EXCESSIVE APPETITE FOR PORNOGRAPHY: DEVELOPMENT AND EVALUATION OF
THE PORNOGRAPHY CRAVING QUESTIONNAIRE (PCQ-12)

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ABSTRACT

Despite the prevalence of pornography use, and recent conceptualization of excessive, problematic use as an addiction, I could find no published scale to measure craving for pornography. Therefore, I conducted three studies employing young male pornography users to develop and evaluate such a questionnaire. In Study 1, I had participants rate their agreement with 20 potential craving items after reading a control script or a script designed to induce craving to watch pornography. I dropped eight items because of low endorsement and found that the craving script did not yield higher mean scores across the remaining 12 items. In Study 2, I revised both the questionnaire and cue exposure stimuli, and then evaluated several psychometric properties of the modified questionnaire. Item loadings from a principal components analysis, a high internal consistency reliability coefficient, and a moderate mean inter-item correlation supported interpreting the 12 revised items as a single scale. Correlations of craving scores with selected sexual history and personality variables provided support for criterion validity and discriminant validity, respectively. The enhanced imagery script did not impact reported craving; however, more frequent users of pornography reported higher craving than less frequent users regardless of script condition. In Study 3, craving scores demonstrated good one-week test-retest reliability and predicted the number of times participants used pornography during the following week. The questionnaire could be applied in clinical and research settings to plan and evaluate treatment and to assess the prevalence of craving among recreational and problematic users of pornography.
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“Lust indulged became habit, and habit unresisted became necessity.”
- St. Augustine of Hippo

CHAPTER I: INTRODUCTION

Each day, millions of Americans view internet pornography (Arnett, 2006; Carroll et al., 2008; Morgan, 2011). Although definitions vary by author, pornography has been generally defined as material intended to cause sexual arousal or sexual excitement (Hald & Malamuth, 2008). Such materials generally show explicit images of sexual acts such as vaginal and anal intercourse, oral sex, masturbation, group sex, etc. Over the last decade, Americans’ appetite for internet pornography has apparently increased, which may be attributed to at least three factors – accessibility, affordability, and anonymity (Cooper, Delmonico, & Burg, 2000).

According to a recent survey by Miniwatts Marketing Group (2010), an international market research organization, over three-fourths of Americans have Internet access in their home, and Ropelato (2007) estimated that, by the year 2006, there were over four million pornographic websites in existence, generating $100 billion annually. Within the last decade, the explosion of free internet pornographic websites (referred to as “adult-only tube sites,” e.g., PornoTube, RedTube, You-Porn, Xhamster) has provided viewers with a plethora of options for watching sexually explicit content (Wallace, 2011). According to Ropelato (2007), over 40 million American adults regularly visit internet pornographic websites, with men making up roughly three-fourths of all visitors.

Evidence suggests that for some young adults, access to pornography may serve as a healthy sexual outlet for individuals who do not have access to receptive partners (e.g., Baltazar, Helm, McBride, Hopkins, & Stevens, 2010; Hald & Malamuth, 2008; Paul & Shim, 2008; Weinberg, Williams, Kleiner, & Irizarry, 2010). However, the unprecedented access to
Excessive Appetite for Pornography

Pornography has also brought with it negative consequences for individuals who have difficulty moderating their use. Within the last decade, there has been a sizable increase in the number of people seeking professional treatment for pornography-related issues (Mitchell & Wells, 2007). For these individuals, research suggests that excessive pornography use has been associated with problems in romantic relationships and diminished psychological well-being (Cooper, Galbreath, & Becker, 2004; Philaretou, Mahfou, & Allen, 2005; Stack, Wasserman, & Kern, 2004).

Although the number of individuals seeking psychological treatment for pornography-related issues continues to increase, scholars and practitioners disagree about how to best conceptualize problematic sexual behaviors, including excessive pornography use. For that subset of pornography users reporting consequences associated with excessive use, researchers and practitioners have suggested that excessive pornography use may be viewed as an addiction (Barak & King, 2000; Griffiths, 2001; Meerkak, Van der Eijnden, & Garretsen, 2006), obsessive-compulsive disorder (Cooper, Delmonico, Griffin-Shelley, & Mathy, 2004; Sussman, 2007; Young, 2005), an impulse control disorder (Shapira et al., 2003; Young, 2005), or a paraphilic disorder (Kafka, 2001; Kalman, 2008).

Some scholars have also proposed adopting the term hypersexuality when describing problematic sexual behaviors that include excessive pornography use (Kafka, 2010; Kaplan & Krueger, 2010; Kingston & Firestone, 2010; Reid, 2007; Reid et al., 2010, 2011). Kafka (2010) defined hypersexuality as a “sexual disorder associated with increased or disinhibited expressions of sexual arousal and desire in association with a dimension of impulsivity” (p. 393). Researchers have described excessive pornography as a dependence upon sexually explicit material that is characterized by obsessive viewing, reading, and thinking about sexual material that, as a result, affects one’s level of functioning (Garcia & Thibaut, 2010; Goodman, 1990).
Before describing the clinical implications of excessive pornography use, I will first review the prevalence of, motivations for, and consequences of excessive pornography use.

The Proliferation of Internet Pornography in the United States of America

The proliferation of internet pornography in the United States is an outcome, in part, of computer technology that facilitates easy access to sexually explicit materials. Americans wishing to view pornography are no longer required to shop at local adult bookstores or send away for magazines or videos via the mail. Although both men and women view pornography, research suggests men are exposed to pornography at an earlier age, become more physiologically aroused when watching pornography, and are more likely to masturbate to pornography regularly (Albright, 2008; Allen et al., 2007; Gordon & Kraus, 2010; Hald & Malamuth, 2008; Hunt & Kraus, 2009; Morgan, 2011; Paul, 2009; Reid et al., 2007; Weinberg et al., 2010).

Men and women also differ in their sexual preferences for genres and sub-genres of pornography. That is, men, more so than women, prefer material that shows explicit sexual acts that include vaginal or anal penetration, oral sex, and group sex. In addition, men, more so than women, prefer to watch pornography that is “male-centric” because it typically portrays male actors as having power over submissive female partners (Arakawa, Flanders, & Hatfield, 2012; Paul, 2009; Paul & Shim, 2008). In contrast, women, more so than men, prefer material that depicts nudity but does not include explicit images or video of genitals or sexual penetration (Janssen, Carpenter, & Graham, 2003; Weinberg et al., 2010). Pornography appears to appeal to many Americans across all age groups. According to Ropelato (2007), visitors to pornographic sites are equally distributed by age (e.g., 14% of viewers are 18-24 years old; 20% of viewers are
25-34 years of age; 26% of viewers are 35-44 years of age, 21% of viewers are 45-54 years of age; 20% of viewers are 55+ years of age).

Research also suggests that men, more so than women, seek out pornography at earlier ages. For example, Morgan (2011) found that first exposure to pornography occurs earlier for males (around 12 years of age) than females (around 15 years of age). Hunt and Kraus (2009) surveyed college undergraduate males and females and found that early exposure and involvement with pornography during middle childhood (6 to 12 years of age) significantly predicted participants’ likelihood of continuing to use pornography in young adulthood (18-30 years of age).

Among young people, pornography use is especially common among college-aged men. Survey results from college student samples suggest that between 30 to 50% of male students watch pornography weekly, compared to only 5-10% of female students who watch it as frequently (Carroll et al., 2008; Gordon & Kraus, 2010; O’Reilly, Knox, & Zusman, 2007; Twohig, Crosby, & Cox, 2009; Weinberg et al., 2010). Carroll and colleagues (2008) surveyed 813 college students from six different universities to assess their pornography use within the past 12 months. Within the last week, more men (48%) than women (3%) reported viewing pornography, and 21% of men and 1% of women reported using pornography at least 3 to 5 times per week. Morgan (2011) found similar rates, with 58% of college-aged men and 7% of college-aged women reporting that they use pornography on a weekly basis. Moreover, results indicated that men, more so than women, use the Internet as a primary means of watching pornography, and consume it more regularly, often for masturbation purposes (Morgan, 2011; Shaughnessy et al., 2011).
Studies of socially conservative Christian men have found that pornography use may also be relatively common in this sub-population (Abell, Steenbergh, & Boivin, 2006; Baltazar et al., 2010; Grubbs, Sessoms, Wheeler, & Volk, 2010; Kwee, Dominguez, & Ferrell, 2007; Nelson, Padilla-Walker, & Carroll, 2010). For example, among Promise Keepers, an international evangelical Christian organization for men, approximately one-half of members reported having viewed pornography within the past week (Ropelato, 2007). Two recent surveys found that approximately 20% of Christian college-aged men reported watching pornography in the last month (Baltazar et al., 2010; Nelson et al., 2010).

**Motivations for Watching Internet Pornography**

According to Arnett (2000), emerging adulthood (approximately 18-27 years of age) is characterized by self-exploration and experimentation of sexual values and beliefs. Young adults, especially men, may consume pornography as part of sexual experimentation during this period. Research examining young adults’ motivations for using pornography suggests that, although reasons may vary from person to person, viewers most often watch sexually explicit materials to become aroused and engage in solitary masturbation (Baltazar et al., 2010; Cooper et al., 2004; Morgan, 2011; Ross, Mansson, & Daneback, 2012; Shaughnessy et al., 2011). For example, a recent study by Shaughnessy and colleagues (2011) found that 74% of the college-aged men surveyed about their experiences with online sexual reported masturbating to internet pornography, while another 11% reported masturbating while viewing a stranger via a webcam.

In addition to masturbation, college students report other reasons for watching pornography. For example, Paul and Shim (2008) classified undergraduates’ reported motivations to use internet pornography into four categories: (a) relationship oriented (e.g., “As something to do with your girlfriend or boyfriend”), (b) mood changes (e.g., “To relieve stress”),
(c) habitual use (e.g., “Because you felt like you had to watch it”), and (d) fantasy aid (e.g., “To fantasize that you are the person having sex with the actors in the pornography movie”).

Another recent study (Ross et al., 2012) surveyed 1,913 Swedish young adults and found that the most commonly reported five reasons to view internet pornography were: (a) sexual excitement (30%), (b) sexual satisfaction (29%), (c) convenience (20%), (d) curiosity (19%), and (e) anonymity (16%).

In addition to the psychological and social motivations to use pornography, there are neurochemical processes associated with the human sexual response cycle that may reinforce pornography use. Specifically, dopamine neurotransmission has been found to play an important role in sexual behaviors (Goodman, 2008), suggesting its involvement in mediating reward and reinforcement (Pfaus, 2009), and involvement in facilitating both the appetitive and consummatory phase of sexual functioning (Hull, Muschamp, & Sato, 2004). Before orgasm, oxytocin is released in the blood and smoothes muscle contractions during the sexual response cycle (Bancroft, 2005; Carmichael, Valerie, Warburton, Dixen, & Davidson, 1994). After orgasm, the brain releases prolactin, which is associated with sexual satiation and relaxation (Brody & Kruger, 2006; Kruger, Haake, Hartman, Schedlowski, & Exton, 2002). As these neurochemical changes are paired with pornography use, sexual arousal and orgasm, use of sexually explicit material may elicit rewarding changes in neurochemistry (Bancroft & Vukadinovic, 2004).

A study by Kruger and colleagues (2006) provided support for the importance of these neurochemicals in the sexual response cycle. The investigators assessed experimentally whether there were detectable changes in peptidergic and monoaminergic neurotransmitters (dopamine, serotonin, norepinephrine, and their metabolites) in the lumbar cerebrospinal fluid in 10 healthy
men during the sexual response cycle. Blood and cerebrospinal fluid were drawn continuously during the control phase of the study, as well as during the erotic film and masturbation-induced orgasm phases. Results showed there were increases in norepinephrine secretion in plasma and lumbar cerebrospinal fluid, which suggested norepinephrine was released during both sexual arousal and orgasm during masturbation.

**Associations between Pornography Use and Psychological Well-Being**

To date, several studies have examined the self-reported positive benefits of pornography use on sexual health and psychological well-being. For example, evidence suggests that, for some viewers, pornography use may relieve stress, frustration, and boredom. Viewing pornography may also be an avenue to increase sexual knowledge for both heterosexual and LGBT individuals (Baltazar et al., 2010; Cooper, Galbreath, & Becker, 2004; Hald & Malamuth, 2008; Mustanski, Lyons, & Garcia, 2011; Paul & Shim, 2008; Weinberg et al., 2010). For example, in a survey of 384 men who used the Internet to engage in various online sexual behaviors, men who reported using the Internet as an educational aid reported increased sexual activity with their partner, increased experimentation with new sexual practices, and a lower frequency of solitary masturbation (Cooper et al., 2004).

Weinberg and colleagues (2010) surveyed 245 college students to examine whether pornography viewing was associated with the appeal and practice of a variety of sexual practices (e.g., sexual intercourse, masturbation, oral sex, anal sex). As hypothesized by the researchers, there were positive associations between longer durations of time spent viewing pornography and willingness to engage in a variety of different sexual behaviors (Weinberg et al., 2010). Additionally, Hald and Malamuth (2008) investigated the self-perceived effects of pornography use in a large sample of young adult Danish men and women aged 18 to 30. Specifically, they
asked participants how pornography had affected their sexual knowledge, attitudes toward sex, attitudes toward and perception of the opposite sex, sex life, and general quality of life. Results suggested that respondents attributed few negative effects and moderate positive effects to their pornography use, with men reporting slightly more negative effects than did women (Hald & Malamuth, 2008).

**Associations between Psychological Distress and Excessive Pornography Use**

Despite evidence suggesting that pornography use may be a healthy sexual outlet for some individuals, a plethora of research studies have focused on the correlates of excessive use and its associations with interpersonal, financial, legal, emotional and sexual distress (Boies, Knudson, & Young, 2005; Philaretou et al., 2005; Ross et al., 2012; Stack et al., 2004; Twohig et al., 2009). Correlational research suggests that reports of more frequent pornography use have been positively associated with less progressive attitudes toward gender roles (Brown & L’Engle, 2009), right wing authoritarian tendencies (Levert, 2007), feelings of isolation and loneliness (Yoder, Virden, & Amin, 2005; Schneider, 2000), increased levels in psychological symptoms (Brand et al., 2011; Nelson et al., 2010; Philaretou et al., 2005), longing for increased personal intimacy with other people (Popovic, 2011), and lower levels of relationship and sexual satisfaction (Morgan, 2011). Moreover, among youth and young adults, survey results suggest that more frequent use of pornography has been positively associated with engaging in risky sexual behaviors (e.g., low frequency of using condoms), oral sex (given and received), casual sex, group sex, and anal sex (Haggstgrom-Nordin, Hanson, & Tyden, 2005).

Despite the body of correlational studies investigating the relationship between excessive pornography use and various forms of psychological distress, correlational research does not answer questions related to causation or explain the directionality of such associations. For
example, it is unclear whether excessive pornography use causes psychological distress, or if individuals experiencing psychological distress are more likely to have difficulty moderating their pornography because they are using it to cope with negative emotional states (e.g., depressed mood, generalized anxiety). Even though there are limitations with using correlational research paradigms, I will still review several studies to highlight key findings.

The negative correlates of internet pornography differ by gender. In a sample of 15,246 American respondents, Albright (2008) found that 75% of men and 41% of women had viewed and/or downloaded pornography in their lifetime. Women, more so than men, were more likely to engage in sex chatting. Men, more so than women, were more likely to spend time viewing internet pornography. Female viewers reported more negative consequences related to their pornography use, such as reporting lower body image, feeling their partner was critical of their body, increasing pressure to perform sexual acts they had seen in pornography, and engaging in sex less frequently with their partner. Male viewers reported being more critical of their partner’s body and less interested in sex, in part because they engaged in solitary acts of masturbation while watching internet pornography.

Ross et al. (2012) surveyed 1,913 Swedish young adults to assess the prevalence of problematic internet sexual use (e.g., loss of control, dysphoria, feeling “addicted” and feeling need to seek treatment). Results indicated that 13% of men reported some problems, and the prevalence of serious problems was only 5%. The prevalence for women was much lower, with only 5% of women having reported some problems with online sexual behavior, and only 2% having reported serious problems associated with online sexual behavior. Results suggested that viewing and sharing pornography was most closely associated with reported problems, and
having specific pornographic content interests were also associated with an increase in reported problems.

