The Cyber Pornography Use Inventory: Comparing a Religious and Secular Sample

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Abstract

While Internet pornography use is becoming increasingly common in today's society, until recently no instrument existed to measure compulsive use. Consequently, the Cyber Pornography Use Inventory (CPUI) was developed in order to assess Internet pornography addiction. While demonstrating promise as an assessment tool, the CPUI was only tested on a religious population. In addition to being strongly opposed to pornography, religious males experience extreme distress from their usage and often perceive their behavior as addictive, despite no supporting clinical evidence. Therefore, it seemed necessary to explore the psychometric capabilities of the CPUI further by administering it to a secular population. All subscales demonstrated acceptable levels of internal reliability in both samples. While secular males and females reported significantly higher levels of pornography use, religious males and females scored significantly higher on the Guilt and Addictive Patterns subscales. However, the participants' environments, as represented by their schools, accounted for a large portion of the variance in Guilt scores for males (55%) and females (39%). There are resulting implications and future research directions.

The Cyber Pornography Use Inventory:

Comparing a Religious and Secular Sample

Pornography use is becoming increasingly common in today's society, particularly on the Internet. For example, search engine requests for pornographic material tally about 25% of requests per day, or about 68 million hits (Carroll et al., 2008). To explain the pervasive use of Internet pornography, a theory entitled the Triple-A Engine (affordability, anonymity, and accessibility) was created (Cooper, Delmonico, & Burg, 2000). Affordability results from widespread competition from pornography distributors, as well as increasing chances for free pornography (Carroll et al., 2008). Consumers regard their usage as anonymous, because they usually view pornography in their own homes. Pornography is widely accessible because of the many different ways it can be accessed: the Internet, pay-per-view television, or popular handheld electronic devices (Young, 2008). Pornography's accessibility extends even to those who are not intentionally looking for it. Greenfield (2004) noted that many Internet users were inadvertently exposed to pornography despite using search engines for completely unrelated purposes.

Many researchers have investigated the frequency and effects of pornography usage in the college student population (e.g., Boies, 2002; Carroll et al., 2008; Goodson, McCormick, & Evans, 2000; Nelson, Padilla-Walker, & Carroll, 2010). In addition to reporting the highest level of pornography use (Buzzell, 2005) college students are in a particularly crucial time when they are making choices that will affect them for the rest of their lives (Carroll et al., 2008). Therefore, an investigation of the research on this topic is both rational and necessary. To begin, multiple research studies reported that roughly

40% of college students indicated viewing Internet pornography during their lifetime (Boies, 2002; Goodson et al., 2000), while a sample of 813 college students across 6 universities indicated that 87% of males and 31% of females had intentionally viewed pornography in their lifetime (Carroll et al., 2008). Males of all ages have consistently demonstrated greater usage of pornography than females, although Boies found a higher proportion of usage for younger women (male-female ratio: 3:1) than older women (ratio of 6:1).

Emotional Response to Online Pornography

A handful of studies (e.g., Boies, 2002; Goodson et al., 2000) have been conducted to assess a person's motivations for pornography use. In a sample of 506 students from a public university, Goodson and colleagues noted that the most common emotion males experienced was entertainment (56%), while females most frequently experienced feelings of disgust (51%). As a whole, entertainment was the common reaction to pornography viewing (49%), while disgust was the second most frequently experienced emotion (40.8%). The participants also noted feelings of excitement and anticipation (34.4%) and sexual arousal (33.9%). However, Boies found that the most common reaction to online sexually explicit material was sexual arousal (82%). The two other most common reactions were to satisfy one's curiosity (65%) and learn new sexual techniques (63.2%).

The Message of Pornography

While some research indicates that pornography users perceive their usage to be harmless and moderately positive (Hald & Malamuth, 2008), further investigation is needed. Researchers (e.g., Cowan & Campbell, 1994; Heider & Harp, 2002) have

conducted content analyses of pornography, concluding that pornography's message is both sexist and racist. Heider and Harp visited over 200 pornography websites during a one-year period. They noted that pornography degraded women and promoted gender stereotypes of male dominance and female submission. Pornography was inherently hypocritical in its vastly different descriptions of men and women. The consumer was previously warned if the woman was not young and thin. In contrast, many male actors were overweight, yet no mention was made of the male's attractiveness or body structure, unless it was a reference to the size of his sexual organ. Furthermore, the woman was portrayed as always sexually aroused and eager for sex with any man, even if she did not know him (Heider & Harp, 2002). Women were presented for the pleasure and gratification of the man. Pornography also endorsed illegal behaviors (having sex with a minor), as it frequently insinuated that the girls portrayed were underage.

