,  $SD = .8$ ). The effect size, as indicated by  $\eta^2$  was .03; this is a medium effect size. This suggests that early onset of pornography use may influence hypersexual behavior.

**Coercive sexual fantasy.** It was hypothesized that current male pornography users (used in the last six months) who started using pornography prior to age of 15 will be more likely to report coercive sexual fantasies than current male pornography users that started using pornography after they turned 17. An independent samples  $t$  test was performed to assess whether mean frequency of reported coercive sexual fantasies differed significantly for a group of 157 participants who used pornography for the first time before the age of 15 from a group of 95 participants who first used pornography when they were 17 years or older. The assumption of homogeneity of variance was assessed by the Levene test,  $F = .173$ ,  $p = .678$ ; this indicated no significant violation of the equal variance assumption; therefore, the pooled variance version of the  $t$  test was used. The mean reported coercive sexual fantasies did not differ significantly,  $t(250) = -1.51$ ,  $p = .133$ . Mean reported coercive sexual fantasies for the early onset group ( $M = 4.1$ ,  $SD = 1.2$ ) was similar to mean for reported coercive sexual fantasies for the late onset group ( $M = 4.4$ ,  $SD = 1.2$ ). This suggests that early onset may not influence reported hypersexual behavior.

**Expanded likelihood to rape.** It was hypothesized that current male pornography users (used in the last six months) who started using pornography prior to age 15 will be more likely to report expanded likelihood to rape than current male

pornography users that started using pornography after they turned 17. H1D was supported. An independent samples *t* test was performed to assess mean frequency of expanded likelihood to rape differed significantly for a group of 160 participants who used pornography for the time before the age of 15 from a group of 101 participants who first used pornography when they were 17 years or older. The assumption of homogeneity of variance was assessed by the Levine test,  $F = 4.03, p = .046$ ; this indicated a violation of the assumption of homogeneity of variance. This means that we cannot assume that there are equal variances, thus we take the *t* statistic and *p* value from the line that was calculated without assuming equal variances. The mean expanded likelihood to rape differed significantly,  $t(259) = 2.22, p < .05$ . Mean expanded likelihood to rape for the early onset group ( $M = 1.5, SD = .7$ ) was .10 higher than the mean for expanded likelihood to rape for the late onset group ( $M = 1.4, SD = .5$ ). The effect size, as indicated by  $\eta^2$ , was .02; this is a medium effect size. This suggests that expanded likelihood to rape may be influenced by early onset of pornography use.

### **Moderating Influence of Household Religiosity**

A series of hierarchical regression analyses were conducted to test Hypotheses 2A through 2D. In step 1 of all analyses, age of onset household religiosity (RCI), entered as predictors. In step two, the interaction term between age of onset and household religiosity was entered. Consistent with current recommended practice, each of the predictors was centered prior to the analysis (Warner, 2013). The results of each of the four regressions are presented in Tables 4.1 through 4.4.

**Adult pornography use.** It was hypothesized that current pornography users (used in the last six months) who grew up in a household with high religious commitment will experience lower levels of pornography use as adults than current pornography users that grew up in households with low religious commitment. In step 1 of this regression, the predictors, age of onset and household religiosity, were entered and accounted for 2.6% of the variance in current pornography use, although this amount of variance did not differ significantly from zero,  $F(2, 145) = 1.904, p = .153$ . In step 2, the interaction term (age of onset x religious commitment) was added to the model, which accounted for less than 1% of additional variance in current pornography use  $F(3, 144) = 1.261, p = .290$ . Neither of the predictors (Age of Onset -  $t(144) = -1.457, p = .147$ ; Household Religious Commitment-  $t(144) = -.531, p = .596$ ) nor the interaction ( $t(144) = .051, p = .959$ ) was statistically significant (see Table 4.1). H2A was not supported.

Table 4.1

*Results of Hierarchical Regression to Predict Current Pornography Use From Age of Onset and Household Religious Commitment*

	Use	Onset	Family RCI	Onset X RCI				
Mean	3.20	12.50	2.1_	.25				
SD	1.40	1.9_	1.2_	1.8				
Correlations					Step 1	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset	-.15					-.12	-.15	.014
RCI	-.06	.13				-.05	-.04	.002
Onset X RCI	.08	-.54	.13					
					Intercept =	3.22		
						$R^2 = .026$		
						$R^2_{adj} = .012$		
						$R = .160$		
					Step 2	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset						-.12	-.15	.014
RCI						-.05	-.05	.002
Onset X RCI						<.01	.01	<.001
					Intercept =	3.22		
						$R^2 = .026$		
						$R^2_{adj} = .005$		
						$R = .160$		