A number of both quantitative and qualitative studies have suggested that problematic internet use can be harmful to romantic relationships (Ayres & Haddock, 2009; Manning, 2006), in part because it may impair healthy attachment and trust in adult pair-bond relationships (Zitzman & Butler, 2009). For example, pornography use has been associated with decreased emotional bonding (Ybarra & Mitchell, 2005) and social isolation (Schneider, 2000), and it is seen by some to be an act of betrayal (Whitty, 2003). When Bergner and Bridges (2002) analyzed 100 letters written by women who discovered their husband’s hidden pornography use, they found that women viewed their husband’s behavior as deceptive and degrading, which made them feel sexually undesirable.

Although the majority of published studies have relied on correlational research designs, recently, researchers have begun to use experiments when testing their hypotheses. For example, Brand et al. (2011) examined the relationship between subjective sexual arousal when viewing pornography and self-reported problems in daily life due to excessiveness of use of sex seeking behaviors online (e.g., viewing internet pornography, searching for sex partners, etc). Using an experimental design, the researchers exposed 98 male participants to 40 standardized pictures of non-fetishistic pornographic images (i.e., pictures that contained images depicting solo masturbation, male and female actors engaging in sexual intercourse, etc.). Specifically, men were asked to rate their arousal for each of the 40 photos. Results indicated that men’s subjective sexual arousal rating, global severity index score, and the number of self-reported internet sex applications were positively associated to the number of self-reported problems in daily life due to use of cybersex sites as measured by the Internet Addiction Test.
**Associations between Young Adults’ Use of Pornography and Sexual Preferences**

Within the last decade, researchers have also begun to investigate the associations between young adults’ use of pornography and their sexual preferences, behaviors, and levels of satisfaction (e.g., Lam & Chan, 2007; Morgan, 2011; Shaughnessy et al., 2011). For example, Morgan (2011) found that both the frequency of pornography use and number of methods college students used to view pornography were associated with having a larger number of overall intercourse partners and younger age of first intercourse. Moreover, higher frequencies of pornography use were associated with less sexual and relationship satisfaction, and the frequency of pornography use and number of types of pornography viewed were associated with stronger preferences for engaging in behaviors often seen in pornography (e.g., group sex, role playing). Similarly, a study by Stein, Silvera, Hagerty, and Marmor (2012) found that viewing pornography depicting unprotected anal intercourse was associated with engaging in the same practice in a sample of 821 non-monogamous men who have sex with men.

Results from correlational studies have also suggested that higher levels of pornography use were associated with premarital sexual permissiveness (i.e., having sex before marriage), stereotypical beliefs about women’s sexual roles, proclivities toward sexual harassment, and attitudes supporting violence against women (Foubert, Brosi, & Bannon, 2011; Hald, Malamuth, & Yuen, 2010; Lam & Chan, 2007; Peter & Valkenburg, 2011). As one example, Foubert et al. (2011) examined 500 male fraternity members at a large public Midwest university and found men who self-reported viewing pornography were significantly less likely to intervene as a bystander, report an increased behavioral intent to rape, and were more likely to endorse rape myths (Foubert et al., 2011).

**Psychological Functioning of Clients Seeking Treatment for Excessive Pornography Use**
Over the last 20 years, clinicians have seen a sizable increase in the number of individuals seeking treatment for pornography-related issues (Goldberg, Peterson, Rosen, & Sara, 2008; Manning, 2006; Mitchell & Wells, 2007; Philaretou et al., 2005). Options for diagnosing clients presenting with nonparaphilic sexual behavior are rather limited in the DSM-IV-TR (American Psychiatric Association, 2000). Clinicians often use the diagnoses “Sexual Disorders, Not Otherwise Specified” or “Impulse Control Disorder, Not Otherwise Specified” when classifying clients presenting with compulsive masturbation, cybersex, pornography dependency, and sexual promiscuity/affairs (Kafka, 2010; Kaplan & Krueger, 2010).

Additionally, clients seeking treatment for pornography-related issues sometimes present with co-morbid psychiatric conditions such as substance use disorders, eating disorders, and disordered gambling (Briken et al., 2007; Carnes, Murray, & Charpentier, 2005; Kaplan & Krueger, 2010), which can make treatment planning and intervening more complicated.

Empirical studies have shown the usefulness of motivational interviewing (Del Giudice & Kutinsky, 2007), experiential/cognitive-behavioral therapy (Klontz, Garos, & Klontz, 2005), group therapy (Hook, Hook, & Hines, 2008), and couples therapy (Turner, 2009) when treating hypersexual disordered clients. Twelve-step programs are becoming a popular intervention for hypersexuality (e.g., “porn addiction”), but there is little empirical evidence of their effectiveness (Vesga-Lopez et al., 2007). Studies evaluating cognitive-behavioral therapy (Orzack et al., 2006; Young, 2007) and acceptance and commitment therapy (Twohig & Crosby, 2010) suggested that this type of approach reduced pornography use and improved clients’ psychological well-being posttreatment. In addition, results from a recent case study (Bostwick & Bucci, 2008) suggested that taking naltrexone might reduce hypersexual behaviors (e.g., excessive pornography use and casual sex with strangers) for clients struggling with problematic
sexual behaviors; however, the lack of placebo control makes it unclear whether this was an expectancy effect versus a pharmacological effect.

Although clinicians have seen an increase in the number of clients seeking services for a variety of problematic sexual behaviors (Mitchell & Wells, 2007), evidence suggests that there is a knowledge gap between researchers and practitioners when implementing current and empirically valid treatment practices. For example, in their survey of 64 clinical members of the American Association for Marriage and Family Therapy, Goldberg and et al. (2008) found that over half of the therapists surveyed reported feeling unprepared to diagnose and treat clients presenting with pornography-related issues. An additional follow-up study by Ayres and Haddock (2009) surveyed a subset of members of the American Association for Marriage and Family Therapy and found that a large majority (76%) of therapists reported seeing individual clients or couples who were coping with pornography-related issues. When surveyed, these therapists estimated that 13% of their caseload reported some issues associated with pornography. Seventy-one percent of these therapists reported not having attended workshops on the topic of pornography in the past five years, and 75% rarely or never read literature on the issues related to treating problematic pornography use (Ayres & Haddock, 2009).

**Conceptualizing Excessive Pornography Use as a Hypersexual Disorder**

Currently, there is some debate among scholars regarding the conceptualization and categorization of problematic sexual behaviors such as excessive pornography use. I believe that excessive pornography use fits within the parameters of hypersexuality (also referred to as sexual addiction, sexual impulsivity, sexual compulsivity, and compulsive sexual behavior). Hypersexuality is associated with significant personal distress and serious adverse consequences, such as increased risk of sexually transmitted infections, unwanted pregnancies, severe pair-bond
impairment, financial, legal and occupational distress, and severe shame- and guilt-proneness (Gilliland, South, Carpenter, & Hardy, 2011; Kafka, 2007, 2010; Kaplan & Krueger, 2010; Kingston & Firestone, 2008; Langstrom & Hanson, 2006; Levine, 2010). Specifically, a person meets the criteria for hypersexual disorder if he/she exhibits the following symptoms for a minimum of six months: (a) difficulty controlling sexual thoughts, urges, and behaviors; (b) repeatedly using sexual fantasies, urges, or behaviors as a way of coping with stress; (c) engaging continuously in a pattern of hypersexual behavior despite the risk of physical harm or emotional harm to self or others; and (d) impairment in willpower across interpersonal, social, or occupational domains (Kafka, 2010; Reid & Carpenter, 2009; Reid et al., 2010).

In addition to using pornography excessively, other behaviors generally associated with hypersexuality include compulsive masturbation, online sexual activity, telephone sex, visiting strip clubs, repeated sex with prostitutes and strangers (i.e., one-night stands), and repeated involvement with extramarital affairs (Kaplan & Krueger, 2010). Although hypersexual men have reported various motives for using internet pornography excessively, Reid et al. (2011) suggested that these reasons can be categorized into four core domains such as: (a) to cope with stress or other negative emotions/feelings, (b) to satisfy sexual curiosity, (c) to facilitate sexual pleasure, and (d) to gratify desires for excitement, fantasy, novelty, and variety.

Although the prevalence of hypersexuality in the general population has not been formally assessed, researchers estimate the rates to be around 3 to 6% (Black, 2000; Carnes, 1989, 2001; Coleman, 1992; Goodman, 1993; Langstrom & Hanson, 2006; Kuzma & Black, 2008). For example, Grant, Levine, Kim, and Potenza (2005) studied impulsive control disorders in 204 adult psychiatric inpatients, and found that 4.4% currently met criteria for compulsive sexual behavior and 4.9% had met the criteria at some point during their life.
The occurrence of hypersexual-related behaviors differs between men and women (Coleman et al., 2003; Coleman, 2003; Kaplan & Krueger, 2010). Specifically, hypersexual men are more likely to engage in compulsive masturbation, use excessive amounts of pornography, meet the criteria for paraphilias, purchase sex, or have anonymous sex with strangers (Bancroft & Vukadinovic, 2004; Reid, Li, Gilliland, Stein, & Fong, 2011). Hypersexual women, in contrast, are more likely to engage in masochism, use sex for financial gain, and engage in extramarital affairs (Black, 2000; Langstrom & Hanson, 2006). Hypersexuality is more prevalent among samples of sex offenders (Blanchard, 1990; Marshall & Marshall, 2006), individuals with HIV (Kalichman & Rompa, 2001; Rendina, Golub, Grov, & Parson, 2012; Semple, Zians, Grant, & Patterson, 2006), and men, particularly men who have sex with men (Black, 2000; Missildine, Feldstein, Punzalan, & Parsons, 2005; Parsons et al., 2007; Schnarrs et al., 2010). Although rates of hypersexuality are lower among college-aged men and women, two studies suggest that hypersexual-related behaviors also occur in this age group (Dodge, Reece, Cole, & Sandfort, 2004; Seegers, 2003).

Applying the Concept of Addiction to Excessive Pornography Use

According to Orford (2001), addiction should be defined as “An attachment to an appetitive activity, so strong that a person finds it difficult to moderate the activity despite the fact that it is causing harm” (p. 18). Orford argued that the term addiction should apply not only to drug abuse, but also to other activities such as eating, gambling, and sex. Specifically, he proposed that, for some, their “initial delight” develops into a degree of “necessity” which results in the erosion of personal control. Consistent with this view, research suggests some individuals report feeling trapped by their pornography use (Carnes, 2001), but continue despite
experiencing adverse legal, economic, and relationship consequences (Cooper et al., 2004; Twohig et al., 2009).

Proposing that hypersexuality should be considered akin to substance abuse when diagnosing clients is not a new idea. For example, Goodman (1997) was one of the first to propose replacing the word “substance” with “sexual behavior” in DSM-IV (APA, 2000) to define a “sexual addiction” disorder. Specifically, he argued that if sexual addiction was the same type of psychological disorder as substance dependence, the DSM-IV criteria for alcohol and drugs would apply to diagnose other addictive disorders such as pornography addiction. More recently, in addition to the typical criteria, such as tolerance, withdrawal, compulsion, and consequences, the DSM-5 taskforce (APA, 2010) proposed to modify the criteria for addictive disorder. The DSM-5 taskforce included ‘craving’ or ‘urge’ to use as one of the criterion used when diagnosing “Substance-Use Disorders.” It remains unclear whether this change in the definition of Substance Use Disorder will also apply to sexual disorders. It is my opinion that craving may be a key feature of excessive pornography use, and therefore important for clinicians to assess when screening and treating clients for pornography-related issues. As the next section will show, a variety of methods have been used to assess drug craving (Rosenberg, 2009); however, at present, no one has developed a self-report questionnaire designed to assess the experience of current craving for pornography.

Assessing for the Subjective Experience of Craving for Drugs and Alcohol

A recent review (Tiffany & Wray, 2012) noted that there is considerable debate about how to define and assess drug craving in clinical settings, in part because of different theoretical models of addiction and proposed dimensions of craving. One simple definition of craving is “the conscious experience of a desire to take a drug” (Drummond, 2001, p 35). Others have
described craving as an intense desire or compulsion to obtain and use a drug (Tiffany & Wray, 2012; Volkow, Fowler, & Wang, 2003). The definition of craving is also complicated by disagreement whether it should be conceptualized and measured as a stable inclination to seek drugs (i.e., a trait-like feature) or as a relatively transient experience or urge that waxes and wanes with the passage of time (Ferguson & Shiffman, 2009; Tiffany & Wray, 2012).

This debate about the definition of drug craving has not stopped the development of direct self-report questionnaires designed to assess this experience (see Rosenberg, 2009; Tiffany & Wray, 2012, for reviews). To assess the proposed transient nature of drug craving, researchers have developed numerous self-report questionnaires to assess a presumably current experience of drug craving (Rosenberg, 2009). Specifically, researchers and clinicians have employed single-item ratings such as the Visual Analogue Scale (VAS) and multi-item/multi-dimensional questionnaires to assess drug craving. The VAS provides a simple and relatively easy technique for measuring subjective experience of drug craving (McCormack, Horne, & Sheather, 1988). The VAS typically consists of a 10-centimeter line anchored at both ends with words descriptive of the minimal and maximal extremes of the dimension being measured (e.g., “none” or “no craving” and “intense” or “extreme craving”). Participants are asked to mark a line that best represents their experience of drug craving. Single item measures such as the VAS have criterion-related validity and test-retest reliability when used in both clinical and research settings (McCormack et al., 1988). There are, however, some disadvantages with using single item ratings when assessing the subjective experience of craving. Specifically, single item ratings fail to reflect the presumably multi-dimensional nature of craving, in part because drug craving is comprised of various emotional, cognitive, and physiological experiences. Asking
individuals to provide a global rating of the intensity of their urges to use drugs or engage in a specific behavior may not adequately reflect the diverse experience of craving.

As an alternative to single-item rating scales, researchers have developed numerous multi-item/multi-dimensional self-report questionnaires to assess drug craving. In the last 20 years, there has been a sizable increase in the number of multi-item/multi-dimensional self-report questionnaires designed to assess for the subjective experience of drug craving (e.g., alcohol, amphetamines, benzodiazepine, cigarettes, cocaine, heroin, etc.). A recent review (Rosenberg, 2009) noted that these self-report questionnaires varied in length of items (e.g., 8-45), the manner in which craving was assessed in response format (e.g., 7-point anchored “strongly disagree” to “strongly agree”; 9-point anchored “not at all” to “very strongly”), and the number of dimensions questionnaires presumably assessed (e.g., anticipated positive outcomes, desire, intention, lack of control, relief from negative states, etc.). Research evaluating multi-item/multi-dimensional self-report questionnaires of both inclination and current drug craving often supports the internal consistency reliability, test-retest reliability, and criterion and convergent validity of these questionnaires, but there have been considerably fewer demonstrations of construct validity (Rosenberg, 2009). On the assumption that drug abusers experience acute episodes of intense craving when they are exposed to drug stimuli, one method that has been used to assess construct validity is to evaluate the influence of cue exposure on questionnaire scores (e.g., Ferguson & Shiffman, 2009; Singleton, Anderson, & Heishman, 2003; Taylor, Harris, Singleton, Moolchan, & Heishman, 2000). Using imagery scripts and exposure to drug paraphernalia, researchers have demonstrated that cue exposure often increases self-reported drug craving (e.g., Taylor et al., 2000; Taylor & Wray, 2012; Tong, Bovbjerg, Erblich, 2007).
There are several key advantages for clinical practice and research with the development of self-report questionnaires designed to assess the subjective experience of drug craving. Specifically, clinicians and counselors could have clients complete these multi-item/multi-dimensional questionnaires prior to an intake interview, and during or in between counseling sessions to monitor changes in their reports of craving for their preferred drug. By having clients engage in self-monitoring practices, they may gain valuable insight into the thoughts, feelings, and behaviors presumably associated with their experience of drug craving. Assessing for the presence of craving may also have significant implications for diagnosis, especially when trying to determine a client’s severity of dependence to a substance, or when developing and implementing clinical treatment interventions for substance abusing clients (Tiffany & Wray, 2012).