        In addition to sexism, racism is a prominent theme of pornography (Cowan & Campbell, 1994; Heider & Harp, 2002). Heider and Harp noted that before viewing a particular pornographic video or image, the viewer was notified if the participants were non-white. The underlying assumptions are that non-white sex is repulsive and abnormal and that most viewers would prefer not to see such appalling material (Heider & Harp, 2002). Racial stereotypes were also frequently promoted. For example, the black man was portrayed as sexually insatiable and abnormally well-endowed. Cowan and Campbell rented 54 interracial videos and assessed each video's content for intimacy, racial stereotypes, inequality, and aggression. They found that both men and women were more aggressive toward their cross race partner than their same sex partner. Men treated black

women more aggressively than they did white women, while black men treated their

partners less intimately than did white men.

Effects of Pornography Use

   Distorted views of women and sexuality. Zillman and Bryant's research (1982,

1988a, 1988b) is foundational to understanding the effects of general pornography use.

Scholars have criticized their work for four reasons: it lacked real social controls or

punishment, it lacked the ability to produce real violence due to ethical constraints, it

consisted entirely of experimental situations, and it utilized solely college students

(Manning, 2006). Despite the criticism, their work is still considered by many to be

reliable and valid (Manning, 2006).

   In 1982 Zillman and Bryant assessed the impact of pornography on dispositions

toward women. Over the course of six weeks participants were exposed to no

pornography, an intermediate amount, or a heavy amount. They were then given a rape

case and asked to give a sentence for the convicted rapist. Those in the massive exposure

group recommended much shorter sentences for the rapist than did the other two groups.

The researchers also noted that as pornography exposure increased, the perception of

abnormal sexual practices (e.g., sex with animals) as normal increased. Furthermore,

those who were exposed to massive amounts of pornography demonstrated significantly

greater sexual callousness and lower compassion toward women than those in the other

two groups.

   In a similar study examining pornography's effects on family formation values,

Zillman and Bryant (1988b) found that pornography exposure resulted in a reduced desire

to have children and an increased acceptance of non-monogamy, female servitude, and

male dominance. Their research on pornography's impact on sexual satisfaction (Zillman & Bryant, 1988a) revealed that both males and females who were exposed to pornography reported an increased value of emotionally detached sex and decreased satisfaction with their partner's sexual performance, physical appearance, and affection.

Risky behaviors. In a sample of 813 students from six universities, Carroll and colleagues (2008) assessed the impact of pornography use and acceptance on substance use patterns, sexual behaviors and attitudes, and family formation values (beliefs about childbearing, parenting, marriage, and non-marital habitation). They found that male substance abuse was significantly correlated with their acceptance and use of pornography. Furthermore, regular pornography users reported drastically higher levels of drinking and binge drinking than nonusers. Men's sexual behaviors and values were significantly correlated with their pornography use. Compared to nonusers, those who used pornography daily averaged five times more lifetime sexual partners, while most non-users had never had sex before. Acceptance of pornography was significantly correlated with viewing non-marital cohabitation as acceptable and considering having a child without being married. Surprisingly, acceptance of pornography demonstrated the same or stronger correlation with behaviors and attitudes than usage of pornography.

Aggression. The relationship between pornography and aggression has received considerable attention among researchers (e.g., Allen, Emmers, Gebhardt, & Giery, 1995; Malamuth, Addison, & Koss, 2000; Oddone-Paolucci, Genuis, & Violato, 2000). For example, Oddone-Paolucci and colleagues conducted a meta-analysis of 46 studies on the effects of pornography and found pornography exposure increased problems in romantic relationships (20%), rape myth acceptance (31%), sexual aggression (22%), and

abnormal sexual behaviors (31%). Allen and colleagues also performed a meta-analysis

of 24 studies and found that pornography exposure was significantly related to rape myth

theory acceptance (that women cause rape). The experimental studies demonstrated a

much stronger effect on rape myth acceptance than the non-experimental studies, which

indicated in virtually no increase in acceptance. However, Manning (2006) postulated

that this was because actual behavioral patterns were evaluated in the experimental

studies, while the non-experimental studies utilized self-report inventories. Furthermore,

Malamuth and colleagues analyzed various meta-analytic studies and also a

representative population of college age males ($n = 2,972$). They concluded that frequent

pornography use was reliably associated with sexual aggression, especially when the

consumer demonstrated high risk for sexual aggression or used violent pornography.

Internet Pornography in the Context of Religiosity

Researchers have begun to investigate the relationship between religiosity and

attitudes toward pornography. For example, Carroll and colleagues (2008) found a

negative correlation between religiosity and acceptance of pornography. Other research

found that religiosity was positive correlated with opposition to pornography (Woodrum,

1992) and a willingness to censor pornography (Lambe, 2004). Nelson and colleagues

(2010) reported that 100% of the religious sample indicated that pornography use was not

acceptable.