**Hyper-Sexual Behavior Inventory.** It was hypothesized that current pornography users (used in the last six months) who grew up in a household with high religious commitment will experience lower levels of hypersexual behavior as adults than current pornography users that grew up in households with low religious commitment. In step 1 of this regression, the predictors, age of onset and household religiosity, were entered and accounted for 9.2% of the variance in hyper sexual behavior,  $F(2, 145) = 7.371, p < .01$ . In step 2, the interaction term (age of onset x religious commitment) was added to the model ( $F(3, 144) = 6.847, p < .001$ ), which accounted for additional 3.3% of variance in hyper-sexual behavior. Age of Onset ( $t(144) = 1.720, p = .088$ ) was not a significant predictor of hyper sexual behavior while both Household Religious Commitment ( $t(144) = 3.118, p < .01$ ) and the interaction ( $t(144) = 2.314, p < .05$ ) were statistically significant (see Table 4.2). Interestingly, the interaction was indirectly opposite of the hypothesized direction (see Figure 4.1). Among recent pornography users, childhood household religious commitment was indicative of higher levels of hypersexual behavior in adults as measured by the HBI. H2A was not supported.

**Coercive Sexual Fantasy.** It was hypothesized that current pornography users (used in the last six months) who grew up in a household with high religious commitment will experience lower levels of coercive sexual fantasy as adults than current pornography users that grew up in households with low religious commitment. In step 1 of this regression, the predictors, age of onset and household religiosity, were entered and accounted for 2.6% of the variance in coercive sexual fantasy, although this amount of variance did not differ significantly from zero,  $F(2, 146) = 1.924, p = .150$ . In step 2, the

interaction term (age of onset x religious commitment) was added to the model, which accounted for less than 1% of additional variance in current pornography use ( $F(3, 145) = 1.352, p = .260$ ). Neither of the predictors (Age of Onset -  $t(145) = 1.693, p = .093$ ; Household Religious Commitment -  $t(145) = .574, p = .567$ ) nor the interaction ( $t(145) = .478, p = .633$ ) was statistically significant (see Table 4.3). H2C was not supported.

Table 4.2

*Results of Hierarchical Regression to Predict HBI From Age of Onset and Household Religious Commitment*

	HBI	Onset	Family RCI	Onset X RCI				
Mean	2.56	12.48	2.07	.26				
SD	.90	1.85	1.15	1.86				
Correlations					Step 1	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset	.08					.02	.04	.002
RCI	.30	.13				.23	.30	.086***
Onset X RCI	.16	-.54	.13					
					Intercept =	2.54		
						$R^2 = .092^{**}$		
						$R_{adj}^2 = .080$		
						$R = .304$		
					Step 2	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset						.09	.16	.018
RCI						.20	.25	.059**
Onset X RCI						.11	.22	.032**
					Intercept =	2.51		
						$R^2 = .125^{***}$		
						$R_{adj}^2 = .107$		
						$R = .353$		

\*\*p < .01. \*\*\*p < .001.