Despite the clinical and psychometric advantages of using single-item questions and multi-item/multi-dimensional questionnaires, there are several key limitations associated with using self-report data when assessing for current drug craving (Rosenberg, 2009). For example, single-item questions and self-report questionnaires are both subject to intentional and unintentional acquiescence and social desirability biases (i.e., presenting one’s self in a favorable position), which could influence a person to underreport one’s experience of craving (Krosnick, 1999). In regards to multi-item/multi-dimensional questionnaires, participants who put forth little effort when reading items and selecting their responses may provide inaccurate information, which will reduce the reliability and validity of the measure.

Balancing these limitations against their advantages, I believe that self-report questionnaires of craving may hold promise in assisting both researchers and clinicians as they study and treat addictive behaviors. Specifically, I believe that the subjective experience of
craving should be expanded to include sexual behaviors such as excessive pornography use. Currently, to my knowledge, researchers and clinicians have not developed a multi-item/multi-dimensional scale to assess the experience of craving for pornography, even though evidence suggests that a sizable number of clients are seeking treatment for problematic use. Moreover, it remains unclear if craving for pornography is a element of addiction.

**Craving as an Element of Passionate Attachment**

Assessments of other psychological experiences sometimes also measure subjective craving as one element of that experience. For example, another approach to conceptualizing a stable inclination to seek drugs is as a passionate attachment. Vallerand and colleagues (2008) argue that that some activities (e.g., gambling, video gaming, competitive sports, etc.) may be viewed as an “obsessive passion,” in which a person may experience compelling urges to engage in specific activities. Specifically, Vallerand and colleagues (2003) proposed that some people form a strong inclination toward one or more activities that they enjoy and value, and which may lead to attachments that become part of their sense of self. Their model further distinguishes between healthy or harmonious passions (i.e., a motivational tendency that leads a person to choose freely to engage in an activity) and unhealthy or obsessive passions (i.e., an internal pressure that compels a person to perform an activity because they have an urge to do the activity). To assess their dualistic approach to conceptualizing passionate attachments, they developed the 14-item Passion Scale (Vallerand et al., 2003). Research studies suggests that people can experience both harmonious and obsessive passionate attachments for various activities such as gambling, internet video gaming, exercise, and competitive sports (Rousseau et al., 2002; Wang & Chu, 2007; Vallerand et al., 2003, 2008). At present, no one has investigated
whether some individuals form harmonious and/or obsessive passionate attachments for pornography.

The Present Study

Each day, millions of Americans view internet pornography. For some viewers, pornography use may relieve stress, aid in sexual fantasy, and provide a safe outlet that avoids exposure to sexually transmitted infections. However, evidence suggests that some viewers have difficulty moderating their use of pornography, which has been associated with reports of psychological distress. Over the last decade, clinicians have seen an increase in the number of clients seeking treatment for pornography-related problems (Ayres & Haddock, 2009; Goldberg et al., 2008; Mitchell & Wells, 2007). Because there is currently an influx of clients seeking treatment for pornography-related problems, some researchers proposed that excessive pornography use might be best understood as an addictive disorder. To my knowledge, researchers have not published any self-report questionnaires designed to assess for the experience of current craving for pornography. The specific advantages of developing such a measure would include providing researchers and clinicians with a questionnaire that could be easily administered to assess for changes in craving before, during and after treatment, aiding in the diagnosis and development of appropriate treatment interventions, and lastly, providing treatment-seeking clients the opportunity to self-monitor their own thoughts, feelings, and feelings generally associated with craving.

I designed a series of three studies to develop and evaluate a multi-item questionnaire reflecting several possible dimensions of craving for pornography, including desire, intention, physiological arousal, and anticipated difficulty restraining use. In Study 1, I developed a pool of 20 potential items by modifying statements appearing on published questionnaires assessing
craving for alcohol and drugs. Using a web-based recruitment and data collection procedure, I administered these items to a sample of regular pornography users both immediately before and after having them read a pornography-related script designed to elicit craving for pornography or a control script. Based on their ratings of agreement with the 20 items, I deleted eight items and re-phrased four of the remaining items to develop a revised 12-item scale. To evaluate the psychometric properties of this revised pornography craving questionnaire, I recruited two additional samples of university students who use pornography regularly. In Study 2, I evaluated the association of scores on the revised questionnaire with level of typical weekly pornography use, cue exposure, sexual compulsivity, passionate attachment for pornography, compulsive internet use, sensation seeking, and tendency to present oneself in a socially desirable manner. In Study 3, I evaluated the one-week test-retest reliability and predictive validity of the 12-item revised questionnaire. Because of the frequency with which male university students use internet pornography, I employed them as participants in this series of studies.
CHAPTER II. STUDY ONE

There were three purposes of Study 1. First, I developed an initial pool of items adapted from published measures designed to assess alcohol and drug craving (e.g., Alcohol Urge Questionnaire, Bohn et al., 1996; Tobacco Craving Questionnaire, Heishman, Singleton, & Pickworth, 2008; Desires for Speed Questionnaire, James, Davies, & Willner, 2004; Jellinek Alcohol Craving Questionnaire, Ooteman et al., 2006; Questionnaire for Cocaine Use, Ollo et al., 1995). Specifically, I included items from each questionnaire if they could be re-phrased to apply to pornography and if they did not duplicate questions from other questionnaires. Many drug craving questionnaires include items designed to measure experiences such as desire, intention, emotional states, and positive expectancies, among others. Furthermore, researchers sometimes find that a craving questionnaire may be comprised of two or more subscales reflecting these different dimensions. However, even though some craving questionnaires have distinct subscales, many questionnaires comprise a single scale. In addition, research finds that subscales on those questionnaires are often highly inter-correlated, thus suggesting that craving is a unidimensional construct even if comprised of a variety of types of experiences. Therefore, I anticipated that my questionnaire to assess craving for pornography would also be unidimensional and the items would comprise a single scale.

Second, with an intention of reducing items were “unbalanced” because a large proportion of the sample rated those items as “disagree completely” or “disagree somewhat,” I assessed the frequency with which young males agreed with statements on the newly created Pornography Craving Questionnaire (PCQ-Draft), a proposed self-report measure designed to assess the experience of current craving for pornography. Third, I evaluated the psychometric properties of the PCQ-Draft (e.g., internal consistency, criterion validity, and construct validity)
in a sample of undergraduate male pornography users. Specifically, to assess one aspect of construct validity, I evaluated whether young males’ current craving for pornography differed as a function of cue exposure vignette. I hypothesized that participants who received the Craving-for-Pornography vignette would be more likely to report higher scores on the PCQ-Draft than would young males who received only the Control vignette.

Method

Procedure and Participants

Following approval from the Institutional Review Board, I sent out an email to 2,000 undergraduate male students enrolled at Bowling Green State University (BGSU). I sent the first follow-up email two days after the initial email, and I sent the second (and final) reminder email four days after the second reminder. Potential participants were sent an email describing the nature of the study and requirements needed to meet for eligibility purposes (e.g., they had to be at least 18 years old, male, and viewers of pornography within the last six months). See Appendix A for a copy of the recruitment email used in the study.

Before beginning the web-based survey, potential participants were required to provide informed consent before beginning the study. See Appendix B for a copy of the informed consent. The following definition of pornography was provided to all participants.

“Pornography (porn) is defined as any materials designed to cause or enhance sexual arousal or sexual excitement in the viewer. Such materials show clear and explicit sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation, group sex, bondage, sadomasochism, etc. Pornography does not include materials such as underwear catalogs (e.g., Victoria's Secret) or materials containing men and women posing naked unless these images
portray clear and explicit sexual acts.” To be eligible to participate, respondents must have agreed that they had seen pornography within the last six months.

See Figure 1 for a flow chart outlining procedures of Study 1. All participants were assigned to 1 of 2 cue exposure vignettes: (a) Craving-for-Pornography or (b) Control. Each participant was asked to first read a vignette (see Stimulus Materials provided below), which asked him to imagine himself either going online to (a) look up videos of his favorite type of pornography (Craving-for-Pornography vignette condition) or (b) find research articles needed to write a research paper (Control vignette condition). After reading over the imagery script, participants completed the PCQ-Draft. Next, participants were asked to complete the remaining questionnaires, then were debriefed on the nature of the study and thanked for their participation. I did not counterbalance the other questionnaires (described below) because I was not concerned with order effects during this pilot phrase. As compensation for their time, participants were offered the opportunity to be entered into a raffle to win either one $200 or one $100 Walmart gift card. See Appendix C for a copy of the debriefing sheet.

At the close of data collection, I had usable data from 109 male participants. As shown in Table 1, most participants self-identified as Caucasian, were in their early 20s, and indicated that they were either not dating (single) or were involved in a serious romantic relationship. Approximately half the sample identified as having a Christian affiliation, although their self-reported level of religiousness was low. See Table 1 for additional details on participant characteristics.

As displayed in Table 2, participants reported regular weekly pornography use (e.g., 6% watched no weekly pornography, 30% watched pornography 1 to 2 times per week, 40% watched pornography 3 to 5 times per week, 26% watched pornography 6+ times per week).
The majority of participants (84%) indicated their pornography sessions lasted, on average, less than 30 minutes. Nearly all respondents (99%) reported using the Internet as their primary means for watching pornography. Most participants (95%) reported having masturbated to pornography at least once in their lifetime. On average, respondents reported their first experience masturbating to pornography was roughly the age of 14. See Table 2 for additional details on sexual history characteristics.

**Measures**

**Pornography Craving Questionnaire (PCQ-Draft).** I created the draft version of the PCQ (see Appendix D for a copy of the questionnaire) to assess young males’ current craving for pornography. I developed the initial item pool adapting items from published measures designed to assess alcohol and drug craving. I included items from questionnaires only if they could be rephrased to apply to pornography and if they did not duplicate questions from other questionnaires. I selected items reflecting five specific elements of current craving for pornography: (a) perceived control over pornography use (4 items; “Right now, I can control my porn use”), (b) mood changes (4 items; “If I were watching porn this minute, I would feel less irritable”), (c) psychophysiological reactivity (3 items; “My hands would shake if I watched porn”), (d) intention to use pornography (3 items; “Right now, I am making plans to watch porn”), and (e) desire (5 items; “I crave porn right now”). Respondents indicated how strongly they agreed with each item using the following seven response options (presented without numerals): “disagree completely,” “disagree somewhat,” “disagree a little,” “neither agree nor disagree,” “agree a little,” “agree somewhat,” and “agree completely.” Readability statistics for the PCQ-Draft indicated that the 20 items were easily readable (Flesch-Kincaid Grade Level = 5.0; Flesch Reading Ease = 79.3% on a scale of 0 [most difficult] to 100 [easiest]).
Passion Scale (Pornography). I adapted the phrasing of the 14 items on the Passion Scale (Vallerand et al., 2003) to refer specifically to pornography use (see Appendix E for a copy of the questionnaire). Specifically, Vallerand and colleagues developed the Passion Scale to assess passionate attachment to a variety of activities. When creating items for the Passion Scale, they used the phrase “this activity” rather naming a specific activity both because it is more practical and because the concept of passionate attachment could be applied to a wide range of behaviors (e.g., gambling, competitive sports, etc). However, when I adapted the Passion Scale for my study, I replaced the phrase “this activity” with “pornography.” In addition, I made some minor wording changes to address two awkwardly phrased statements. The original Passion Scale consisted of two subscales – obsessive and harmonious passion – designed to assess two types of passionate attachment for activities that people find important and like to do such as gambling, playing video games, playing team sports, etc. Vallerand and colleagues (2003) reported good internal consistency reliability for their two subscales (α obsessive = .89 and α harmonious = .79) when assessing passionate attachment for various activities such as physical sports, team sports, listening to music, etc. Participants indicated how strongly they agreed with each item using the following seven response options (without numerals provided): “disagree completely,” “disagree somewhat,” “disagree a little,” “neither agree nor disagree,” “agree a little,” “agree somewhat,” and “agree completely.”

Pornography History Questionnaire. I constructed this questionnaire to assess participants’ frequency of using pornography (e.g., number of pornography viewing sessions per week, average length of pornography viewing sessions), preferred method of viewing pornography (e.g., computer/laptop, smart phone, magazines), masturbation practices, participants’ past experience (if any) of seeking treatment for pornography-related issues, and the
percentage of material they considered “softcore” or “hardcore” pornography (see Appendix F for a copy of the questionnaire).

**Demographic Questionnaire.** I constructed the demographic questionnaire to assess participants’ age, ethnicity, education level, living arrangements, and religious affiliation (see Appendix G for a copy of the questionnaire).

**Stimulus Materials**

Craving-for-Pornography vignette asked each respondent to imagine himself sitting in front of his computer, alone in his room, with the strong urge of wanting to watch his favorite type of pornography (type of pornography was not mentioned). This vignette did not include any sexually explicit content.

Control vignette asked each respondent to imagine sitting in front of his computer, while alone in his room, with the intention of finding research articles for an academic paper that he was going to write for an upcoming class assignment. This vignette condition made no mention of pornography or other sexually explicit images. See Appendix H for a copy of the two imagery scripts developed for Study 1.

**Results**

**Item Reduction on the PCQ-Draft**

As the first step in evaluating the psychometric properties of the PCQ-Draft, I engaged in a process of item reduction as outlined by Floyd and Widaman (1995) and Clark and Watson (1995). I first examined the frequency counts for each level of agreement for each item on the PCQ-Draft to identify any items that were “unbalanced” – i.e., at least 70% of the sample rated those items as “disagree completely” or “disagree somewhat.” Using this decision rule, I dropped eight items because I interpreted these items as unlikely to be sensitive enough to
capture participants’ current craving for pornography. Furthermore, an examination of the item-total correlations indicated that each of the items were moderately correlated (.51 to .81, \( p < .001 \)) with the total score on the PCQ-Draft. This analysis did not suggest any items on the questionnaire were suitable for elimination because of a poor item-total correlation. See Table 3 for frequency counts, means, and standard deviations for all items on the PCQ-Draft. After removing the eight items from the PCQ-Draft, there were 12 items remaining. The 12 items will now be referred to as the PCQ-12.

To evaluate whether participants’ current craving for pornography differed as a function of cue exposure, I conducted an independent \( t \)-test with PCQ-12 scores as the dependent variable. Contrary to my hypothesis, participants who received the Control vignette condition \( (M = 3.72, SD = 1.22) \) reported significantly higher PCQ-12 scores than did participants who received the Craving-for-Pornography vignette \( (M = 3.19, SD = 1.33) \), \( t(107) = 2.08, p = .05 \). I interpreted this finding as indicating that the cue exposure stimuli were not sufficiently explicit and required modification.

Unidimensionality and Reliability Analysis of the PCQ-Draft

To evaluate the “unidimensionality” of the PCQ-12, I calculated the mean inter-item correlation. As recommended by Clark and Watson (1995) the mean-inter-item correlation should fall in the range of .15 to .50, but close to .40 to .50, when a measure assesses a narrow construct (such as craving for pornography). I interpreted the coefficient \( (r = .40) \) as supporting the unidimensionality of the PCQ-12. Internal reliability was high across the 12 items \( (Cronbach’s \alpha = .89) \).

Cue Exposure and PCQ-12 Scores
To evaluate whether participants’ current craving for pornography differed as a function of cue exposure, I conducted an independent \( t \)-test with scores on the PCQ-12 as the dependent variable. Contrary to my hypothesis, participants who received the Control vignette (\( M = 3.72, SD = 1.22 \)) reported significantly higher PCQ-12 scores than did participants who received the Craving-for-Pornography vignette (\( M = 3.19, SD = 1.33 \)), \( t(107) = 2.08, p = .05 \).