However, while religiosity is consistently negatively associated with an

acceptance of pornography, these same attitudes do not always translate to a lack of use.

For example, Abell, Steenbergh, and Boivin (2006) found that religiosity was

significantly positively correlated with compulsive use of Internet pornography; 31%

indicated that they experienced a strong urge to view pornography whenever they accessed the Internet. Other research (Baltazar, Helm, McBride, Hopkins, & Stevens, 2010) found that lifetime Internet pornography use among Christian college students was slightly higher (47.6%) than general population usage rates (40-43%) as indicated in previous research (Boies, 2002; Goodson et al., 2000).

Effects of Pornography Use among Religious Persons

Baltazar and colleagues (2010) assessed the perceived benefits and consequences of viewing Internet pornography and the motivation for viewing such materials. They found that the two most commonly reported problems resulting from pornography use were a worsened relationship with God (males: 43%; females: 20%) and an increase in sexual behavior (males: 40%, females: 25%). Sexual arousal was the most commonly reported benefit (males: 27%, females: 19%) and motivation (males: 39%, females: 25%) for using Internet pornography.

Nelson and colleagues (2010) compared the differences between users and non-users of Internet pornography with regards to religiosity, personal characteristics, and family relationships. They found that 65% of religious young men reported viewing no pornography in the past 12 months, but 100% indicated that pornography use was unacceptable. This supported the research of Carroll and colleagues (2008), which also found a discrepancy between college males who perceived pornography use as acceptable (66.5%) and those who actually used it (87%). Nelson and colleagues also reported that non-users were significantly more involved in past and current religious practices and reported significantly less depression and higher self-worth.

The Current Study

As previously noted, pornography use is associated with many negative

consequences, including aggression (Allen et al., 1995; Malamuth et al., 2000; Oddone-

Paolucci et al., 2000), risky behaviors (Carroll et al., 2008), and distorted views of

women and sexuality (Zillman & Bryant, 1982; 1988a; 1988b). Furthermore, its message

is sexist and racist in nature (Cowan & Campbell, 1994; Heider & Harp, 2002). While

pornography use is becoming increasingly common in today's society, until recently no

instrument existed to specifically assess Internet pornography addiction. In 2010 Grubbs,

Sessoms, Wheeler, and Volk developed the Cyber Pornography Use Inventory (CPUI). It

was roughly patterned after the Internet Sex Screening Test (ISST), a tool designed to

assess online sexual compulsivity (Delmonico & Miller, 2003). Factor analysis of the

CPUI revealed a three factor structure: Addictive Patterns ($\alpha = .89$), Guilt Regarding

Online Pornography Use ($\alpha = .83$), and Online Sexual Behavior-Social ($\alpha = .84$).

While the initial findings of Grubbs and colleagues (2010) were promising,

reliability and validity studies were only conducted on a religious population. Research

has demonstrated that religious persons are unique in their attitudes toward pornography.

Nelson and colleagues (2010) found that 100% of the religious sample indicated that

pornography use was not acceptable. Furthermore, religious males experience extreme

distress from pornography use and often see their usage as addictive despite no

supporting clinical evidence (Kwee, Dominguez, & Ferrell, 2007). In contrast, a large

representative sample of Danish adults (ages 18-30) perceived their usage of pornography

as non-harmful and moderately positive (Hald & Malamuth, 2008). As such, it seemed

necessary to further test the CPUI in a secular population.

Research Questions and Hypotheses

The first research question was as follows: Would the CPUI prove to be a reliable instrument for assessing Internet pornography addiction in a secular sample? As previously noted, religious persons are unique in their attitudes toward pornography (e.g., Nelson et al., 2010). Religiosity is negatively correlated with acceptance of pornography (Carroll et al., 2008) and positively correlated with opposition to pornography (Woodrum, 1992). However, based on the psychometric soundness that the CPUI demonstrated in the previous study, it was hypothesized that all three CPUI subscales would demonstrate acceptable internal reliability.

The second research question addressed the relationship between pornography use and religiosity in the secular sample. Previous research has indicated conflicting results. Some researchers (e.g., Carroll et al., 2008) have noted a negative correlation between usage and religiosity, while Abell and colleagues (2006) reported that religiosity was positively correlated with problematic pornography use. However, Baltazar and colleagues (2010) found that regular viewing rates (3.4%) among religious users were approximately 50% lower than heavy rates of online sexual behavior among general population users (8.0%; Cooper, Scherer, Boies, & Gordon, 1999). Therefore, it was hypothesized that religiosity would be negatively correlated with lifetime pornography use and pornography use in the past six months, three months, month, and week.