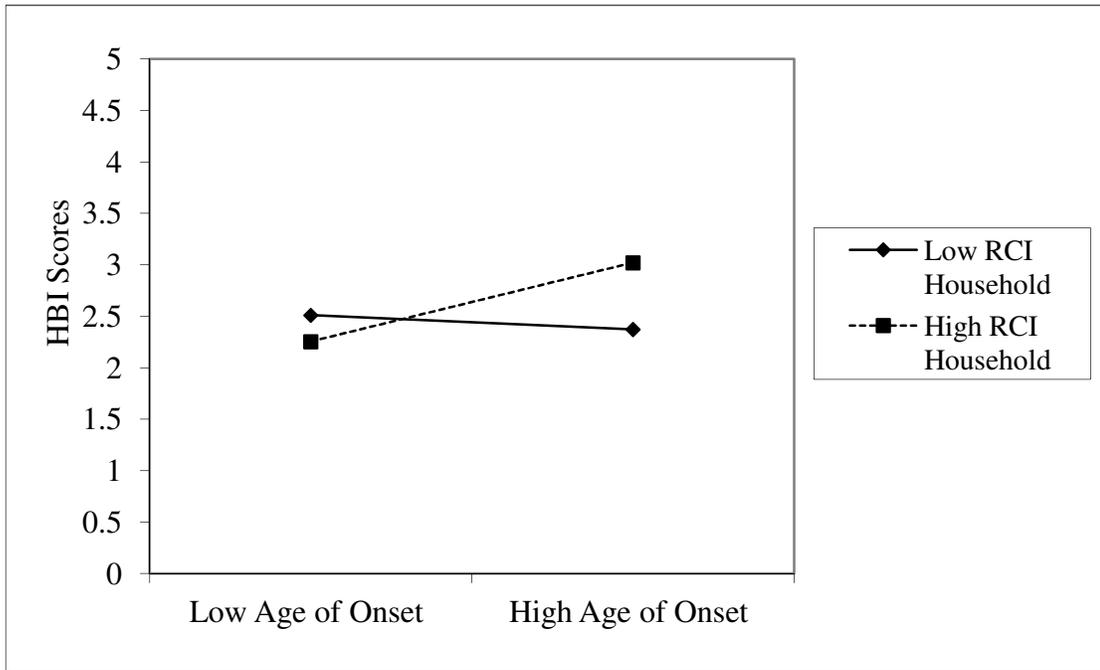


Figure 4.1. Age of onset x religious commitment on HBI.

Table 4.3

*Results of Hierarchical Regression to Predict CSF From Age of Onset and Household Religious Commitment*

	CSF	Onset	Family RCI	Onset X RCI				
Mean	4.14	12.48	2.07	.26				
SD	1.17	1.85	1.15	1.86				
Correlations					Step 1	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset	.15					.10	.14	.020
RCI	.08	.13				.06	.06	.003
Onset X RCI	.16	-.54	.13					
					Intercept =	4.15		
						$R^2 = .026$		
						$R^2_{adj} = .012$		
						$R = .160$		
					Step 2	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset						.12	.17	.019
RCI						.05	.05	.002
Onset X RCI						.03	.06	.002
					Intercept =	4.14		
						$R^2 = .027$		
						$R^2_{adj} = .007$		
						$R = .165$		

**Expanded Likelihood to Rape.** It was hypothesized that current pornography users (used in the last six months) who grew up in a household with high religious commitment will experience lower levels of on the ELR scale as adults than current pornography users that grew up in households with low religious commitment. In step 1 of this regression, the predictors, age of onset and household religiosity, were entered and accounted for 1.9% of the variance in levels of ELR, although this amount of variance did not differ significantly from zero,  $F(2, 147) = 1.419, p = .245$ . In step 2, the interaction term (age of onset x religious commitment) was added to the model, which accounted for less than 1% of additional variance in current pornography use,  $F(3, 146) = .941, p = .423$ . Neither of the predictors (Age of Onset  $t(146) = -1.145, p = .254$ ; Household Religious Commitment -  $t(146) = -.709, p = .480$ ) nor the interaction ( $t(146) = .057, p = .954$ ) was statistically significant (see Table 4.4). H2D was not supported.

Table 4.4

*Results of Hierarchical Regression to Predict ELR From Age of Onset and Household Religious Commitment*

	ELR	Onset	Family RCI	Onset X RCI				
Mean	1.52	12.48	2.07	.26				
SD	.69	1.85	1.15	1.86				
Correlations					Step 1	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset	-.13					-.04	-.12	.013
RCI	-.07	.13				-.03	-.05	.004
Onset X RCI	.06	-.53	.13					
					Intercept =	1.48		
						$R^2 = .019$		
						$R^2_{adj} = .006$		
						$R = .138$		
					Step 2	<i>b</i>	$\beta$	<i>sr</i> <sup>2</sup>
Onset						-.04	-.11	.009
RCI						-.03	-.06	.003
Onset X RCI						<.01	.03	<.001
					Intercept =	1.48		
						$R^2 = .019$		
						$R^2_{adj} = <.001$		
						$R = .138$		

## Chapter Summary

The results of this study supported the general hypothesis that individuals with early onset of pornography use would report more maladaptive sexual behaviors and cognitions than those with a later onset of pornography use. Specifically, early pornography users were more likely to view more pornography as adults (Hypothesis 1A), report more hypersexual behavior (Hypothesis 1B), and report a greater likelihood to commit rape (Hypothesis 1D). One sub-hypothesis of Hypothesis 1 (Hypothesis 1C) was not supported; there was no significant difference in reports of current coercive sexual behaviors between early and late pornography users. Across all four sub-hypotheses, there was support that early pornography use was associated with adult pornography use, and that early pornography use spilled over into at least two other domains of maladaptive sexuality (hypersexual behavior and likelihood to rape). Although Hypothesis 1 was largely supported, Hypothesis 2, which stated that religious commitment would moderate the association between age of onset of pornography and adult sexual psychological functioning would be moderated by religious commitment, was not supported. Religious commitment did predict self-reported hypersexual behaviors, but it only moderated the influence between age of onset and hypersexual behaviors, and the moderating effect was opposite of what was hypothesized. No evidence of moderation emerged for any of the other adult sexual outcomes.