**Item Endorsement and Reliability Analysis of the Passion Scale**

Because the Passion Scale (adapted for pornography) was a key element in my test of criterion validity for the PCQ-12, I calculated the mean inter-item correlations to evaluate the unidimensionality of the two subscales of the Passion Scale. As suggested by Clark and Watson (1995), the mean inter-item correlation should fall in the range of .15 to .50. For obsessive passionate attachment for pornography, the mean inter-item correlation was .53, and the mean inter-item correlation for harmonious passionate attachment for pornography was .28. Internal reliability coefficient for obsessive passionate attachment for pornography subscale was high (Cronbach’s \( \alpha = .88 \)), but much lower for harmonious passionate attachment for pornography subscale (Cronbach’s \( \alpha = .74 \)). In support of the criterion validity of the Passion Scale, scores on typical weekly pornography use were positively correlated with obsessive passionate attachment for pornography scores, \( r(107) = .53, p < .001 \), and harmonious passionate attachment for pornography scores, \( r(107) = .40, p < .001 \). Lastly, scores on the obsessive and harmonious passionate attachment for pornography subscales were moderately correlated with each other, \( r(107) = .47, p < .001 \). This suggested that these two subscales were moderately related, most likely because they represent different but related types of passionate attachment for pornography.

**Criterion Validity of the PCQ-12**
To assess the criterion validity of the PCQ-12, I calculated Pearson product-moment correlations to examine the relationship between scores on craving for pornography, obsessive and harmonious passionate attachment for pornography, and typical weekly pornography use. Correlational analyses indicated that PCQ-12 scores were positively correlated with scores on the harmonious passionate attachment for pornography subscale, $r(107) = .53, p < .001$, and obsessive passionate attachment for pornography subscale, $r(107) = .70, p < .001$. Lastly, scores on typical weekly pornography use were positively correlated with PCQ-12 scores, $r(107) = .44, p < .001$.

**Discussion**

Study 1 served several purposes: (a) development and evaluation of the PCQ-12; (b) assessing whether an email recruitment method could enlist a large number of young males who reported frequent weekly pornography use; and (c) testing the impact of a cue exposure vignette condition that asked young males to imagine using internet pornography while alone in their bedroom.

Based on an item frequency counts, I dropped eight items on the PCQ-Draft because of frequent disagreement (i.e., $> 70\%$). The remaining 12 items on the PCQ appeared to comprise a unidimensional and internally consistent scale. Correlational analyses supported three elements of criterion validity of the PCQ-12. Specifically, results found that higher scores on the PCQ-12 were positively correlated with reports of typical weekly pornography use and both harmonious and obsessive attachment for pornography.

Contrary to my hypothesis, participants’ scores on the PCQ-12 did not differ significantly as a function of cue exposure. Specifically, results indicated that participants who received the Control vignette condition reported higher PCQ-12 scores than did participants who received the
Excessive Appetite for Pornography vignette condition. I believe this finding may have occurred for two reasons. Firstly, it may have occurred because asking participants to read the Craving-for-Pornography imagery script immediately after having read the informed consent sheet led them to feel defensive or embarrassed about their increased desire and therefore to have underreported their experience of craving. A second possibility is that individuals in the control condition, who had been primed to think about pornography because they were deliberately recruited to participate in a study on this topic, may have expected the cue exposure vignette to mention pornography and this expectation led to an increase in the experience and report of craving. Therefore, I chose to revise both the Craving-for-Pornography and Control imagery scripts for Study 2 with the intention of inducing the experience of craving in a fresh sample of regular pornography users, and testing further the psychometric properties of the revised PCQ-12. To accomplish this goal, I created a mock pornographic website that asked participants to look at it 20 seconds after they finished reading the imagery script.

For Study 2, I also reworded three items on the PCQ-12 to enhance clarity. First, I rephrased “If I watched porn right now, I would not be able to stop” to “If I watched porn right now, I would have difficulty stopping.” Second, I rephrased “If I were alone, I would watch porn” to “If the situation allowed, I would watch porn right now.” Third, I rephrased “I desire to watch porn right now” to “I want to watch porn right now.” In addition, I changed one item describing a negative emotional state to describe a positive emotional state (i.e., “If I were watching porn this minute, I would feel less irritable” to “If I were watching porn this minute, I would feel energized”).

I also examined the frequency counts for each of the 14 items on the Passion Scale (modified for pornography) to identify any items that were “unbalanced” – i.e., items where at
At least 70% of the responses were reported as “disagree completely” or “disagree somewhat.”

Four items were unbalanced (#’s 7, 9, 11, and 13); however, because I adapted a preexisting measure (Vallerand et al., 2003) with two proposed subscales (e.g., obsessive and harmonious passionate attachment for pornography), I decided not to eliminate any items from this questionnaire. However, for Study 2, I reworded two of the unbalanced items to enhance clarity. Specifically, I reworded “I am completely consumed with using porn” to “I am enthusiastic about using porn” and I reworded “The urge is so strong, I can’t help myself from using porn” to “When the urge is so strong, I can’t help myself from using porn.”
CHAPTER III. STUDY TWO

After refining the initial pool of items to develop the PCQ-12, and testing the cue exposure stimuli, I evaluated the psychometric properties of this revised measure of craving for pornography in a new sample of undergraduate male pornography users. First, I investigated the factor structure and internal consistency of the PCQ-12. Second, I assessed the criterion validity of the PCQ-12 with a measure of sexual compulsivity (Sexual Compulsivity Scale; Kalichman & Rompa, 1995), Passion Scale (Vallerand et al., 2003), and the average number of times a participant used pornography over the course of one week.

Third, to assess two aspects of construct validity of the PCQ-12, I evaluated (a) whether an enhanced cue exposure vignette, which contained an imagery script and visual image, would yield significant differences in participants’ current craving for pornography, and (b) whether more frequent pornography use was associated with higher reports of craving. Specifically, I hypothesized an interaction between enhanced cue exposure and typical weekly pornography use, such that higher users in the Craving-for-Pornography condition would report experiencing more intense craving than higher pornography users in the Control condition. In addition, I hypothesized two main effects: (a) those who reported the most frequent weekly pornography use would also report the highest scores for craving, and (b) individuals who received the Craving-for-Pornography vignette condition would report significantly higher reports of craving than those who were exposed to the Control vignette condition.

Fourth, to assess the discriminant validity of the PCQ-12, I examined the relationship between scores of current craving for pornography, sensation seeking (e.g., Brief Sensation Seeking Scale; Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002), and compulsive internet use (Compulsive Internet Use Scale; Meerkerk et al., 2009). Specifically, I hypothesized
that sensation seeking and craving for pornography would not be correlated, because craving should not per se be a proxy for participants’ tendencies to seek out varied and novel situations. In addition, I expected that compulsive internet use would be positively though only moderately correlated with craving, because young males engage in compulsive internet behavior in addition to using internet pornography (e.g., compulsive shopping, video gaming, gambling). Lastly, because social desirability bias might lead some participants to misrepresent their true intention and desire to use pornography, I also evaluated the relationship between craving and a measure of impression management (e.g., Social Desirability Scale-17; Stober, 2001).

**Method**

**Procedure and Participants**

Following approval from the Institutional Review Board, I sent out an email to 4,000 new undergraduate male students enrolled at BGSU. I relied on a similar recruitment strategy as employed in Study 1. The overture email described the nature of the study and requirements participants needed to meet to be eligible. See Appendix I for a copy of the recruitment email sent to prospective participants. I divided the 4,000 emails into two groups. Specifically, a random subset of the 1,500 undergraduate male students was assigned to the Control vignette condition, and the remaining 2,500 undergraduate male students were assigned to the Craving-for-Pornography vignette condition. I divided the groups to create this 40/60 split, because I wanted a larger sample of participants in the Craving-for-Pornography vignette condition to support the planned psychometric analyses. See Figure 2 for a flow chart outlining procedures of Study 2.

After consenting to participate in the study (see Appendix J for a copy of the informed consent), respondents were asked to complete all the questionnaires, then were debriefed on the
nature of the study and thanked for their participation. See Appendix C for a copy of the debriefing sheet. As compensation for their time, participants were offered the opportunity to be entered into a raffle to win either one $200 or one $100 Walmart gift card.

Two hundred and twenty one undergraduate male students were recruited for the study. As shown in Table 4 (columns one and two), the majority of the sample identified themselves as Caucasian, were in their early 20s, self-identified as Christian, and reported that they were not dating or involved in a serious romantic relationship. The sample reported low levels of religiousness.

As displayed in Table 5, the sample comprised regular weekly pornography users (i.e., 34% < 2 times per week; 32% viewed 3 to 5 times per week; 34% > 6+ times per week). All participants reported viewing pornography while alone, and 10% watched it at their partner’s home. Participants relied primarily on the Internet to access pornography. Three-fourths of participants reported regularly masturbating to pornography. Over three-fourths of participants self-identified as heterosexual. On average, participants reported having had two sexual intercourse partners in their lifetime. See Table 5 for additional details on sexual history characteristics.

In Study 2, participants were asked to type in their three favorite types of pornography. Because there are differences in pornography genres for heterosexual and gay/bisexual viewers, I calculated frequency counts separately for sexual orientation and responses provided by the four participants who listed their sexual orientation as “uncertain” were excluded from the frequency counts. In addition, data from 10 individuals was missing because they did not answer the question. For heterosexual (n = 168) men, the most commonly reported types of pornography that they liked to watch were: (1) guy-and-girl, (2) lesbian, (3) oral sex, (4) amateur (i.e., actors
who are not professional and generally are not paid to appear in videos), and (5) group sex. For
gay and bisexual participants \(n = 39\), the most commonly reported types of pornography that
they liked to watch were: (1) guy-and-guy, (2) oral sex, (3) group sex, (4) anal sex, and (5) bi-
sexual. See Table 6 for a full list of participants’ typed-in responses broken down by
percentages and sexual orientation.

**Measures**

**Pornography Craving Questionnaire (PCQ-12).** I developed the PCQ-12 (see
Appendix K for a copy of the questionnaire) to assess young males’ current craving for
pornography. The final set of items assessed five specific elements of craving: (a) perceived
control over pornography use (one item; “If I watch porn right now, I would have difficulty
stopping”), (b) mood changes (four items; “If I were watching porn this minute, I would feel
energized”), (c) psychophysiological reactivity (two items; “My heart would beat faster if I were
watching porn right now”), (d) intention (three items; “Right now, I am making plans to watch
porn”), and (e) desire (two items; “I have an urge to watch porn right now”). Participants
indicated how strongly they agreed with each item using the following seven response options
(without numerals provided): “disagree completely,” “disagree somewhat,” “disagree a little,”
“neither agree nor disagree,” “agree a little,” “agree somewhat,” and “agree completely.” Higher
scores on the PCQ-12 suggest more craving for pornography. Readability statistics for the PCQ-12 indicated that the questionnaire items were easily readable (Flesch-Kincaid Grade Level = 4.8; Flesch Reading Ease = 81.4% on a scale of 0 [most difficult] to 100 [easiest]).

**Passion Scale (Pornography).** I adapted the Passion Scale (Vallerand et al., 2003) to
reflect pornography use (see Appendix L for a copy of the questionnaire). See Method section in
Study 1 for more details. Higher reports on the PS suggest more passionate attachment (i.e.,
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obsessive and harmonious) for pornography. Sample items include “My mood depends on being able to use porn” and “For me, using porn is a passion that I manage to control.” Cronbach’s α in the present sample was .79 for the obsessive passionate attachment for pornography subscale and .78 for the harmonious passionate attachment for pornography subscale.

**Pornography History Questionnaire.** This questionnaire assessed common behaviors associated with pornography use (see Appendix G for a copy of the questionnaire). See Method section in Study 1 for more details.

**Sexual Behaviors Questionnaire.** This questionnaire assessed young males’ past sexual experiences (see Appendix M for a copy of the questionnaire). For example, participants were asked about the number of past sexual intercourse partners they have had in their lifetime and if they had any history of contracting sexually transmitted infections.

**Brief Sensation Seeking Scale (BSSS).** Hoyle et al. (2002) designed the BSSS to assess participants’ tendencies to seek out varied and novel situations (see Appendix N for a copy of the questionnaire). Participants indicated how strongly they agreed on a 5-point scale (without numerals provided): “strongly disagree,” “disagree,” “neither disagree nor agree,” “agree,” and “strongly agree.” Sample items include “I would like to explore strange places” and “I would like to try bungee jumping.” Higher reports on the BSSS suggest more tendencies to seek novel situations. Cronbach’s α in the present sample was .72.

**Compulsive Internet Use Scale (CIUS).** Meerkerk, Eijnden, Vermulst, and Garretsen (2009) designed the CIUS to assess the severity of compulsive internet use (see Appendix O for a copy of the questionnaire). Responses on the 14 items asked participants how much they agreed on a 5-point scale (without numerals provided): “never,” “seldom,” “sometimes,” “often,” and “very often.” Sample items include “How often do you find it difficult to stop using the
Internet when you are online?” and “How often do you rush through your work in order to go on the Internet.” Higher total scores indicate more severe levels of compulsive internet use. Cronbach’s α in the present sample was .91.

**Sexual Compulsivity Scale (SCS).** Kalichman and Romoa (1995) designed the SCS to assess the extent to which participants agreed with a series of statements related to 10 sexually compulsive behavior, sexual preoccupations, and sexually intrusive thoughts (see Appendix P for a copy of the questionnaire). Respondents were asked how much they agreed on a 4-point scale (without numerals provided): “not at all like me,” “slightly like me,” “mainly like me,” and “very much like me.” Sample items include “I have to struggle to control my sexual thoughts and behavior” and “My desires to have sex have disrupted my daily life.” Higher reports suggest more agreement with sexually compulsive thoughts. Cronbach’s α in the present sample was .82.

**Social Desirability Scale (SDS-17).** Stober (2001) developed the SDS-17 to assess how likely a person is to respond in a socially acceptable manner or in a manner that would be viewed favorably by the others (see Appendix Q for a copy of the questionnaire). Participants were asked to answer each of the 16 questions with “true” or “false.” Sample items include “I sometimes litter” and “I always eat a healthy diet.” Higher scores on the SDS-17 suggest a more socially desirable response tendency. Cronbach’s α in the present sample was .70.

**Demographic Questionnaire.** This demographic questionnaire assessed participants’ age, ethnicity, year in school, living arrangements, relationship status, and religious affiliation (see Appendix H for a copy of the questionnaire).

**Stimulus Materials**
To evaluate the effect of enhanced cue exposure on current craving for pornography, participants were assigned to read one of two vignettes. Craving-for-Pornography vignette asked the participant to imagine himself sitting in front of his computer, alone in his room, while experiencing a strong urge to watch his favorite type of pornography. I revised the craving vignette condition used in Study 1 by adding more explicit instructions to imagine one’s reaction to watching internet pornography (e.g., “Even now, you may notice how different you feel as you think about the type of pornography that you like to watch -- girl-on-girl, oral sex, group sex, anal sex, etc”). In addition, I changed the image to look like a pornographic website where one could watch free sexually explicit videos (e.g., PornoTube, You-Porn). Participants were asked to look at the image for 20 seconds that contained the following words: “Adult Sex Site: Free Porn Pictures and Hardcore Movies.” See Appendix R for a copy of the imagery scripts used in Study 2.

Control Vignette asked the participant to imagine himself sitting in front of his computer, alone in his room, with the intention of finding research articles for an academic paper he is planning to write for class. The Control vignette condition made no mention of pornography or other sexually explicit content. Participants in the Control vignette condition were asked to look for 20 seconds at an image designed to look like a website where one could receive assistance in writing an academic paper. The image contained the following words: “Term Paper Helper: Free Research Articles and Academic Resources.” See Appendix R for a copy of the imagery scripts used in Study 2.