The third research question involved the relationship between the CPUI subscales and religiosity in the secular population. Religious males experience extreme distress from their pornography usage and often see their usage as addictive despite no supporting clinical evidence (Kwee et al., 2007). Therefore, it was hypothesized that religiosity

would be significantly positively correlated with the Guilt and Addictive Patterns subscales in the secular sample.

The fourth research question involved assessing pornography usage in the religious and secular populations. Consequently, would there be any differences in the two samples' pornography use? Because the religious sample was predominantly female (75%) and females consistently report drastically lower levels of pornography use than males (e.g., Carroll et al., 2008), differences in usage rates were assessed separately for each gender. Because some research has indicated an inverse relationship between religiosity and lifetime pornography use (e.g., Carroll et al., 2008), it was hypothesized that both secular males and females would score significantly higher on lifetime pornography use. Furthermore, because Baltazar and colleagues (2010) found that regular pornography usage rates among religious users were less than half of heavy rates of online sexual behavior among general population users (Cooper et al., 1999), it was hypothesized that both secular males and females would report significantly higher rates of pornography use within the past six months, three months, month, and week than religious males and females.

The fifth research question involved the participants' scores on the CPUI subscales. Would there be any difference in the two samples' scores on the Addictive Patterns and Guilt subscales? As previously mentioned, religious males are prone to feeling distressed and addicted after using pornography, even if their use is not classified as compulsive according to clinical standards (Kwee et al., 2007). Based on these findings, it was hypothesized that both males and females in the religious population

would score significantly higher than secular males and females on both the Guilt

subscale and Addictive Patterns subscale.

The sixth research question involved the role of religiosity as a predictor of scores

on the Guilt and Addictive Patterns subscales in the religious sample. Specifically, would

religiosity contribute a significant amount of variance to either subscale? Because no

religiosity measures were included in the religious population, it was hypothesized that a

person's school would contribute a significant amount of variance of both the Guilt and

Addictive Patterns subscales.

Method

Participants

The religious participants were 584 students enrolled in psychology classes at a

mid-sized private Christian university in the Southeastern United States. There were 139

males, 443 females, and two students who did not identify their gender. With regards to

age, 93.2% of the sample was between 18 and 23, 6.5% were 24 or older, and two

individuals (0.3%) were excluded from the analysis because they were under the age of

18. The two most common ethnicities were White/Caucasian (80.8%) and Black/African-

American (7.4%).

The secular participants were 199 students enrolled in a mandatory first year

psychology course at a mid-sized public secular university in the Northeastern United

States. There were 119 males and 80 females; 99.0% of the population was between 18

and 23. The three most common ethnicities were White/Caucasian (63.8%), Asian/Pacific

Islander (29.6%), and Black/African-American (8.0%).

However, only those students who indicated intentionally viewing Internet pornography were administered the survey. The sample was further constrained to those who indicated viewing pornography within the past six months. Consequently, the final sample size consisted of 145 religious students (94 males, 51 females) and 127 secular students (101 males, 26 females).

Religiosity in the Religious Sample. With regards to church denomination, most participants (78.0%) indicated that they were either Baptist (46.4%) or non-denominational (31.6%). The two other most common religious affiliations were Pentecostal (5.7%) and Presbyterian (3.6%). Finally, 6.7% reported belonging to a denomination not listed, while only 0.9% indicated that they were "non-churched".

Religiosity in the Secular Sample. Participants indicated a variety of religious beliefs, but the greatest percentage (42.1%) indicated that they were agnostic (12.6%), atheist (12.5%), nonreligious (10.5%), or spiritual but not religious (6.5%). The most commonly reported religions were Catholicism (18.1%), Christianity (12.1%), and Judaism (5.0%). Participants indicated moderate religious belief salience ($M = 5.47$, $SD = 3.45$) and low religious participation ($M = 1.79$, $SD = .95$).

Materials

In order to assess levels of Internet pornography addiction, the Cyber Pornography Use Inventory (CPUI) was utilized (Grubbs et al., 2010). The two samples answered according to different rating scales, and the procedure for comparing scores and the resulting implications will be thoroughly addressed in the results and discussion sections. Two other scales were included in the secular sample to measure religiosity. The first instrument was a 4-item version ($\alpha = .95$ for this sample; see Appendix A) of

Blaine and Crocker's (1995) 5-item religious belief salience measure. Religious belief

salience measures how important a person's religious or spiritual beliefs are to him or

her. Participants used an 11-point scale (0 = *strongly disagree*, 10 = *strongly agree*) to

rate their responses. The second religious measure was an 11-item scale (α = .93 for this

sample; see Appendix B) taken from a 17-item religious participation scale (Exline, Yali,

& Sanderson, 2000). Both organized religious behaviors (e.g., church attendance) and

religious behaviors not exclusive to organized religion (e.g., prayer) were measured.

Participants used a 6-point scale (0 = *not at all*, 5 = *more than once a day*) to indicate

their level of participation in each activity in the past month.