## **CHAPTER FIVE: CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS**

The purpose of this study was to examine the relationship between age of onset of pornography use and adult functioning in the domain of pornography use, as well as other domains of sexual functioning (Hypotheses 1A through 1D). Age of onset was defined as early for individuals who reported viewing pornography for the first time prior to age 15 years and late for individuals who reported viewing pornography for the first time after age 17 years. By assessing domains of sexuality other than current pornography use, this study examined the potential of early pornography use to spillover or cascade into other realms of adult sexuality. In other words, this study applied DCT (Masten & Cicchetti, 2010) to the domains of pornography use and development of sexual attitudes and behaviors.

The participants for this study were recruited from Amazon.com's Mturk system. All participants were male and between the ages of 18 and 25 years. These participants completed various measures online, including age of first exposure to pornography and various measures of current sexual functioning, such as current pornography use, hypersexual behaviors, coercive sexual fantasies, and likelihood of committing rape.

### **Outcomes Associated With Hypothesis 1**

Based on data collected from these participants, the notion that early exposure to pornography may cascade into adult attitudes and behaviors was supported. Specifically,

individuals with early onset of pornography use were more likely to continue using pornography at higher frequencies in adulthood (H1A), report more hypersexual behaviors (H1B), and report a greater likelihood of committing rape (H1D). The hypothesis that early onset of pornography use would be associated with coercive sexual attitudes was not supported (H1C).

The study also examined the possibility that religious commitment would moderate the association between age of onset and adult sexual behaviors and attitudes, including pornography use as an adult (H2A), coercive sexual attitudes (H2C), and likelihood of committing rape (H2D). There was no empirical support in this study for religiosity as a moderator of the link between age of onset and these adult sexual outcomes. There was evidence of moderation for the outcome of hypersexual behaviors. Specifically, religious commitment moderated the link between age of onset and hypersexual behaviors, such that when participants reported a greater childhood household religious commitment, they were more likely to report hypersexual behaviors in the context of early exposure to pornography.

Regarding the link between early onset of pornography use and pornography use as an adult, the results suggest that pornography use as a child does continue into adulthood. In other words, pornography use was relatively stable in terms of who views pornography, in that those who reported using it earlier were more likely to report using it more frequently as an adult. This pattern of results is quite similar to other forms of behaviors that have been studied in men. For example, a large body of literature indicates that early onset of drug use predicts adult drug dependency problems in men

(e.g., Chen, Storr, & Anthony, 2009; King & Chassin, 2007). A similar pattern exists for childhood and early adolescent onset of alcohol use, such that individuals who begin using alcohol early in life are much more likely to develop alcohol dependence as young adults (e.g., Guttmanova et al., 2012).

Results from this study also suggest that there is evidence for at least some degree of spillover or cascading from pornography use to other domains of sexual attitudes and behaviors. For example, men in this sample were more likely to score higher on a measure of hypersexual behavior when they began viewing pornography at a younger age. In other words, men who reported viewing pornography at a younger age were more likely to report more frequent acts of hypersexual behavior, such as using sex as a coping strategy, giving up important activities to engage in more sexual activities, and engaging in sexual activities with knowledge that he will regret them. These forms of behavior are consistent with a disorder that was proposed for DSM-5 (APA, 2013), hypersexual disorder (Kafka, 2010), though ultimately not adopted. The primary diagnostic criterion for this proposed disorder was recurrent and intense sexual behaviors, as manifested by at least three of the following five criteria: (a) time consumed by sexual fantasies, urges, or behaviors interferes with non-sexual goals, activities, or obligations; (b) use of sexual fantasies, urges, or behaviors to cope with dysphoric mood; (c) repetitive engagement in sexual fantasies, urges, or behaviors in response to stress; (d) repetitive, albeit unsuccessful, efforts to control or reduce sexual fantasies, urges, or behaviors; and (e) repetitive engagement in sexual behaviors while disregarding risk of physical or emotional harm to others. The present study indicated that early exposure to

pornography could increase the likelihood that men experience these symptoms as a result of early pornography exposure.