Results

Association of PCQ-12 with Typical Weekly Pornography Use and Enhanced Cue Exposure Condition
To evaluate whether PCQ-12 scores varied as a function of cue exposure and typical weekly pornography use, I conducted a 2 (vignette: craving-for-pornography vs. control) x 3 (weekly pornography use: 0-2 times, 3-5 times, or 6+ times) between-subjects ANOVA. There was neither a significant interaction between cue exposure and typical weekly pornography use, $F(2, 219) = 1.61, ns$, nor was there a significant main effect for cue exposure, $F(1, 219) = 0.00, ns$. There was, however, a significant main effect for typical weekly pornography use, $F(2, 219) = 18.53, p < .001$, partial $\eta^2 = .15$. As shown in Table 7, men who used pornography 6+ times a week reported higher craving ($M = 4.19, SD = 1.34$) than did men who used pornography 3 to 5 times per week ($M = 3.63, SD = 1.20$), who in turn reported higher craving than those who used pornography only 0 to 2 times per week ($M = 3.01, SD = 1.16$). Because there were no significant differences between participants’ PCQ-12 scores as a function of the enhanced cue exposure vignette, I combined both exposure groups for all future analyses.

As a follow up analysis given the main effect of weekly pornography use on PCQ-12 scores, I conducted a series of one-way ANOVAs (Bonferroni corrected post-hoc analyses, $p < .001$) to determine which specific items on the PCQ-12 varied as a function of typical weekly pornography use (0-2 times, 3-5 times, or 6+ times). As shown in Table 8, typical weekly pornography viewing was associated with craving on 11 of the 12 items on the questionnaire, with those who used pornography more often reporting higher craving than those using less often.

**Item Analysis of the PCQ-12**

As noted above, I used participants who were exposed to both vignettes because there were no significant differences between the Craving-for-Pornography and Control conditions on PCQ-12 scores. Next, I examined the frequency counts for each of the items on the PCQ-12 (see
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Table 9). Examination of the frequency counts revealed no items that were unbalanced (i.e., at least 70% of the sample rated those items as “disagree completely” or “disagree somewhat”). Then, I conducted a principal components analysis. I did not rotate the solution because I had no a priori basis for assuming the analysis would yield multiple components or for assuming that any such components would be correlated or uncorrelated. This analysis yielded two components with eigenvalues greater than 1.0; however, the scree plot showed obvious flattening after the first component (eigenvalue = 6.2, 51.4% proportion of variance), and the second component had a small eigenvalue (1.3) and accounted for a relatively smaller proportion of variance (10.4%). Examination of Table 10 reveals that all of the items – except item 3 – loaded above .50 on the first component. Although item 3 cross-loaded on the first and second components (.44 and .54, respectively), I decided to treat all 12 items as comprising a single scale.

**Unidimensionality and Reliability Analysis of the PCQ-12**

I also calculated the mean inter-item correlation to evaluate the “unidimensionality” of the revised PCQ-12. As recommended by Clark and Watson (1995) for a focused construct, the mean-inter-item correlation was moderate. I interpreted the coefficient ($r = .46$) as supporting the unidimensionality of the PCQ-12. In addition, the internal reliability was high across the 12 items on the PCQ-12 (Cronbach’s $\alpha = .91$).

**Criterion Validity of the PCQ-12**

To assess criterion validity of the questionnaire, I calculated Pearson product-moment correlations to measure the relationship between PCQ-12 scores and several selected pornography history characteristics (see Table 11). Specifically, PCQ-12 scores were significantly positively correlated (all $ps < .01$) with reports of typical weekly pornography use,
r(219) = .38, harmonious passionate attachment for pornography, r(219) = .55, obsessive passionate attachment for pornography, r(219) = .50, and sexual compulsivity, r(219) = .36. I interpreted this collection of statistically significant findings as supporting the criterion validity of the PCQ-12.

**Discriminant Validity of the PCQ-12**

Next, I correlated craving scores with measures of sensation seeking and compulsive internet use. PCQ-12 scores were not significantly correlated with brief sensation seeking, r(219) = .09, ns. However, contrary to my expectation, average PCQ-12 scores were moderately correlated with compulsive internet use scores, r(219) = .38, p < .01. This latter coefficient indicates that craving and compulsive internet use were related, perhaps because all but 1% of the participants reported watching pornography using the internet; nonetheless, the magnitude of the association is moderate and does not suggest that a measure of internet use serves as a proxy measure for pornography craving.

**Association of PCQ-12 Scores with Social Desirability Bias**

Because social desirability bias might lead some young males to misrepresent their current intention and desire to use pornography, I evaluated the relationship between craving and the SDS-16, a measure of social desirability bias. The Pearson product-moment correlation indicated that craving and social desirability were not significantly related, r(219) = -.13, ns.

**Associations of PCQ-12 Scores with Other Sexual History Characteristics**

Although I had no formal hypotheses to test, and I did not interpret these characteristics as elements of criterion validity, I evaluated whether PCQ-12 scores were associated with several other aspects of participants’ sexual history. As shown in Table 11, although PCQ-12 scores were significantly, albeit weakly, correlated with both age when one was first sexually aroused to
Pornography, $r(217) = .15, p < .05$, and age when one first masturbated to pornography, $r(208) = .14, p < .05$, craving was not significantly correlated with number of sexual partners across lifetime, $r(219) = .03, ns$. I also conducted an independent samples $t$-test to evaluate whether scores on the PCQ-12 would differ as a function of sexual orientation. The $t$-test was significant, $t(214) = -3.2, p < .001$, indicating that gay/bisexual participants ($M = 4.21, SD = 1.34$) reported higher craving for pornography than did heterosexual participants ($M = 3.44, SD = 1.29$).
CHAPTER IV. STUDY THREE

The results of Study 2, including item loadings from a principal components analysis, a high internal consistency reliability coefficient, and a moderate mean inter-item correlation, supported including all 12 items in a single scale. In addition, significant correlations of craving for pornography with reports of typical weekly pornography, harmonious and obsessive passionate attachment for pornography, sexual compulsivity, but not with brief sensation seeking, supported the criterion and discriminant validity of the proposed questionnaire. As the next step in my evaluation of important psychometric properties of the PCQ-12, I decided to assess the one-week test-retest reliability of this questionnaire immediately following cue exposure on two separate occasions in a new sample of young males. In addition, I assessed whether craving scores would significantly predict the number of times young males used pornography over the course of the next one-week period. To evaluate the predictive validity of the PCQ-12, I tested whether post-cue exposure reports of craving would positively predict the number of times participants used pornography over the course of the next one-week period.

Method

Procedure and Participants

Eligible respondents had to be at least 18 years old, male, and could not have participated in Study 1 or Study 2. To ensure that respondents did not participate twice, a screening item was used immediately after the informed consent to assess whether respondents had previously participated in the study. Following approval from my Institutional Review Board, I recruited potential participants from several undergraduate psychology classes (e.g., Introduction to Psychology, Abnormal Psychology, and Human Sexuality). To be eligible for the study, I did not require potential participants to report having seen pornography within the last six months as
one of the criteria needed to meet for inclusion into the study. By doing so, I avoided having participants admit to their instructor that they had watched pornography in the last six months in order to be eligible to receive extra credit for their participation in the study.

Upon receiving verbal consent from each instructor, I made a five-minute presentation to the class about the nature of the study (although there was no mention of craving or pornography addiction) and instructed potential participants that instructors would send out an email with the study’s link so they could review the informed consent and decide if they wanted to participate in the study (Time 1). Within seven days, instructors sent another email to the class to complete the second time point (Time 2). See Figure 3 for a flow chart outlining procedures of Study 3.

At the end of each survey (Time 1 and Time 2), participants completed a separate web survey to receive extra credit for their participation, ensuring that their answers would remain anonymous. After completing all the questionnaires at Time 2, respondents were debriefed on the nature of the study and thanked for their participation. See Appendix C for a copy of the debriefing sheet.

I recruited 67 undergraduate male students to evaluate the test-retest and predictive validity of the PCQ-12. Those 23 participants (34%) who reported that they had not watched pornography in the last six months were removed from the analyses, leaving 44 individuals who completed all the questionnaires at Time 1 and Time 2. Similar to Study 2, most of the participants were Caucasian, were in their early 20s, were Christian, and were not dating or in a serious romantic relationship. The sample also reported low levels of religiousness. See Table 4 (column three) for additional information about participant characteristics.

As displayed in Table 5 (column three), approximately half of the sample reported using pornography less than two times per week and another one-fourth of the participants used
pornography 3 to 5 times per week. All participants reported viewing pornography while alone, and relied primarily on the Internet to access pornography. See Table 5 (column three) for additional information about participant sexual history characteristics.

**Measures**

**Pornography Craving Questionnaire (PCQ-12).** See Method section in Study 2 for a description of the measure. Cronbach’s α in the present sample was .92.

**Passion Scale (Pornography).** See Method section in Study 2 for a description of the measure. Cronbach’s alphas in the present sample were .82 for the harmonious passionate attachment for pornography subscale and .80 for the obsessive passionate attachment for pornography subscale.

**Pornography History Questionnaire.** See Method section in Study 2 for a full description of the measure.

**Sexual Behaviors Questionnaire.** See Method section in Study 2 for a full description of the measure.

**Brief Sensation Seeking Scale (BSSS).** See Method section in Study 2 for a description of the measure. Cronbach’s α in the present sample was .76.

**Sexual Compulsivity Scale (SCS).** See Method section in Study 2 for a description of the measure. Cronbach’s α in the present sample was .86

**Social Desirability Scale (SDS-17).** See Method section in Study 2 for a description of the study. Cronbach’s α in the present sample was .72

**Demographic Questionnaire.** See Method section in Study 2 for a description of the measure.

**Stimulus Materials**
**Cue Exposure Stimulus.** See Method section in Study 2 and Appendix R for a description of the pornography-related vignette used in the study.

**Results**

**Test-Retest Reliability of the PCQ-12**

To assess the one-week test-retest reliability of the PCQ-12 immediately following pornography-related cue exposure on two separate occasions, I correlated participants’ PCQ-12 scores at Time 1 and Time 2. The coefficient indicated that the questionnaire had good test-retest reliability, $r(42) = .82, p < .001$.

**Predictive Validity of the PCQ-12**

To evaluate the predictive validity of the PCQ-12, I conducted a multiple regression analysis in which mean scores on the PCQ-12 and typical weekly pornography use, both of which were assessed at Time 1, were entered as independent variables to predict the number of days on which participants used pornography in the week just prior to Time 2. The equation was statistically significant, $F(2, 43) = 21.38, p < .001$, accounting for 51% of the variance. Specifically, both typical weekly pornography use ($\beta = .52, p < .001$) and PCQ-12 scores ($\beta = .30, p < .05$) were significant predictors of pornography use in the following week.
CHAPTER V. GENERAL DISCUSSION

“Of all the worldly passions, lust is the most intense. All other worldly passions seem to follow in its train.”
- Gautama Buddha

There is some support for conceptualizing compulsive sexual behavior, including the use of pornography, as one type of behavioral addiction (Barak & King, 2000; Griffiths, 2001; Kaplan & Krueger, 2010; Meerkak et al., 2006). To the degree that addiction to pornography is analogous to alcohol and drug addiction (Orford, 2001), one psychological element of this addiction would be craving for pornography. Because clinicians and researchers could make use of a relatively short multi-item questionnaire assessing emotional, cognitive, and somatic aspects of current craving for pornography, I conducted three studies to develop and evaluate such a questionnaire.

In Study 1, I refined an initial pool of 20 items developed by adapting statements from instruments designed to assess craving for alcohol and drugs. I deleted eight infrequently endorsed items, and re-phrased four others to yield a revised version of the PCQ-12 for psychometric evaluation. Correlations of the 12-item version of the questionnaire with typical weekly pornography use and passionate attachment for pornography provided initial support for the criterion validity of the PCQ-12.

However, contrary to my hypothesis, exposure to the Craving-for-Pornography vignette did not significantly increase reported craving for pornography scores on the PCQ-12. One explanation for this finding is that the PCQ-12 does not include items that adequately capture the experience of current craving for pornography. Although I developed these items by modifying statements on pre-existing alcohol and drug craving questionnaires, such statements may not reflect the subjective experience of one’s craving to use pornography. Secondly, it is also
possible that exposure to the Craving-for-Pornography vignette was not sufficiently powerful to
elicit craving across a large enough subset of my sample of undergraduate male pornography
users. Therefore, in preparation for Study 2, I revised the imaginary script by adding an image of
a mock pornographic website, which I modeled after several popular Internet “adult-only tube
sites” (e.g., You-Porn, Porno-Tube). In addition, I reworded four of the 12 items in preparation
for re-evaluation of the PCQ-12 in Study 2.

To evaluate more extensively the psychometric properties of the revised PCQ-12
questionnaire, I recruited a new sample of university male pornography users to complete the
questionnaire (and other measures) following exposure to the enhanced the Craving-for-
Pornography vignette versus the Control vignette. My examination of the frequency counts,
means, and standard deviations revealed no unbalanced items on the PCQ-12. Based on a
principal components analysis, I interpreted all 12 items as comprising a single scale. As one
would expect of a narrow construct such as current craving for pornography, the PCQ-12 yielded
a high internal consistency reliability and moderate mean inter-item correlation (Clark &
Watson, 1995).

To assess one aspect of construct validity, I tested whether there was a significant
interaction between typical weekly pornography use and cue exposure such that higher users of
pornography would report experiencing more intense craving for pornography in the Craving-
for-Pornography condition than higher pornography users in the Control condition. Unlike
previously published studies examining the impact of cue exposure on drug craving (e.g., Taylor,
Harris, Singleton, Moolchan, & Heishman, 2000; Tong, Bovbjerg, & Erblich, 2007), I found no
significant impact of an imagery script designed to induce craving on PCQ scores. However,
there was a significant main effect for typical weekly pornography use such that men who used
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because there was a main effect of typical weekly pornography use on PCQ-12 scores, I conducted a follow up analysis to examine which of the 12 items on the PCQ-12 differed as a function of typical weekly pornography use. Results indicated that the heaviest pornography users reported significantly higher craving scores on 11 of 12 items on the PCQ-12, indicating that it is not just a limited subset of items that differ depending on one’s recent history of pornography use. Furthermore, this indicates that items reflecting several different dimensions of craving (e.g., perceived control over pornography use, mood changes, psychophysical reactivity, intention, and desire) varied as a function of typical weekly pornography history. Because a single-item scale asks only about the intensity or strength of craving per se, it fails to provide participants with the opportunity to rate their experiences across different dimensions of craving. Furthermore, the moderate mean inter-item correlation among the items suggests that

pornography more often reported higher craving, which I interpret as support for one element of construct validity. I speculate that regular pornography users, such as those who participated in Study 2, are accustomed to watching sexually explicit material via streaming videos and may have found the imagery script and mock web page image insufficiently explicit to induce craving. This explanation is supported by a recent study (e.g., Brand, Laier, Pawlikoswki, Schachtle, Scholer, & Altstotter-Gleich, 2011), in which undergraduate male participants who were exposed to 40 non-fetishistic pornographic pictures reported significantly greater “arousal” than were those exposed to non-pornographic photos. Furthermore, some of my participants could have viewed and masturbated to pornography shortly before participating in Study 2, thus reducing their reactivity to the Enhanced Craving-for-Pornography vignette. Future research could compare the level of craving for pornography after different periods of abstinence from sexually explicit material.

Because there was a main effect of typical weekly pornography use on PCQ-12 scores, I conducted a follow up analysis to examine which of the 12 items on the PCQ-12 differed as a function of typical weekly pornography use. Results indicated that the heaviest pornography users reported significantly higher craving scores on 11 of 12 items on the PCQ-12, indicating that it is not just a limited subset of items that differ depending on one’s recent history of pornography use. Furthermore, this indicates that items reflecting several different dimensions of craving (e.g., perceived control over pornography use, mood changes, psychophysical reactivity, intention, and desire) varied as a function of typical weekly pornography history. Because a single-item scale asks only about the intensity or strength of craving per se, it fails to provide participants with the opportunity to rate their experiences across different dimensions of craving. Furthermore, the moderate mean inter-item correlation among the items suggests that
these 12 statements are not duplicates for one another, and I believe all 12 contribute to a respondent’s report of subjective craving to use pornography.