Procedure

All students who were either enrolled in a first year mandatory psychology course

(the secular sample) or any psychology course (the religious sample) received an email

notifying them of the study and providing them a link to the survey. They received class

credit for their participation, but this compensation was available through many other

opportunities. Before beginning the survey, each student completed an electronic

informed consent that indicated his or her rights as a participant. After the students

indicated their consent to participate in the study, demographic information was

collected. Only those who were 18 or older and indicated having intentionally viewed

Internet pornography in their lifetime were permitted to take the CPUI. If the student

indicated that he or she had not intentionally viewed pornography the CPUI was not

administered.

Results

CPUI Reliability Analysis in the Secular Sample

Hypothesis 1: In a secular sample, all three CPUI subscales will demonstrate acceptable internal reliability. To test this hypothesis, reliability analyses were performed on each of the three subscales: Addictive Patterns (α = .88), Guilt Regarding Online Pornography Use (α = .82), and Online Sexual Behavior-Social (α = .69). Because the question "I use sexual humor and innuendo with others while online" was judged to measure a different construct unrelated to real social sexual behavior, it was deleted from the subscale, resulting in an acceptable internal reliability (α = .72). As a result, the first hypothesis was fully supported.

Religiosity and Pornography Use in the Secular Sample

Hypothesis 2: Religiosity will be negatively correlated with lifetime pornography use and pornography use in the past six months, three months, month, and week. For males, active religious participation was significantly positively correlated with intentionally viewing online pornography, r (110) = .26, p = .01; and significantly negatively correlated with never viewing online pornography, r (111) = -.26, p = .01, and never intentionally viewing online pornography, r (111) = -.40, p < .001. However, active religious participation was significantly negatively correlated with pornography use in the past six months, r (110) = -.37, p < .001; three months, r (109) = -.28, p = .003; and month, r (109) = -.26, p = .01. Male and female religious belief salience and female religious participation were not significantly correlated with any level of pornography use. These findings indicate partial support for the second hypothesis.

Religiosity and the CPUI in the Secular Sample

Hypothesis 3: In the secular sample, religiosity will be significantly positively correlated with the Addictive Patterns and Guilt subscales. For males, both religious belief salience, $r(93) = .41$, $p < .001$, and religious participation, $r(93) = .27$, $p < .01$, were significantly correlated with the Guilt subscale, but neither was significantly correlated with the Addictive Patterns subscale. For females, the correlation between religious belief salience and Guilt approached significance, $r(24) = .38$, $p = .06$, but religious belief salience was not significantly correlated with Addictive Patterns, $r(24) = .29$, ns. Female religious participation was not significantly correlated with either Guilt, $r(24) = .17$, ns; or Addictive Patterns, $r(24) = .05$, ns. These findings indicate partial support for the third hypothesis.

Differences in Pornography Use between Religious and Secular Sample

Hypothesis 4: Both males and females in the secular sample will score significantly higher on lifetime pornography usage, as well as usage within the past six months, three months, month, and week.

Religious and secular males. Means and standard deviations of each level of pornography usage were calculated (see Table 1), as were frequency levels (see Table 2). There was no significant difference in lifetime pornography usage between secular males and religious males, $t(254) = .72$, ns. However, secular males scored significantly higher than religious males on pornography usage within the past six months, $t(253) = 6.11$, $p < .001$; three months, $t(252) = 7.42$, $p < .001$; month, $t(252) = 7.91$, $p < .001$; and week, $t(252) = 6.22$, $p < .001$.

Religious and secular females. Means and standard deviations of each level of pornography usage were calculated (see Table 1), as were frequency levels (see Table 2). There was no significant difference in lifetime pornography usage between secular females and religious females, t (519) = 1.74, p = .08. However, secular females scored significantly higher than religious females on use in the past six months, t (517) = 5.44, $p < .001$; three months, t (517) = 4.45, $p < .001$; month, t (517) = 5.52, $p < .001$; and week, t (517) = 4.12, $p < .001$. As a result, the fourth hypothesis was partially supported.