### **Evidence of Cascade Effects**

A cascade or spillover effect was also demonstrated for likelihood to rape. Men with an early exposure to pornography scored higher on average on a measure that asked them how likely they would be to engage in rape if they could not be punished. Of course, the overall means of these scores need to be considered in their original scaling, where the means of 1.5 and 1.4 ranged between anchors of *not at all* and *not very likely*. That the means were so low on the 8-point scale is consistent with the fact that engagement in rape behavior, while very serious, is a low base rate phenomena; most men simply do not report a likelihood to engage in rape. Even so, variability about the overall mean was at least partially accounted for by age of onset of pornography use. In the present study, type of pornography exposure was not assessed. However, previous research suggests that individuals who are exposed more frequently to aggressive themes in pornography are more likely to have attitudes consistent with perpetration of rape (e.g., Garcia, 1986; Padgett et al., 1989). In the present study, early childhood exposure was assessed broadly, without determining type of exposure. Therefore, it is uncertain if the link between early exposure and likelihood to rape as an adult is explained by pornography exposure in general, or if it is explained only by exposure to violent, aggressive themes in pornography (i.e., is the link universal, or does the link only exist for children who view pornography with violent and aggressive themes).

Given these patterns of results, it was somewhat surprising that there was no evidence for a cascade or spillover effect for coercive sexual fantasies, particularly because items on the measure of such fantasies were similar to items on the likelihood to rape scale. Therefore, the lack of support could be explained by a Type II statistical error. A Type II error is when the researcher fails to reject the null hypothesis, when in fact the null hypothesis is false. The possibility of a Type II error could also have been increased by the relatively small sample size of late onset pornography users. Another possibility is that the link between age of pornography use onset and coercive sexual fantasies is more complex than how it was explored in this study. It may be that exposure to specific forms of pornography, such as pornography that glorifies dominance over women and aggressive, forceful sexual acts increases such fantasies in adult users of pornography (e.g., Garcia, 1996). Indeed, research suggests that repeated exposure to violent pornography can change men's attitudes and perceptions regarding engagement in forceful or aggressive sexual activities (e.g., Malamuth & Check, 1980, 1981). Therefore, the lack of significant finding in the present research could be due to the fact that this study enrolled all current pornography users who were willing to participate, without assessing the type of pornography that they were exposed to as minors.

Despite the lack of significant finding for coercive sexual attitudes, three of the four hypotheses regarding differences between early and late onset pornography users were supported. It is important to consider mechanisms that might explain these findings. In other words, why is early exposure to pornography associated with these adult outcomes? At least three possibilities exist. First, a direct link is possible. Early

exposure to pornography could have a direct link with the outcomes assessed in this study. However, this possibility is somewhat unlikely, as research suggests that other constructs correlate with pornography use that could potentially explain the cascade effects (e.g., Wolak et al., 2007). A second plausible hypothesis is that other constructs are associated with early pornography exposure, which also may explain the behaviors during adulthood. This is often referred to as the ‘third variable problem’ in a correlational study design. However, this is only a “problem” insofar as the researcher is unaware of its existence and influence on the demonstrated statistical findings. In the present context, however, there is ample previous research that suggests a third variable does exist. For example, research suggests that adolescent depression is associated with exposure to pornography at an early age, even if the exposure is unwanted (i.e., unintentional; Wolak et al., 2007). Research also suggests that depression in childhood and adolescence predicts a variety of maladaptive outcomes in adulthood, such as academic difficulties, dropping out of school, delinquency and drug use, and suicidality (Williams, O’Conner, Eder, & Whitlock, 2009), and this pattern of results is consistent with Developmental Cascade Theory. As such, it is very possible that childhood or adolescent depression predicts both exposure to pornography and later sexual maladaptive attitudes and behaviors, just as depression can predict academic problems as a child and future academic problems (e.g., Williams et al., 2009).

Yet, a third possibility is that pornography exposure offers unique threats to development, above and beyond any risk associated with third variables, such as depression. That is, there may be something unique about exposure to pornography as a

child that alters normal developmental processes, thus resulting in higher rates of pornography use as an adult, coercive sexual fantasies, and a greater likelihood of engaging in the act of rape. One possibility is that the basic behavior process of habituation explains the unique risks of pornography (Bouton, 2007). Habituation occurs when a response to a stimulus decreases with repeated exposure to the stimulus. In the context of pornography, empirical research suggests that habituation can occur. With repeated exposure to the same sexual stimuli, self-reports and objective measures of sexual arousal indicate that arousal decreases (e.g., O'Donahue & Geer, 1985). There is even evidence suggesting that exposure to novel sexual stimuli not only enhances sexual arousal (O'Donahue & Geer, 1985), but it can actually increase viability and quality of sperm (i.e., Coolidge Effect; Brown, 1974). Therefore, decrease in response to the same sexual stimuli when presented repeatedly cannot be explained by fatigue or decrease in physical functioning, because when a novel stimulus is presented, arousal increases. This pattern of habituation has been used to explain why some men gradually transition from pornography that is soft-core, to hard-core, to aggressive or uncommon forms of sexual activity (e.g., Linz & Malamuth, 1993). That is, they habituate to soft-core pornography, so to achieve more sexual arousal, novel stimuli are necessary, which may take the form of hard-core pornography.