Other psychometric analyses of the PCQ-12 yielded additional supportive findings. Specifically, the PCQ-12 was positively correlated with constructs that were expected to be associated with pornography such as typical weekly pornography use, passionate attachment for pornography, and sexual compulsivity. In addition, I assessed the discriminant validity of the PCQ-12 by correlating scale scores with measures of sensation seeking and compulsive internet use. As expected, results found that PCQ-12 scores was not a proxy for sensation seeking. This finding indicates that being a sensation seeker (i.e., seeking out varied, novel, and intense sensations and willingness to take physical, social, legal, and financial risks) was not associated with the report of craving for pornography. In addition, I found that craving for pornography was correlated only moderately with compulsive internet use. This finding indicated that craving and compulsive internet behavior (e.g., online video gaming, shopping) are related to one other, but the magnitude of the correlation suggested that the two measures are not proxies for one another. Nonetheless, experiencing craving for pornography and engaging in compulsive internet use are both, in part, an outcome of excessive pornography use. Specifically, individuals having difficulty moderating their pornography use may be more likely to endorse experiences associated with craving and problematic internet use.

Finally, for Study 3, I recruited a fresh sample of undergraduate male pornography users to assess the test-retest reliability and predictive validity of the PCQ-12. Results revealed that the PCQ-12 had adequate test-retest reliability over the course of the next one-week period. In addition, using the test-retest sample, I found that craving scores (post enhanced cue exposure) successfully predicted the number of times young males used pornography within the next one-
week period, even when accounting for recent pornography use. Presently, there is considerable debate among scholars as to whether drug craving is associated with use and relapse (Tiffany & Wray, 2012); however, results from the present study suggest that craving on the PCQ-12 predicted short-term pornography use.

**Study Limitations**

Although many of the analyses support aspects of reliability and validity of the PCQ-12, the findings are limited in a number of respects. First, I recruited undergraduate male students from the same university; therefore, the generalizability of the results may be limited if students’ use and craving for pornography vary based on student body population and campus culture (e.g., single-gender, religious-affiliated). An additional potential limitation was the lack of ethnic diversity in the present sample. Although 88% of the sample indicated their ethnicity was White/European American, this proportion is representative of the university from which I recruited the sample.

Although it was beyond the scope of this study, it would be interesting to study the experience of craving employing a sample of older male pornography users who have longer histories of using pornography. Because men with a long history of pornography use may have developed a high tolerance to specific types of sexually explicit material, they may experience craving differently than younger men who use pornography intermittently or have used for considerably fewer years. An additional limitation is that I recruited only male pornography users for the study. The reliability and validity of the PCQ-12 when completed by female pornography users awaits evaluation. In addition, research is needed to investigate the psychometric properties of the PCQ-12 among both males and females who seek psychotherapy for excessive pornography use.
An additional limitation is that I administered only self-report questionnaires to collect data on participants’ history and current craving. Such questionnaires rely solely on participants’ willingness and ability to be insightful and honest about their pornography viewing habits. However, it was impractical to collect physiological measures of arousal or collateral reports of pornography use, and the value of web-based self-report to collect data on craving and sexual history counter-balances its disadvantages. Furthermore, participants’ current craving for pornography was not statistically associated with their tendency to present themselves in a socially desirable manner. In addition, participants had the option to complete the survey in private (and were encouraged to do so in the recruitment email). Therefore, participants may have felt more comfortable being honest when completing the questionnaires for this study.

Another potential limitation is that only a subset of eligible pornography users may have agreed to participate in the study. Specifically, it is possible that only young males who were interested in the topic of men’s sexuality decided to read over the recruitment email and then agreed to participate in the study. Similarly, some young males may have not chosen to participate in the study because they were not willing to admit that they used pornography because it induced feelings of guilt or shame. Prior research suggests that religiosity, guilt-proneness, and shame-proneness occur in some individuals struggling with excessive pornography use because their behavior may be incongruent with their personal or religious values (Abell et al., 2006; Baltazar et al., 2010; Gilliland et al., 2011; Nelson et al., 2010).

An additional limitation of the study is that I did not ask experts in the field (e.g., clinicians and researchers) to review the content of the PCQ-Draft before I began data collection. In retrospect, it might have improved the content validity of the questionnaire to have had experts in the field to review the items to evaluate how well they represented the domain of
interest. Specifically, there may be experiences considered indicative of craving that are not included in the current version of the PCQ-12.

Although the PCQ-12 is comprised of only 12 items, and participants complete it in a matter of minutes, it is more efficient than merely asking someone to report on their experience of craving in a free-response manner. Furthermore, because people may lack self-awareness of their experience of craving, or be inarticulate in describing their experience of urges to use pornography, a measure presenting a respondent with a series of statements reflecting presumed indicators of their craving may be especially advantageous in clinical settings.

The PCQ-12 also has the limitation of asking respondents to rate their current (“right now”) experience of craving for pornography, and craving may also be conceptualized as a stable inclination to watch pornography (Ferguson & Shiffman, 2009; Tiffany & Wray, 2012). Other measures, such as Vallerand et al.’s (2003) Passion Scale (modified for pornography), may be of value when one wants to assess a more stable inclination or preoccupation to watch pornography. I also recognize that the PCQ-12 may measure other psychological experiences in addition to or instead of craving. For example, it may assess one’s desire to experience sexual arousal as well one’s craving to watch pornography. When young men have a sexual urge for sexual activity, reading or watching pornography is only one of many avenues to satisfy that urge.

**Conclusion**

Balancing the strengths and limitations of this questionnaire and its evaluation, the PCQ-12 has several applications in clinical practice and research settings. Specifically, clinicians treating clients who use pornography excessively could have them complete the PCQ-12 during and between counseling sessions to monitor changes in their experience of craving for pornography. In addition, completing the PCQ-12 could enhance clients’ insight into the
thoughts and feelings associated with their urges or craving to use pornography. To the degree that craving predicts lapse or relapse, administering the PCQ-12 in relevant contexts might also predict a client’s readiness for discharge or likelihood of relapse following treatment. In addition to these clinical applications, researchers and program evaluators could use the PCQ-12 as an outcome measure to assess the prevalence of craving among recreational and clinical populations, and to evaluate the effect of psychological and pharmacological interventions designed to reduce the frequency and intensity of craving for pornography.
REFERENCES


Table 1

*Participants’ Demographic Characteristics of Study 1*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total $(n = 109)$</th>
<th>Craving $(n = 74)$</th>
<th>Control $(n = 35)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD) or %</td>
<td>M (SD) or %</td>
<td>M (SD) or %</td>
</tr>
<tr>
<td>Age (years)</td>
<td>24.2 (7.8)</td>
<td>24.6 (8.3)</td>
<td>23.5 (6.6)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/European</td>
<td>84%</td>
<td>82%</td>
<td>86%</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>7</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Biracial/Multi-racial</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Years at university</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>5</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Second year</td>
<td>16</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Third year</td>
<td>25</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>Fourth year</td>
<td>27</td>
<td>31</td>
<td>20</td>
</tr>
<tr>
<td>Fifth year and up</td>
<td>27</td>
<td>24</td>
<td>34</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not dating</td>
<td>45</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>In a serious relationship</td>
<td>40</td>
<td>37</td>
<td>46</td>
</tr>
<tr>
<td>Engaged/Married</td>
<td>8</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Frequent Dating</td>
<td>8</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>11</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>With male roommates</td>
<td>39</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td>With female and male roommates</td>
<td>12</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>With romantic partner</td>
<td>13</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>With parents/family members</td>
<td>25</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Religious Preference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agnostic</td>
<td>22%</td>
<td>26%</td>
<td>14%</td>
</tr>
<tr>
<td>Atheist</td>
<td>13</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Baptist</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Non-denominational Christian</td>
<td>25</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Other religion/faith</td>
<td>11</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Self-Rated Level of religiousness</td>
<td>1 = Well Below Average</td>
<td>2 = Somewhat Below Average</td>
<td>3 = Average</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------</td>
<td>---------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>37%</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>32%</td>
<td>6</td>
<td>14</td>
</tr>
</tbody>
</table>

*Note.* Some totals may not equal 100% due to rounding.
Table 2

Sexual History Characteristics for Study 1 (N = 109)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total (n = 109) M (SD) or %</th>
<th>Craving (n = 74) M (SD) or %</th>
<th>Control (n = 35) M (SD) or %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age when first saw pornography</td>
<td>12.6 (2.8)</td>
<td>12.4 (2.7)</td>
<td>13.1 (3.0)</td>
</tr>
<tr>
<td>Age when first sexually aroused to porn</td>
<td>13.0 (2.5)</td>
<td>12.9 (2.3)</td>
<td>13.2 (2.8)</td>
</tr>
<tr>
<td>Ever masturbated to pornography</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>95%</td>
<td>97%</td>
<td>95%</td>
</tr>
<tr>
<td>Age when first masturbated to porn</td>
<td>13.8 (2.5)</td>
<td>13.8 (2.6)</td>
<td>13.7 (2.4)</td>
</tr>
<tr>
<td>% of the time masturbating to porn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% or less</td>
<td>12</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>51-75%</td>
<td>17</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>76-100%</td>
<td>73</td>
<td>69</td>
<td>80</td>
</tr>
<tr>
<td>Typical weekly pornography use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = 0 times</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>1 = 1 to 2 times</td>
<td>30</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>2 = 3 to 5 times</td>
<td>39</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>3 = 6 to 10 times</td>
<td>19</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>4 = 11+ times</td>
<td>7</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Typical weekly pornography use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Users (0 to 2 times)</td>
<td>36</td>
<td>41</td>
<td>26</td>
</tr>
<tr>
<td>Medium Users (3 to 5 times)</td>
<td>39</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>Higher Users (6+)</td>
<td>26</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Length of pornography use session</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = 5 minutes or less</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2 = 6 to 10 minutes</td>
<td>18</td>
<td>20</td>
<td>14</td>
</tr>
<tr>
<td>3 = 11 – 20 minutes</td>
<td>40</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>4 = 21 to 30 minutes</td>
<td>22</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>5 = 31 to 59 minutes</td>
<td>9</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>6 = 1 to 2 hours</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>7 = 2+ hours</td>
<td>3</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Money spent on pornography</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 dollars per month</td>
<td>91</td>
<td>86</td>
<td>100</td>
</tr>
<tr>
<td>Less than $50 per month</td>
<td>9</td>
<td>14</td>
<td>-</td>
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</table>
### Method to view pornography

<table>
<thead>
<tr>
<th>Method</th>
<th>99%</th>
<th>99%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rented/purchased DVDs</td>
<td>12</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Smart phone</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Magazines or erotic books</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Other method</td>
<td>6</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

### Have received professional help for porn

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

### Want to seek professional help for porn

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>3</td>
<td>11</td>
</tr>
</tbody>
</table>

### Someone recommended help for porn

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Location when viewing pornography

<table>
<thead>
<tr>
<th>Location</th>
<th>99%</th>
<th>100%</th>
<th>97%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At home/apartment/bedroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romantic partner’s place</td>
<td>17</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Friend’s house/apartment</td>
<td>9</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Stranger/Adult/theatre/Bath house</td>
<td>3</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Other location</td>
<td>5</td>
<td>1</td>
<td>11</td>
</tr>
</tbody>
</table>

### Pornography company

<table>
<thead>
<tr>
<th>Company</th>
<th>100%</th>
<th>100%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alone</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>With romantic partner</td>
<td>26</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>With friends</td>
<td>8</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>With stranger, online date, webcam</td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

### % of softcore and hardcore porn

<table>
<thead>
<tr>
<th>Softcore</th>
<th>Hardcore</th>
<th>Softcore</th>
<th>Hardcore</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>0%</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>75%</td>
<td>25%</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>50%</td>
<td>50%</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>25%</td>
<td>75%</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td>0%</td>
<td>100%</td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>

### Substances used while watching porn

<table>
<thead>
<tr>
<th>Substance</th>
<th>70</th>
<th>65</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>16</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Alcohol</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Cannabis</td>
<td>20</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Caffeine</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Cocaine, Ecstasy/MDMA</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Nicotine</td>
<td>7</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>77</td>
<td>74</td>
<td>83</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Straight</td>
<td>15</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Gay</td>
<td>6</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Bisexual</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note.* Some totals may not equal 100% due to rounding. *a* Participants could mark more than one answer.
Table 3

Frequency Count for Items Endorsed on the Pornography Craving Questionnaire-Draft (Study 1)

<table>
<thead>
<tr>
<th>Items</th>
<th>DC</th>
<th>DS</th>
<th>DL</th>
<th>NAD</th>
<th>AL</th>
<th>AS</th>
<th>AC</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Right now, I cannot control my porn use.</td>
<td>50%</td>
<td>22%</td>
<td>12%</td>
<td>1%</td>
<td>8%</td>
<td>2%</td>
<td>6%</td>
<td>2.2 (1.2)</td>
</tr>
<tr>
<td>2. If I watched porn right now, I would not be able to stop. †</td>
<td>47</td>
<td>21</td>
<td>9</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>3</td>
<td>2.4 (1.8)</td>
</tr>
<tr>
<td>3. My hands would shake if I watched porn.</td>
<td>84</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1.4 (1.1)</td>
</tr>
<tr>
<td>4. The thought of watching porn makes me sexually aroused.</td>
<td>6</td>
<td>18</td>
<td>3</td>
<td>6</td>
<td>25</td>
<td>20</td>
<td>22</td>
<td>4.7 (2.0)</td>
</tr>
<tr>
<td>5. My heart would beat faster if I were watching porn right now.</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>37</td>
<td>22</td>
<td>10</td>
<td>4.6 (1.7)</td>
</tr>
<tr>
<td>6. I would feel less bored if I watched porn right now.</td>
<td>12</td>
<td>6</td>
<td>7</td>
<td>17</td>
<td>24</td>
<td>20</td>
<td>14</td>
<td>4.5 (1.9)</td>
</tr>
<tr>
<td>7. I want to watch porn so badly I can hardly stand it.</td>
<td>64</td>
<td>17</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>-</td>
<td>1.7 (1.3)</td>
</tr>
<tr>
<td>8. If I were watching porn this minute, I would feel happier.</td>
<td>27</td>
<td>13</td>
<td>8</td>
<td>19</td>
<td>18</td>
<td>11</td>
<td>4</td>
<td>3.4 (1.9)</td>
</tr>
<tr>
<td>9. Right now, I am making plans to watch porn.</td>
<td>49</td>
<td>11</td>
<td>7</td>
<td>9</td>
<td>14</td>
<td>7</td>
<td>3</td>
<td>2.6 (1.9)</td>
</tr>
<tr>
<td>10. If I were alone, I would watch porn. †</td>
<td>22</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>16</td>
<td>12</td>
<td>9</td>
<td>2.7 (2.0)</td>
</tr>
<tr>
<td>11. All I want to do now is watch porn.</td>
<td>63</td>
<td>17</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>-</td>
<td>1.9 (1.5)</td>
</tr>
<tr>
<td>12. If I were watching porn this minute, I would feel less irritable.</td>
<td>39</td>
<td>13</td>
<td>7</td>
<td>11</td>
<td>19</td>
<td>7</td>
<td>5</td>
<td>3.0 (2.0)</td>
</tr>
<tr>
<td>13. My need to watch porn seems overpowering.</td>
<td>57</td>
<td>16</td>
<td>12</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>-</td>
<td>2.0 (1.4)</td>
</tr>
<tr>
<td>14. I have an urge to watch porn right now.</td>
<td>41</td>
<td>19</td>
<td>8</td>
<td>4</td>
<td>18</td>
<td>8</td>
<td>4</td>
<td>2.8 (2.0)</td>
</tr>
<tr>
<td>15. I will watch porn as soon as I get the chance.</td>
<td>39</td>
<td>21</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>8</td>
<td>2</td>
<td>2.8 (1.8)</td>
</tr>
<tr>
<td>16. I cannot think of anything else but watching porn.</td>
<td>74</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td>6</td>
<td>-</td>
<td>1</td>
<td>1.6 (1.2)</td>
</tr>
<tr>
<td>17. I crave porn right now.</td>
<td>60</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>4</td>
<td>-</td>
<td>2.2 (1.7)</td>
</tr>
<tr>
<td>18. I would feel less stressed if I watched porn right now.</td>
<td>32</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>23</td>
<td>11</td>
<td>4</td>
<td>3.3 (2.0)</td>
</tr>
<tr>
<td>19. Nothing would be better than watching porn right now.</td>
<td>61</td>
<td>17</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>-</td>
<td>1.8 (1.4)</td>
</tr>
<tr>
<td>20. I desire to watch porn right now. †</td>
<td>41</td>
<td>16</td>
<td>6</td>
<td>11</td>
<td>20</td>
<td>6</td>
<td>1</td>
<td>2.8 (1.8)</td>
</tr>
</tbody>
</table>