Table 1

Means and Standard Deviations of Pornography Usage among Religious and Secular Young Adults

	Religious Men		Secular Men		Religious Women		Secular Women	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Lifetime[a]	1.88	.33	1.91	.29	1.28	.45	1.38	.49
6 Months[b]	2.69	1.60	3.90	1.53	1.18	.61	1.66	1.16
3 Months[b]	2.37	1.49	3.79	1.57	1.14	.56	1.50	1.07
1 Month[b]	1.82	1.18	3.19	1.58	1.05	.29	1.34	.87
1 Week[b]	1.24	.58	1.92	1.12	1.02	.14	1.12	.40

a. Lifetime pornography usage ("I have intentionally viewed online pornography."): 1 = *false*, 2 = *true*
b. 1 = *0 times*, 2 = *1-3 times*, 3 = *4-6 times*, 4 = *7-9 times*, 5 = *10 or more times*

Table 2

Frequency of Pornography Usage among Religious and Secular Young Adults (In

Percentages)

	Religious Men	Secular Men	Religious Women	Secular Women
Lifetime	87.8	89.1	28.2	37.5
6 Months	67.6	84.9	11.5	32.5
3 Months	60.4	84.0	8.4	23.8
1 Month	44.6	78.2	3.8	17.5
1 Week	19.2	53.8	1.4	8.8

Differences in Scores on CPUI Subscales

Hypothesis 4: Males and females in the religious sample will score significantly

higher than the secular sample on the Guilt and Addictive Patterns subscales. To address

this hypothesis, several steps were involved. First, the questions from each of the

subscales were added up and computed as a single mean to represent each person's

average score on the subscale. For the secular sample, all CPUI questions were assessed

using a 7-point Likert scale, with high scores indicating addictive use. However, for the

religious sample, the questions were assessed using a 5-point Likert scale, with low

scores indicating addictive use. The religious scores were recoded so that high values

indicated addictive use ($5 \rightarrow 1$, $4 \rightarrow 3$, $3 \rightarrow 3$, $2 \rightarrow 4$, and $1 \rightarrow 5$). Four questions on the

Addictive Patterns subscale were originally listed as true/false questions for the religious

sample. These questions were not included as part of the Addictive Patterns mean for

either population. The secular scores were recoded to a 5-point scale to improve

comparability between scores (1→1, 2 and 3→2, 4→3, 5 and 6→4, and 7→5). [1]

Independent sample *t* tests were then run to determine significant differences in means on

the three subscales between the two samples (see Table 3). Religious males scored

significantly higher than secular males on the Guilt subscale, *t* (188) = 15.15, *p* < .001;

and Addictive Patterns subscale, *t* (190) = 4.74, *p* < .001. Religious females also scored

significantly higher than secular females on the Guilt subscale, *t* (70) = 6.69, *p* < .001;

and Addictive Patterns subscale, *t* (71) = 2.36, *p* < .001. There was no significant

difference in scores on the Social subscale between the religious and secular sample for

males or females, although the difference between secular and religious males

approached significance (*p* = .06). As a result, the fourth hypothesis was fully supported.

Table 3

CPUI Scores among Religious and Secular Young Adults

	Religious Men		Secular Men		Religious Women		Secular Women	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Addictive Patterns	2.66	.93	2.08	.75	2.09	.78	1.68	.49
Guilt	3.91	.86	2.11	.78	3.57	.94	2.20	.59
Social	1.22	.59	1.40	.71	1.36	.68	1.25	.52

School as a Predictor of Guilt and Addictive Patterns

Hypothesis 5: School will predict a significant amount of variance of both the

Guilt and Addictive Patterns subscales. To address this question, both the religious

sample and secular sample's CPUI scores were entered into a single column and a second

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[1] To eliminate the possibility that the results were due to the recoding method chosen, all three subscales were recoded using a different method (1 and 2→1, 3→2, 4→3, 5→4, 6 and 7→5), and the results were virtually identical to those of the first recoding method.

column was created entitled School. Those in the religious sample received a 0, while those in the secular sample received a 1; these numbers represented each participant's school. School was then entered into a linear regression equation as a predictor of Guilt scores and later Addictive Patterns scores. School significantly predicted a large amount of variance of Guilt scores for males, $R^2 = .55$, $F (1, 188) = 229.56$, $p < .001$; and females, $R^2 = .39$, $F (1, 70) = 44.74$, $p < .001$. School also predicted a significant amount of variance of Addictive Patterns scores for males, $R^2 = .11$, $F (1, 190) = 22.50$, $p < .001$; and females, $R^2 = .07$, $F (1, 71) = 5.58$, $p < .001$. These findings fully support the fifth hypothesis.

Summary and Discussion

Hypothesis 1: In a secular sample, all three CPUI subscales will demonstrate acceptable internal reliability.

Reliability analyses of the three subscales of the CPUI supported the first hypothesis. The CPUI did indeed demonstrate similar acceptable internal reliability in a secular population. Compared to the original CPUI study in the religious sample, the Addictive Patterns and Guilt subscales' reliability each dropped only a single point. The Social subscale demonstrated the biggest reduction in internal reliability: twelve points. One possible explanation is the difference in attitudes of religious and nonreligious populations toward sexuality. Religiosity is associated with reduced sexual activity before marriage (Helm, McBride, Knox, & Zusman, 2009). Furthermore, intrinsic religiosity is negatively associated with sexual permissiveness (Rowatt & Schmitt, 2003). The Social subscale measures various aspects of sexual permissiveness (e.g., the willingness to take risks or meet up with someone for romantic purposes). Consequently,

for religious populations, high scores on the Social subscale may be a more valid predictor of pornography use. Still, these findings provide additional support for the CPUI's ability to assess addictive behavioral patterns, even in secular settings. The CPUI demonstrates considerable promise as a reliable, valid tool for assessing Internet pornography addiction.