Although hypothesis 1 was largely supported, there was much less support for hypothesis 2 – religious commitment did not moderate the associations between early onset of pornography use and adult pornography use, coercive sexual fantasies, or likelihood to rape. Moderation did emerge for the hypersexual behaviors outcome

variable, but it was in the opposite direction as hypothesized. Individuals with a greater commitment to religiosity reported more hypersexual behaviors when they also reported early onset of pornography use. Due to lack of support as well as the conflicting direction of moderation, one must wonder what role religiosity does play in the development of sexual attitudes and the viewing of pornography. In this field of literature, the data are somewhat mixed. Some research suggests that religious involvement is a protective factor against pornography use during adolescence (e.g., Hardy, Steelman, Coyne, & Ridge, 2013). Adolescents who engage in religious activity, are involved in religious events, and report greater internalization of their religious beliefs are less likely to view pornography, either intentionally or unintentionally (Hardy et al., 2013). However, other research suggests that religiosity is unrelated to actual use of pornography, and instead is associated with the perception of pornography use as a problem or addiction (Grubbs, Exline, Pargament, Hook, & Carlisle, 2015). Interestingly, Grubbs and colleagues (2014) reported that perceived addiction to pornography was predicted by religiosity, even after controlling for other relevant constructs, such as actual amount of pornography use and neuroticism. These findings suggest that a greater amount of acceptance of pornography use could promote less anxiety, less perceptions that pornography use is problematic. However, there is also research suggesting that more acceptance with pornography use is associated with greater use of pornography (Carrol et al., 2008), and with more use could come more maladaptive use, because frequency of pornography use correlates with gender role

conflict, anxious and avoidant attachment styles, poorer relationship quality, and less overall sexual satisfaction (Szymanski & Stewart-Richardson, 2014).

Clearly, the specific roles of religiosity on the use of pornography have yet to be clearly and specifically delineated, as the research evidence is mixed. One reason for the lack of clarity could be the various definitions of religiosity that have been used in research. For example, scholars often fail to distinguish between religion (beliefs) and religiosity (behaviors; McAndrew & Voas, 2011). Moreover, there are no set standards for how to measure religiosity, or how to distinguish it from spirituality or other religious or spiritual domains (Smith, 1998). Given the lack of clarity and mixed findings in the field, it is difficult to determine if the null findings in this study reflect the true state of the world, or if the association is simply more complex than originally thought. Future research will need to examine the proposed moderational role with different measurements of religiosity, religion, and spirituality.

Although no explicit hypotheses were made regarding the frequency of pornography use, it was interesting to discover that far more individuals viewed pornography for the first time prior to age 15 years than after 17 years. While interesting, this is also not surprising. Even in the 1980s, it was estimated that greater than 90% of young men in the United States had viewed pornography prior to the age of 18 years (Bryant & Brown, 1989). Therefore, from a statistical perspective, viewing pornography as a minor can be considered normal – it is expected that most young men will view pornography before they are legal adults. Stated differently, it would be abnormal in a statistical sense for a young man in the United States not to view pornography prior to

age 18 years, because less than 10% of young men make it to 18 years without being exposed to pornography. While this may be surprising in some contexts, the notion of normative engagement in problematic attitudes or behaviors is not unique to pornography use. For example, the vast majority of young females in the United States experience some degree of dissatisfaction with their bodies (Cash & Henry, 1995; Littleton, 2008). Therefore, it is important for women to learn to cope with the influx of societal pressures regarding body dissatisfaction. For men, it may be important in a similar manner for them to learn how to cope with the often conflicting messages regarding sexuality. This may be particularly true for young men of faith. It is essentially inevitable that they will be exposed to pornography. So, while efforts to prevent use may be worthwhile, such efforts should absolutely be supplemented with efforts to promote coping when the inevitable exposure occurs.