Note. Some totals may not equal 100% due to rounding. DC = Disagree Completely, DS = Disagree Somewhat, DA = Disagree A Little, NAD = Neither Agree nor Disagree, AL = Agree A Little, AS = Agree Somewhat, and AC = Agree Completely

*a* Indicates items dropped because of low item endorsement.
† Indicates items that were reworded from PCQ-Draft to enhance clarity and content (e.g., If I watched porn right now, I would not be able to stop” was reworded to “If I watched porn right now, I would have difficulty stopping”; “If I were alone, I would watch porn” was reworded to “If the situation allowed, I would watch porn right now”; “If I were watching porn this minute, I would feel less irritable” was reworded to “If I were watching porn this minute, I would feel energized”; and “I desire to watch porn right now” was reworded to “I want to watch porn right now”).
Table 4

Participants’ Demographic Characteristics (Studies 2 and 3)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cue Exposure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Craving $(n = 137)$</td>
</tr>
<tr>
<td></td>
<td>M (SD) or %</td>
</tr>
<tr>
<td>Age (years)</td>
<td>21.6 (3.5)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>White/European</td>
<td>88%</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>2</td>
</tr>
<tr>
<td>Asian American</td>
<td>2</td>
</tr>
<tr>
<td>Biracial/Multi-racial</td>
<td>4</td>
</tr>
<tr>
<td>Latino</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Years at university</td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>2</td>
</tr>
<tr>
<td>Second year</td>
<td>23</td>
</tr>
<tr>
<td>Third year</td>
<td>27</td>
</tr>
<tr>
<td>Fourth year</td>
<td>34</td>
</tr>
<tr>
<td>Fifth year and up</td>
<td>22</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
</tr>
<tr>
<td>Not dating</td>
<td>43</td>
</tr>
<tr>
<td>In a serious relationship</td>
<td>39</td>
</tr>
<tr>
<td>Engaged/Married</td>
<td>7</td>
</tr>
<tr>
<td>Frequent Dating</td>
<td>10</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>9</td>
</tr>
<tr>
<td>With male roommates</td>
<td>31</td>
</tr>
<tr>
<td>With male and female roommates</td>
<td>10</td>
</tr>
<tr>
<td>With romantic partner</td>
<td>15</td>
</tr>
<tr>
<td>With parents/family members</td>
<td>33</td>
</tr>
<tr>
<td>Religious Preference</td>
<td></td>
</tr>
<tr>
<td>Agnostic</td>
<td>21</td>
</tr>
<tr>
<td>Atheist</td>
<td>16</td>
</tr>
<tr>
<td>Baptist</td>
<td>4</td>
</tr>
<tr>
<td>Non-denominational Christian</td>
<td>21</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>4</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>23</td>
</tr>
<tr>
<td>Lutheran</td>
<td>2</td>
</tr>
<tr>
<td>Other religion/faith</td>
<td>10</td>
</tr>
<tr>
<td>Self-Reported Level of religiousness</td>
<td>2.2 (1.1)</td>
</tr>
<tr>
<td>Well Below Average</td>
<td>36</td>
</tr>
<tr>
<td>Somewhat Below Average</td>
<td>29</td>
</tr>
<tr>
<td>Average</td>
<td>18</td>
</tr>
<tr>
<td>Somewhat Above Average</td>
<td>17</td>
</tr>
<tr>
<td>Well Above Average</td>
<td>2</td>
</tr>
<tr>
<td>Compulsive Internet Use Scale</td>
<td>1.3 (.8)</td>
</tr>
<tr>
<td>Social Desirability Scale</td>
<td>8.5 (3.1)</td>
</tr>
<tr>
<td>Brief Sensation Seeking Scale</td>
<td>3.5 (.6)</td>
</tr>
</tbody>
</table>

*Note.* Some totals may not equal 100% due to rounding.
Table 5

*Participants’ Sexual History Characteristics (Studies 2 and 3)*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cue Exposure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Craving ((n = 137))</td>
</tr>
<tr>
<td></td>
<td>M(SD) or %</td>
</tr>
<tr>
<td>Age when participant first saw pornography</td>
<td>12.3 (2.5)</td>
</tr>
<tr>
<td>Age when first sexually aroused to porn</td>
<td>12.8 (2.2)</td>
</tr>
<tr>
<td>Ever masturbated to pornography</td>
<td>99%</td>
</tr>
<tr>
<td>Age when first masturbated to pornography</td>
<td>13.6 (2.0)</td>
</tr>
<tr>
<td>% of the time masturbating to pornography</td>
<td></td>
</tr>
<tr>
<td>50% or less</td>
<td>15</td>
</tr>
<tr>
<td>51-75%</td>
<td>12</td>
</tr>
<tr>
<td>76-100%</td>
<td>74</td>
</tr>
<tr>
<td>Typical weekly pornography use</td>
<td></td>
</tr>
<tr>
<td>0 = 0 times</td>
<td>3</td>
</tr>
<tr>
<td>1 = 1 to 2 times</td>
<td>31</td>
</tr>
<tr>
<td>2 = 3 to 5 times</td>
<td>32</td>
</tr>
<tr>
<td>3 = 6 to 10 times</td>
<td>22</td>
</tr>
<tr>
<td>4 = 11+ times</td>
<td>12</td>
</tr>
<tr>
<td>Typical weekly pornography use</td>
<td></td>
</tr>
<tr>
<td>Lower Users (0 to 2 times)</td>
<td>34</td>
</tr>
<tr>
<td>Medium Users (3 to 5 times)</td>
<td>32</td>
</tr>
<tr>
<td>Higher Users (6+)</td>
<td>34</td>
</tr>
<tr>
<td>Length of pornography session</td>
<td></td>
</tr>
<tr>
<td>1 = 15 minutes or less</td>
<td>40</td>
</tr>
<tr>
<td>2 = 16 to 30 minutes</td>
<td>36</td>
</tr>
<tr>
<td>3 = 31-59 minutes</td>
<td>18</td>
</tr>
<tr>
<td>4 = 1 to 2 hours</td>
<td>6</td>
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<tr>
<td>5 = 2 to 3 hours</td>
<td>1</td>
</tr>
<tr>
<td>Money spent on pornography</td>
<td></td>
</tr>
<tr>
<td>0 dollars per month</td>
<td>97</td>
</tr>
<tr>
<td>Less than $50 per month</td>
<td>3</td>
</tr>
<tr>
<td>Method to view pornography</td>
<td>Internet</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

| Have received professional help for porn | 2 | 4 | - |
| Want to seek professional help for porn | 4 | 4 | 5 |
| Someone recommended help for porn | 5 | 6 | 2 |

<table>
<thead>
<tr>
<th>Location when viewing pornography</th>
<th>At home/apartment/bedroom</th>
<th>Romantic partner’s place</th>
<th>Friend’s house/apartment</th>
<th>Stranger</th>
<th>Work</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pornography company</th>
<th>Alone</th>
<th>With romantic partner</th>
<th>With friends</th>
<th>With stranger/online date/webcam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>95</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances used while watching pornography</th>
<th>No drugs/alcohol used</th>
<th>Alcohol</th>
<th>Cannabis</th>
<th>Caffeine</th>
<th>Nicotine</th>
<th>Other (e.g., prescription opiates)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79</td>
<td>15</td>
<td>9</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% of softcore and hardcore porn</th>
<th>100% softcore, 0% hardcore</th>
<th>75% softcore, 25% hardcore</th>
<th>50% softcore, 50% hardcore</th>
<th>25% softcore, 75% hardcore</th>
<th>0% softcore, 100% hardcore</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3%</td>
<td>6%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>23</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>36</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>81</td>
<td>82</td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Straight</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gay</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bisexual</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uncertain</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Currently sexually active (% of Yes)</td>
<td>72</td>
<td>74</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of Sexually Transmitted Infections (% of Yes)</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime number of sexual intercourse partners</td>
<td>2.4 (1.9)</td>
<td>2.4 (1.9)</td>
<td>2.4 (1.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within last year, number of sexual intercourse partners</td>
<td>1.4 (1.3)</td>
<td>1.2 (.9)</td>
<td>1.5 (.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Compulsivity Scale (SCS)</td>
<td>1.5 (.5)</td>
<td>1.4 (.4)</td>
<td>1.5 (.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Some totals may not equal 100% due to rounding. *a* Participants could mark more than one answer.
Table 6

*Three Favorite Varieties of Pornography by Sexual Orientation (Study 2)*

<table>
<thead>
<tr>
<th>Favorite Variety of Pornography</th>
<th>Straight</th>
<th>Gay or Bisexual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st (n=168)</td>
<td>2nd (n=163)</td>
</tr>
<tr>
<td>Amateur porn</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>Anal sex/anal stimulation</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Bisexual</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bondage or “rough sex”</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Guy-and-girl</td>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>Guy-and-Guy (gay)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lesbian</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Group sex</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Fetish-related porn (e.g., feet)</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Oral sex (including ejaculation on body or face)</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Mature adults (i.e., actors generally aged 35 or older)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Race related or interracial (e.g., Latinas)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Sexual fantasy/role playing (e.g., teacher/student, babysitter)</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Masturbation (solo girl or guy)</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Three way sex</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Other porn (e.g., squirting, transsexual, hardcore, teen)</td>
<td>7</td>
<td>12</td>
</tr>
</tbody>
</table>

*Note.* Some totals may not equal 100% due to rounding.
Table 7

PCQ-12 Means, Standard Deviations, and Confidence Intervals for Cue Exposure Condition by Typical Weekly Pornography Use

(Study 2)

<table>
<thead>
<tr>
<th>Typical Weekly Pornography Use</th>
<th>Cue Exposure Condition</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Craving</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>M (SD) CI 95%</td>
<td>M (SD) CI 95%</td>
<td>M (SD) CI 95%</td>
</tr>
<tr>
<td>0 to 2 times</td>
<td>2.79 (1.12) [2.40, 3.19]</td>
<td>3.20 (1.17) [2.84, 3.56]</td>
<td>3.01 ( a \ b ) (1.16) [2.73, 3.26]</td>
</tr>
<tr>
<td>3 to 5 times</td>
<td>3.73 (1.45) [3.22, 4.30]</td>
<td>3.59 (1.06) [3.22, 3.95]</td>
<td>3.63 ( a \ c ) (1.20) [3.35, 4.0]</td>
</tr>
<tr>
<td>6+ times</td>
<td>4.37 (1.5) [3.88, 4.87]</td>
<td>4.10 (1.27) [3.75, 4.45]</td>
<td>4.19 ( b \ c ) (1.34) [3.93, 4.54]</td>
</tr>
<tr>
<td>Total M (SD)</td>
<td>3.63 (1.48) [3.36, 3.91]</td>
<td>3.63 (1.22) [3.42, 3.84]</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Subscripts sharing the same letter indicate significant differences \((p < .01)\) among means. Post-hoc comparisons (i.e., LSD) were used to determine group differences. Rating scale ranged from 1 (disagree completely) to 7 (agree completely).
Table 8
*Means and Standard Deviations on Individual PCQ-12 Items (Study 2)*

<table>
<thead>
<tr>
<th>Individual PCQ-12 Items</th>
<th>Typical Weekly Pornography Use</th>
<th>Significance Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 to 2 times</td>
<td>3 to 5 times</td>
</tr>
<tr>
<td>1. If I watched porn right now, I would have difficulty stopping.</td>
<td>2.81&lt;sub&gt;ab&lt;/sub&gt; (1.89)</td>
<td>3.73&lt;sub&gt;a&lt;/sub&gt; (1.84)</td>
</tr>
<tr>
<td>2. The thought of watching porn makes me sexually aroused.</td>
<td>4.13&lt;sub&gt;a&lt;/sub&gt; (1.58)</td>
<td>4.53 (1.64)</td>
</tr>
<tr>
<td>3. My heart would beat faster if I were watching porn right now.</td>
<td>4.44&lt;sub&gt;ab&lt;/sub&gt; (1.82)</td>
<td>5.08&lt;sub&gt;a&lt;/sub&gt; (1.21)</td>
</tr>
<tr>
<td>4. I would feel less bored if I watched porn right now.</td>
<td>4.18 (1.85)</td>
<td>4.32 (1.75)</td>
</tr>
<tr>
<td>5. If I were watching porn this minute, I would feel happier.</td>
<td>3.25&lt;sub&gt;a&lt;/sub&gt; (1.69)</td>
<td>3.77 (1.63)</td>
</tr>
<tr>
<td>6. Right now, I am making plans to watch porn.</td>
<td>1.88&lt;sub&gt;ab&lt;/sub&gt; (1.47)</td>
<td>2.65&lt;sub&gt;ac&lt;/sub&gt; (1.84)</td>
</tr>
<tr>
<td>7. If the situation allowed, I would watch porn right now.</td>
<td>2.67&lt;sub&gt;a&lt;/sub&gt; (1.78)</td>
<td>3.33&lt;sub&gt;b&lt;/sub&gt; (1.89)</td>
</tr>
<tr>
<td>8. If I were watching porn this minute, I would feel energized.</td>
<td>3.29&lt;sub&gt;a&lt;/sub&gt; (1.74)</td>
<td>3.89 (1.61)</td>
</tr>
<tr>
<td>9. I have an urge to watch porn right now.</td>
<td>2.39&lt;sub&gt;ab&lt;/sub&gt; (1.68)</td>
<td>3.18&lt;sub&gt;a&lt;/sub&gt; (1.80)</td>
</tr>
<tr>
<td>10. I will watch porn as soon as I get the chance.</td>
<td>1.87&lt;sub&gt;ab&lt;/sub&gt; (1.39)</td>
<td>2.76&lt;sub&gt;ac&lt;/sub&gt; (1.66)</td>
</tr>
<tr>
<td>11. I would feel less stressed if I watched porn right now.</td>
<td>2.68&lt;sub&gt;a&lt;/sub&gt; (1.85)</td>
<td>3.31 (1.85)</td>
</tr>
<tr>
<td>12. I want watch porn right now.</td>
<td>2.58&lt;sub&gt;a&lt;/sub&gt; (1.75)</td>
<td>3.05 (1.84)</td>
</tr>
</tbody>
</table>

*Note.* Subscripts sharing the same letter indicate significant differences (*p* < .01) among means. Rating scale ranged from 1 (disagree completely) to 7 (agree completely).
Table 9

Frequency Count for Items Endorsed for the PCQ-12 (Study 2)

<table>
<thead>
<tr>
<th>Items</th>
<th>DC</th>
<th>DS</th>
<th>DL</th>
<th>NAD</th>
<th>AL</th>
<th>AS</th>
<th>AC</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I watched porn right now, I would have difficulty stopping.</td>
<td>24%</td>
<td>15%</td>
<td>15%</td>
<td>8%</td>
<td>19%</td>
<td>15%</td>
<td>5%</td>
<td>3.5 (2.0)</td>
</tr>
<tr>
<td>2. The thought of watching porn makes me sexually aroused.</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td>15</td>
<td>30</td>
<td>15</td>
<td>14</td>
<td>4.6 (1.7)</td>
</tr>
<tr>
<td>3. My heart would beat faster if I were watching porn right now.</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>16</td>
<td>35</td>
<td>17</td>
<td>16</td>
<td>4.9 (1.6)</td>
</tr>
<tr>
<td>4. I would feel less bored if I watched porn right now.</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>14</td>
<td>25</td>
<td>16</td>
<td>15</td>
<td>4.5 (1.8)</td>
</tr>
<tr>
<td>5. If I were watching porn this minute, I would feel happier.</td>
<td>16</td>
<td>10</td>
<td>11</td>
<td>31</td>
<td>20</td>
<td>9</td>
<td>3</td>
<td>3.7 (1.7)</td>
</tr>
<tr>
<td>6. Right now, I am making plans to watch porn.</td>
<td>47</td>
<td>16</td>
<td>7</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>2.6 (1.9)</td>
</tr>
<tr>
<td>7. If the situation allowed, I would watch porn right now.</td>
<td>25</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>16</td>
<td>10</td>
<td>9</td>
<td>3.5 (2.0)</td>
</tr>
<tr>
<td>8. If I were watching porn this minute, I would feel less energized.</td>
<td>15</td>
<td>14</td>
<td>12</td>
<td>18</td>
<td>28</td>
<td>10</td>
<td>3</td>
<td>3.7 (1.7)</td>
</tr>
<tr>
<td>9. I have an urge to watch porn right now.</td>
<td>33</td>
<td>15</td>
<td>11</td>
<td>12</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>3.1 (1.9)</td>
</tr>
<tr>
<td>10. I will watch porn as soon as I get the chance.</td>
<td>41</td>
<td>16</td>
<td>14</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>3</td>
<td>2.7 (1.9)</td>
</tr>
<tr>
<td>11. I would feel less stressed if I watched porn right now.</td>
<td>30</td>
<td>18</td>
<td>8</td>
<td>12</td>
<td>17</td>
<td>11</td>
<td>4</td>
<td>3.2 (2.0)</td>
</tr>
<tr>
<td>12. I want watch porn right now.</td>
<td>33</td>
<td>16</td>
<td>11</td>
<td>11</td>
<td>17</td>
<td>6</td>
<td>6</td>
<td>3.1 (2.0)</td>
</tr>
</tbody>
</table>

PCQ-12

3.6 (1.3)

Note. Some totals may not equal 100% due to rounding. Rating scale ranged from 1 (disagree completely) to 7 (agree completely).