Hypothesis 2: Religiosity will be negatively correlated with lifetime pornography use and pornography use in the past six months, three months, month, and week.

The second hypothesis received partial support. To begin, male religious belief salience was positive correlated with intentionally viewing pornography in one's lifetime. This finding is particularly understandable when considering the Triple-A Engine of Internet pornography: accessibility, anonymity, and affordability (Cooper et al., 2000). Because religious persons do not see pornography use as acceptable (Baltazar et al., 2010) religious pornography users do not want others to discover their usage. Consequently, they are drawn to the accessibility and anonymity of Internet pornography. They do not have to worry about being caught buying a pornography magazine; instead, they can freely access Internet pornography when everyone else is asleep and they are alone. Second, male religious participation was negatively correlated with pornography use in the past six months, three months, and month. This is consistent with other research (Baltazar et al., 2010), which found that regular pornography usage among religious persons was half of heavy rates of online sexual behavior among general population users (Cooper et al., 1999).

Hypothesis 3: In the secular sample, religiosity will be significantly positively correlated with the Addictive Patterns and Guilt subscales of the CPUI.

The third hypothesis received partial support. For males in the secular sample, active religious participation and religious belief salience were significantly correlated with the Guilt subscale, but not with the Addictive Patterns subscale. For females, neither religious belief salience nor religious participation was significantly correlated with Guilt or Addictive Patterns, although the relationship between female religious salience and Guilt approached significance (p = .06). One potential explanation for these findings is the particular environment of the secular students. Because it was a liberal university, pornography use may have been seen as an acceptable activity, and so while those who were more religious demonstrated increased guilt, they did not have to hide their usage.

Hypothesis 4: Both males and females in the secular sample will score significantly higher on all levels of pornography use.

The fourth hypothesis received partial support. In comparing the religious and nonreligious sample, there were no significant differences in lifetime pornography usage either for males or females. However, both secular males and females scored significantly higher than religious males and females on pornography usage in the past six months, three months, month, and week. This supports the research of Baltazar and colleagues (2010), which found that regular pornography use among religious participants (3.4%), classified as six or more hours per week, was roughly half of heavy rates of online sexual behavior among general population users (8.0%; Cooper et al., 1999), classified as more than 11 hours per week.

Hypothesis 5: Males and Females in the Religious Sample will score significantly higher on the Guilt and Addictive Patterns subscales.

The fifth hypothesis was supported. Both males and females in the religious population scored significantly higher on the Guilt and Addictive Patterns subscales, even though secular males and females both scored significantly higher on all levels of pornography usage. This fully supports the work of Kwee and colleagues (2007), which noted the exorbitant distress and feelings of addiction Christian males experienced as a result of their pornography usage, even though their level of usage could not be clinically classified as compulsive. However, in the religious sample, no level of pornography use was significantly correlated with the Guilt subscale. Remembering that religiosity contributed 14-16% of the variance in Guilt scores in the secular sample, this suggests that guilt regarding usage is more saliently predicted by a person's religion than his or her usage. Therefore, those who are more strongly committed to their religion are more likely to experience exorbitant guilt from using pornography regardless of their specific level of usage.

Hypothesis 6: The participants' school will predict a significant amount of variance of both the Addictive Patterns and Guilt subscales.

The sixth hypothesis was supported. To review, it was necessary to use school as a predictor of the CPUI since no religious measures were included in the religious sample. Both the religious and secular CPUI scores were entered into a single column and a second column was created to represent each person's school. School accounted for a large amount of the variance of Guilt scores for both males (55%) and females (39%), while religious belief salience in the secular sample accounted for much smaller amounts

of variance of Guilt for both males (17%) and females (14%). School also predicted a

significant amount of variance of Addictive Patterns scores for both males (11%) and

females (7%), but religious belief salience did not predict a significant amount of

variance of Addictive Patterns scores for either secular males or females.

When comparing these two results, two possible explanations emerge. First,

religiosity may indeed be a much stronger predictor of the CPUI in the religious sample.

However, the much larger proportions of variance accounted for by the participants'

school suggest that something other than religiosity is contributing to the Guilt scores.

These findings are particularly understandable when considering the environment of the

religious participants. They are required to go to chapel services three times a week,

enroll in Bible classes, and attend weekly Bible studies, whereas the secular students

presumably have no such requirements. Thus, this particular environment might serve as

a continual reminder of which behaviors are permissible or forbidden.