### **Implications for Practice**

The results of this study have important implications for clinical practice with young men who may be struggling with their use of pornography. As discussed, young men of faith are much more likely to view their pornography use as a problem than other men, even if the pornography use is not interfering with their life in any meaningful way (Grubb et al., 2014). This is likely due to a perceived incompatibility between teaching within faith systems that denounce pornography use and an individual's behavior if he is using pornography. From a clinical perspective, this perception of pornography use as a problem could lead to problems with anxiety, or it could interfere with other aspects of

sexual or spiritual development. Clinically, it will be important for practitioners to assess the extent to which an individual's pornography use in this situation is normative versus extreme and potentially pathological. Although from a Christian perspective any use of pornography could be perceived as sinful, it is also a very normative component of human development in current society, as the vast majority of men are exposed to pornography prior to age 18 years (Bryant & Brown, 1989). If the exposure is acute and not part of an ongoing problem with pornography use, then it may be beneficial to normalize the exposure to decrease the likelihood of rumination on the possibility of a problem. However, if the exposure is truly an enduring habit, and particularly if the habit is interfering with other aspects of the individual's life, then the clinician can use appropriate clinical skill in encouraging developmentally appropriate intervention.

### **Limitations of the Study**

Although the findings from this study were based on a relatively large sample of internet users, the present study was limited in several respects. First, all measurements were based on cross-sectional self-reports, so associations among variables may be inflated due to shared method variance (Burt et al., 2005). Reports of first age of exposure were also based on retrospective reports, which can yield biased recall (Hassan, 2005). As mentioned previously, the assessment of religiosity was limited in scope, as were the assessments of pornography use (i.e., unable to disentangle type of pornography use). Further, the study only focused on pornography users, which may have restricted the range of some measurements. Had non-viewers of pornography been enrolled, there

may have been greater variability in measurements, and thus a greater chance at demonstrating significant associations.

### **Recommendations for Future Research**

Despite these limitations, the current findings offer several insights for future research. Given the frequency of early exposure to pornography, future research should examine if variability regarding frequency or type of pornography use is associated with maladaptive outcomes, not just whether or not, or when, they were exposed to pornography. Further, future research could examine the role of religiosity across a broad range of faiths or religious backgrounds. This will be important because pornography is a global phenomenon, with youth all over the world being exposed to pornography (e.g., Chen, Leung, Chen, & Yang, 2013). Therefore, it will be interesting to determine if different faiths or religions serve different roles with regard to protection from or promoting coping with pornography exposure.

### **Final Summary**

This study applied DCT to the realm of sexual development. Participants, recruited via Amazon.com's Mturk system who reported an early age of exposure to pornography were significantly more likely to report current pornography use as an adult. Further, and consistent with DCT, age of onset of pornography use appeared to spillover or cascade into other domains of sexual development, including hypersexual behaviors and likelihood to rape. Men who were exposed to pornography earlier in life were more

likely to endorse items in these other domains as well. Childhood family religious commitment moderated the association between age of onset and adult sexual functioning for just one domain, hypersexuality, though the directionality was opposite of what was hypothesized. Individuals who reported greater family religious commitment as a child were more likely to report hypersexuality with a late exposure to pornography use. Results from this study were largely consistent with DCT. It will be important for future research to elucidate potential mechanisms that explain the link between age of onset and adult sexual attitudes and behaviors.

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## **Appendix A: Assessment Measure for Current Pornography Use and Age of Onset**

Please answer the next section of questions regarding your personal history of pornography use.

How old were you when you first were exposed to pornography?

What medium was the pornography?

- Internet
- Magazines
- DVD/VCR Tapes
- Pay-per view Movies
- Other

Were you alone in that first instance or were you with others? Please describe (include how many people, your relationship with them, and their ages):

How old were you when you first became a pornography user (accessed pornography at least once every six months)?

When you first became a user (accessed pornography at least once every six months) about how many times would you intentionally view pornography online over a typical 6 month time period?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

When you first became a user (accessed pornography at least once every six months) about how many times would you intentionally view pornography online over a typical 3 month time period?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

Appendix A (cont.)

When you first became a user (accessed pornography at least once every six months) about how many times would you intentionally view pornography online over a typical 30 day time period?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

When you first became a user (accessed pornography at least once every six months), on average, you would spend \_\_\_\_\_ hours per day viewing pornography online.

When you first became a user (accessed pornography at least once every six months), on average, you would spend \_\_\_\_\_ hours per week viewing pornography online.

Please answer the next section of questions regarding your personal history of pornography use.