Limitations

As with any research study, there were many limitations present in this study.

First, there were no measures of religiosity included in the religious sample. However,

part of the study for the secular sample included filling out the Spiritual Assessment

Inventory (SAI; Hall & Edwards, 2002). A comparison of the secular sample and a

separate sample taken from the same religious school revealed that both religious males

($M = 3.21$, $SD = .99$) and religious females ($M = 3.42$, $SD = .93$) scored significantly

higher than secular males ($M = 2.35$, $SD = .98$) and secular females ($M = 2.66$,

$SD = 1.06$) on the Awareness of God subscale of the SAI, $t (236) = 6.34$, $p < .001$;

t (423) = 5.66, *p* < .001, respectively. Second, because the two samples used different

rating scales, some variance in scores may have been lost when converting the 7-point

scores to the 5-point scale. Furthermore, the terminology in the 5-point scale (1 = *never*,

5 = *always*) was different than the 7-point scale (1 = *strongly disagree*, 7 = *strongly*

agree), which may have influenced the results. With regards to generalizing the results,

the religious school was predominantly Christian, while the secular students reported

many different religions (e.g., Catholicism, Islam). Due to the doctrinal differences in

various religions, these results may not extend to other religions. A final limitation deals

with the age group (18-24) of the participants. While the results are meaningful and

intriguing, it remains to be seen if these results can be generalized to other age groups

(e.g., teenagers, older adults).

Directions for Future Research

The first area of research involves further assessing the CPUI's reliability and

validity. The eventual goal of the CPUI is to become a proven clinical instrument for

accurately assessing levels of Internet pornography addiction. Therefore, because the

CPUI demonstrated acceptable internal reliability in both a religious and secular sample,

it should be administered in a clinical sample of participants who report problematic

pornography use. To ensure that the CPUI does indeed measure addictive behaviors,

future studies should test its validity through measuring its correlation with other proven

sexual compulsivity measures like the ISST (Delmonico & Miller, 2003) or the

Kalichman Sexual Compulsivity Scale (Kalichman & Rompa, 2001).

Future research should also extend the findings of the current study. While

differences in pornography use between the religious and secular sample were clearly

demonstrated, the effects of such differences remains unknown. The study conducted in the secular sample was performed as part of a larger study assessing personality traits, religious beliefs, and behavior patterns. One option is to administer the same instruments to the religious sample in order to assess the psychological effects of pornography usage for religious persons, as well as assess potential differences in pornography's effect between the two populations.

Indeed, the psychological effects of pornography usage for religious persons are largely unknown. Harmful effects of pornography might be more pronounced for those who do not view pornography use as acceptable. For example, Yoder, Virden, and Amir (2005) noted a significant relationship between Internet pornography usage and loneliness. Religious persons who use pornography could potentially experience social isolation and anxiety due to their behavior that is seen as unacceptable by their peers.

Another noticeable gap in the pornography literature is the effects of pornography use on a person's relationship with God. Baltazar and colleagues (2010) noted that the most cited problem of pornography use was a worsened relationship with God, a finding that held true for both religious males and females. Future research should address how pornography use influences a person's perceptions of God (e.g., kind and loving vs. cruel and unforgiving). Perhaps those religious persons who use pornography are disappointed in their relationship with God and seek to find that fulfillment elsewhere.

The current study adds depth and meaningfulness to the growing body of pornography literature. The CPUI demonstrated acceptable internal reliability levels even in a secular population; it possesses considerable promise for accurately assessing levels of pornography addiction. Furthermore, the roles of religiosity and environment in

influencing one's attitudes regarding pornography use were addressed. While these two

areas require further exploration, the findings of the current study suggest a bright future

for the capabilities of the CPUI and the acquisition of knowledge regarding the effects of

pornography use among religious persons.

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Appendix A

Religious Belief Salience (α = .95)

 I allow my religious/spiritual beliefs to influence other areas of my life.

My religious/spiritual beliefs provide meaning and purpose to life.

My religious/spiritual beliefs lie behind my whole approach to life.

Being a religious/spiritual person is important to me.

Appendix B

Religious Participation (α = .93)

Tried to speak to God (or connect with God) through prayer or meditation.

Read religious/spiritual books (including sacred texts from your faith tradition).

Watched/listened to programs on religious/spiritual topics.

Attended religious/spiritual services or meetings

Thought about religious/spiritual issues

Talked to others about religious/spiritual issues

Wrote or journaled about religious topics (Please don't count writing that was required

for an academic class)

Actively engaged in worship or praise toward God

Tried to hear from God (i.e., to listen to what God might be saying to you)

Believed that you heard something from God

Had a powerful, meaningful religious/spiritual experience or insight