Within the past six months, how many times have you intentionally viewed pornography online?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

Within the past three months, how many times have you intentionally viewed pornography online?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

**Appendix A (cont.)**

Within the past month, how many times have you intentionally viewed pornography online?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

Within the past six week, how many times have you intentionally viewed pornography online?

- 0 times
- 1-3 times
- 4-6 times
- 7-9 times
- 10 or more times

On average, I estimate that I spend \_\_\_\_\_ hours per day viewing pornography online.

## **Appendix B: Assessment Measure for Hypersexuality (Hypersexual Behavior Inventory)**

For the purposes of this questionnaire, sex is defined as any activity or behavior that stimulates or arouses a person with the intent to produce an orgasm or sexual pleasure.

Response options: 1- Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often

1. I use sex to forget about the worries of daily life.
2. Even though I promised myself I would not repeat a sexual behavior, I find myself returning to it over and over again.
3. Doing something sexual helps me feel less lonely.
4. I engage in sexual activities that I know I will later regret.
5. I sacrifice things I really want in life in order to be sexual.
6. I turn to sexual activities when I experience unpleasant feelings (e.g. frustration, sadness, anger).
7. My attempts to change my sexual behavior fail.
8. When I feel restless, I turn to sex in order to soothe myself.
9. My sexual thoughts and fantasies distract me from accomplishing important tasks.

10. I do things sexually that are against my values and beliefs.
11. Even though my sexual behavior is irresponsible or reckless, I find it difficult to stop.
12. I feel like my sexual behavior is taking me in a direction I don't want to go.
13. Doing something sexual helps me cope with stress.
14. My sexual behavior controls my life.
15. My sexual cravings and desires feel stronger than my self-discipline.
16. Sex provides a way for me to deal with emotional pain I feel.
17. Sexually, I behave in ways I think are wrong.
18. I use sex as a way to try and help myself deal with my problems.
19. My sexual activities interfere with aspects of my life such as work or school.

### **Appendix C: Assessment Measure for Coercive Sexual Fantasies (Proclivity to Rape)**

If you could be assured that no one would know and that you could in no way be punished for having the following fantasies, how true would the statements be for you, if at all? Please indicate the degree to which you believe the following are true of you.

Response Options: 1 = Very true, 2 = True, 3 = Somewhat true, 4 = Somewhat untrue,

5 = Untrue, 6 = Very untrue

1. It would turn me on to be tied up and forced by a woman to have sex with her.
2. I fantasize about having a woman tied up, spread-eagled to a bed
3. Thoughts of bondage turn me on.
4. I get excited when a woman struggles over sex.
5. It would be exciting to use force to subdue a woman.
6. I use sex as a way to try and help myself deal with my problems.
7. I fantasize about forcing a woman to have sex.
8. I sometimes want to hurt my partner just a little when we have sex.
9. I like to “take” a woman.
10. In my fantasies I am sometimes violent toward women.
11. I fantasize about raping a woman.

## **Appendix D: Assessment Measure for Likelihood of Committing Rape**

Response Options: 1 = Not at all, 2 = Not very likely, 3 = Somewhat likely, 4 =  
Very  
likely, 5 = Not at all, 6 = Not very likely, 7 = Somewhat likely, 8 = Very likely

1. If you could be assured that no one would know and that you could in no way be punished for engaging in Forced Sex, how likely would you be to commit such acts?
2. If you could be assured that no one would know and that you could in no way be punished for engaging in Rape, how likely would you be to commit such acts?
3. How likely do you think your best male friend would be to commit Forced Sex if he could be assured that no one would know and that he could in no way be punished?
4. How likely do you think your best male friend would be to commit Rape if he could be assured that no one would know and that he could in no way be punished?

### **Appendix E: Assessment Measure for Household Religiosity (Religious Commitment Inventory)**

The following items deal with various types of religious ideas and social opinions.

Please indicate the response you prefer, or most closely agree with.

Response options: 1 = Not at all true, 2 = Somewhat true of me, 3 = Moderately true of me, 4 = Mostly true of me, 5 = Totally true of me

1. I often read books and magazines about my faith.
2. I make financial contributions to my religious organization.
3. I spend time trying to grow in understanding of my faith.
4. Religion is especially important to me it answers many questions about the meaning of life.
5. My religious beliefs lie behind my whole approach to life.
6. I enjoy spending time with others of my religious affiliation.
7. Religious beliefs influence all my dealings in life.
8. It is important to me to spend periods of time in private religious thought and reflection.
9. I enjoy working in the activities of my religious affiliation.
10. I keep well informed about my local religious group and have some influence in its decisions.