DC = Disagree Completely, DS = Disagree Somewhat, DA = Disagree A Little, NAD = Neither Agree nor Disagree, AL = Agree A Little, AS = Agree Somewhat, and AC = Agree Completely
Table 10

*Component Loadings for the PCQ-12 (Study 2)*

<table>
<thead>
<tr>
<th>Items</th>
<th>Component Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I watched porn right now, I would have difficulty stopping.</td>
<td>.63  .19</td>
</tr>
<tr>
<td>2. The thought of watching porn makes me sexually aroused.</td>
<td>.63  .12</td>
</tr>
<tr>
<td>3. My heart would beat faster if I were watching porn right now.</td>
<td>.44  .54</td>
</tr>
<tr>
<td>4. I would feel less bored if I watched porn right now.</td>
<td>.58  .45</td>
</tr>
<tr>
<td>5. If I were watching porn this minute, I would feel happier.</td>
<td>.72  .33</td>
</tr>
<tr>
<td>6. Right now, I am making plans to watch porn.</td>
<td>.76  -.46</td>
</tr>
<tr>
<td>7. If the situation allowed, I would watch porn right now.</td>
<td>.78  -.24</td>
</tr>
<tr>
<td>8. If I were watching porn this minute, I would feel less energized.</td>
<td>.68  .33</td>
</tr>
<tr>
<td>9. I have an urge to watch porn right now.</td>
<td>.86  -.30</td>
</tr>
<tr>
<td>10. I will watch porn as soon as I get the chance.</td>
<td>.84  -.25</td>
</tr>
<tr>
<td>11. I would feel less stressed if I watched porn right now.</td>
<td>.70  .07</td>
</tr>
<tr>
<td>12. I want to watch porn right now.</td>
<td>.84  -.25</td>
</tr>
</tbody>
</table>

\(a\) Component eigenvalue = 6.2; Percent of variance = 51.4%

\(b\) Component eigenvalue = 1.3; Percent of variance = 10.4%
Table 11

**Correlations, Means, and Standard Deviations of PCQ-12 with Sexual History and Background Characteristics (Study 2)**

<table>
<thead>
<tr>
<th>Sexual History Characteristics</th>
<th>PCQ-12</th>
<th>M (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pornography Craving Questionnaire (PCQ-12)</td>
<td>-</td>
<td>3.58 (1.32)</td>
<td>1-7</td>
</tr>
<tr>
<td>Harmonious Passionate Attachment for Pornography</td>
<td>.55**</td>
<td>3.32 (1.14)</td>
<td>1-7</td>
</tr>
<tr>
<td>Obsessive Passionate Attachment for Pornography</td>
<td>.50**</td>
<td>2.40 (1.17)</td>
<td>1-7</td>
</tr>
<tr>
<td>Typical Weekly Porn Use</td>
<td>.38**</td>
<td>2.05 (1.21)</td>
<td>0-4</td>
</tr>
<tr>
<td>Age when first sexually aroused to porn</td>
<td>.15*</td>
<td>12.90 (2.20)</td>
<td>8-20</td>
</tr>
<tr>
<td>Age when first masturbated to porn</td>
<td>.14*</td>
<td>13.53 (1.95)</td>
<td>8-20</td>
</tr>
<tr>
<td>Number of lifetime sexual partners</td>
<td>.03</td>
<td>2.40 (1.90)</td>
<td>0-30</td>
</tr>
<tr>
<td>Sexual Compulsivity</td>
<td>.36**</td>
<td>1.47 (.44)</td>
<td>1-4</td>
</tr>
<tr>
<td>Demographic Characteristic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.06</td>
<td>21.74 (4.0)</td>
<td>18-41</td>
</tr>
<tr>
<td>Level of Religiousness</td>
<td>.03</td>
<td>2.26 (1.17)</td>
<td>1-5</td>
</tr>
<tr>
<td>Brief Sensation Seeking Scale (BSSS)</td>
<td>.09</td>
<td>3.60 (.64)</td>
<td>1-4</td>
</tr>
<tr>
<td>Compulsive Internet Use Scale (CIUS)</td>
<td>.38**</td>
<td>1.25 (.76)</td>
<td>0-4</td>
</tr>
<tr>
<td>Social Desirability Scale (SDS-16)</td>
<td>-.13</td>
<td>8.66 (3.14)</td>
<td>1-16</td>
</tr>
</tbody>
</table>
Figure 1. *Flow Chart Outlining Procedures of Study 1*

- **Email List Created**
  - Random Assignment
    - Control Condition (660 emails)
    - Informed Consent
    - PCQ-Draft
    - Passion Scale
    - Porn History Questionnaire
    - Demographics
    - Debriefing
  - Craving-for-Pornography Condition (1,340 emails)
    - Informed Consent
    - PCQ-Draft
    - Passion Scale
    - Porn History Questionnaire
    - Demographics
    - Debriefing
Figure 2. Flow Chart Outlining Procedures of Study 2

Email List Created

Random Assignment
Enhanced Control Condition
(1,500 emails)

Informed Consent

Sensation Seeking Scale
Social Desirability Scale

Enhanced Condition Vignette Condition
With Image

PCQ-12
Passion Scale

Random Order:
Porn History Questionnaire
Sexual Behaviors Questionnaire
Compulsive Internet Use Scale
Sexual Compulsivity Scale
Demographic Questionnaire

Debriefing Sheet

Random Assignment
Enhanced Craving-for-Pornography
Condition
(2,500 emails)

Informed Consent

Sensation Seeking Scale
Social Desirability Scale

Enhanced Active Craving Vignette Condition
With Image

PCQ-12
Passion Scale

Random Order:
Porn History Questionnaire
Sexual Behaviors Questionnaire
Compulsive Internet Use Scale
Sexual Compulsivity Scale
Demographic Questionnaire

Debriefing Sheet
Figure 3. *Flow Chart Outlining Procedures of Study 3*

1. Recruitment Email to Participants at Time 1
2. Informed Consent
3. Sensation Seeking Scale
   Social Desirability Scale
4. Enhanced Craving-for-Pornography Vignette Condition With Image
5. PCQ-12 Passion Scale
6. Random Order:
   - Porn History Questionnaire
   - Sexual Behaviors Questionnaire
   - Sexual Compulsivity Scale
   - Demographic Questionnaire
7. Recruitment Email Sent to Participants at Time 2 (One Week Later)
8. Sensation Seeking Scale
   Social Desirability Scale
9. Enhanced Active Craving Vignette Condition With Image
10. PCQ-12 Passion Scale
   Porn use within the last seven days
11. Debriefing
APPENDIX A

Recruitment Email for Study 1

Dear BGSU Student,

You are receiving this email because you are an undergraduate male student enrolled at BGSU. I am inviting you to participate in a study on the attitudes and practices of pornography use among male students attending BGSU. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU.

In order to participate you must (a) be at least 18 years old, (b) male, and (c) have watched pornography at least once in the last 6 months. The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to be entered into a raffle to win either one $200 Wal-Mart gift card or one $100 Wal-Mart gift card.

You may wish to complete the survey in a private location where no one will be able to see your answers. I anticipate that your participation in this study will take approximately 15 to 20 minutes.

Click here if you want to participate: http://edu.surveygizmo.com/s3/540203/Attitudes-and-Beliefs-about-Pornography

Thanks again,

Shane

Shane W. Kraus, M.A.
Doctoral Candidate, Clinical Psychology
Department of Psychology
Bowling Green State University
Bowling Green, OH 43403
E-mail: swkraus@bgsu.edu
APPENDIX B

Informed Consent for Study 1

Before the study begins, there are several things for you to note:

Purpose

- You are invited to participate in a research study in which we are interested in asking you some questions about your attitudes about and behaviors associated with using pornography. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU.

- Some items you will be asked are sexually explicit and personal in nature. I will also ask you to provide some demographic information about yourself. You may decide to skip any question that you are not comfortable answering.

Eligibility Requirements

- You are eligible to participate in this study if you are (a) at least 18 years old, (b) a male student at BGSU, and (c) have watched pornography within the last 6 months.

Procedure

- Your participation will involve completing a questionnaire on the Internet. I estimate that your total participation will take about 18 to 24 minutes.

Risks

- The anticipated risks to you of participating in this study are no greater than those normally encountered in daily life.

Benefits

- The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to be entered into a raffle to win either one $200 Wal-Mart gift card or one $100 Wal-Mart gift card.

- In addition, by participating in this study, you will learn about how psychologists conduct research on this kind of topic. We hope to publish an article summarizing the overall results of this study, but no one person's answers will be presented -- only a summary of data from many subjects.
Participation is anonymous and completely voluntary

- Please note that your questionnaire answers are anonymous. We will not be collecting any information from you that would enable us to connect you, personally, with your survey responses. However, if you elect to be entered in the lottery for a prize, we will need you to provide your email address so we may contact you if you are a winner.

- Please remember that any information you provide will be kept completely confidential and the list of contact information used for the lottery will be destroyed after the study is complete. Your responses will not be saved until you click the “Submit” button at the end of the survey.

- Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Please note that deciding to participate or not will not affect your grades or class standing or your relationship with Bowling Green State University, your professors, the Psychology department, or the researcher.

- The data collected from the survey will be stored on a secure password protected computer in a locked office. Even if you decide to enter the drawing, we would be unable to link your answers on the questionnaires to your email address. The email address and data collected from the survey will be stored on a secure computer in a locked office.

Online Survey Participation

- Because the Internet is not 100% secure in terms of privacy, please do not leave the partially completed survey open or unattended if completing it on a public computer. If you choose to participate, you may also want to clear the browser cache and page history.

Your Rights as a Participant

- You are free to withdraw consent and to discontinue participation in the project at any time. You may click on the “X” at the top right hand corner of your computer window to exit the survey. Your responses will not be saved until you click the “Submit” button at the end of the survey.

- As a participant, you have the right to have all questions concerned with the study answered by the researcher, and you may request a summary or copy of the results of the study after its completion. At the end of the study, you will be given information about the purpose of this study.
Contact Information

- If you have any questions or comments about this study, you can contact the Principal Investigator, Shane Kraus, M.A., at (419) 372-4567, or the Project Supervisor, Harold Rosenberg, Ph.D., at (419) 372-7255. You may also contact the Chair, Human Subjects Review Board, Bowling Green State University, (419) 372-7716 (hsrb@bgsu.edu), if any problems or concerns arise during the course of the study.

- Participation in this project is voluntary. Please click on one of the buttons below to indicate your informed decision regarding whether or not you will participate in this study.

- This project was reviewed and approved by the BGSU Human Subject Review Board (HSRB) as Project Number: H11D261GE7 (Expires May 15, 2012)
APPENDIX C

Debriefing Sheet Used for Studies 1, 2, & 3

Directions: Thank you for participating in my study evaluating your attitudes about and behaviors associated with porn use. In completing this study, I hope to contribute to the literature with empirical data in the form of a publication and/or conference presentation. If you have any questions about the study, or want a summary of the results, you may contact me (the principal investigator) listed below:

Shane Kraus, M.A.
Department of Psychology
419- 372-4567
Email: swkraus@bgsu.edu

Although you have participated in this research project, I have no reason to believe you want or need professional assistance regarding your porn use; however, if you want, you could contact the following on campus resources listed below for additional information.

Counseling Center, Bowling Green State University
419-372-2081

Psychological Services Center, Bowling Green State University
419-372-2540

Here are some online resources to consider if you are interested in seeking help.

Internetbehavior.com; for problematic online behaviors
Sash.net - Society for the Advancement of Sexual Health's site on dealing with sexual behaviors
Healthymind.com - Resource for help with sex and cyber sex addiction
Intervention911.com - Resource for treating porn addiction with a live assistant
Locator.apa.org - For locating therapists in your area
Psychologytoday.com - For locating therapists or finding more resources
APPENDIX D

Pornography Craving Questionnaire (PCQ-Draft)

Directions: Listed below are questions that ask about your feelings about pornography. Please indicate how much you agree or disagree with each of the following statements by selecting the response that best reflects your answer. Remember, we are interested in how you are thinking or feeling RIGHT NOW, as you are filling out the questionnaire.

Disagree Completely
Disagree Somewhat
Disagree a Little
Neither Agree Nor Disagree
Agree a Little
Agree Somewhat
Agree Completely

1. Right now, I can control my porn use. [Reversed]
2. If I watched porn right now, I would not be able to stop.
3. My hands would shake if I watched porn.
4. The thought of watching porn makes me sexually aroused.
5. My heart would beat faster if I were watching porn right now.
6. I would feel less bored if I watched porn right now.
7. I want to watch porn so badly I can hardly stand it.
8. If I were watching porn this minute, I would feel happier.
9. Right now, I am making plans to watch porn.
10. If I were alone, I would watch porn.
11. All I want to do now is watch porn.
12. If I were watching porn this minute, I would feel less irritable.
13. My need to watch porn seems overpowering.
14. I have an urge to watch porn now.
15. I will watch porn as soon as I get the chance.
16. I cannot think of anything else but watching porn.
17. I crave porn right now.
18. I would feel less stressed if I watched porn right now.
19. Nothing would be better than watching porn right now.
20. I have no desire to watch porn right now. [Reversed]
APPENDIX E

Passion Scale – Adapted for Pornography (Vallerand et al. 2003)

Directions: Please answer the following questions about your porn use.

Disagree Completely
Disagree Somewhat
Disagree a Little
Neither Agree Nor Disagree
Agree a Little
Agree Somewhat
Agree Completely

1. Using porn exposes me to a variety of experiences.
2. The new things that I discover while using porn allow me to appreciate it even more.
3. Using porn provides me memorable experiences.
4. Using porn reflects the qualities I like about myself.
5. Using porn fits in with the other activities in my life.
6. For me, using porn is a passion that I manage to control.
7. I am completely consumed with using porn.
8. I cannot imagine living without porn.
9. The urge is so strong, I can't help myself from using porn.
10. I have difficulty imagining my life without using porn.
11. I am emotionally dependent on using porn.
12. I have a tough time controlling my need to use porn.
13. I almost feel obsessed with using porn.
14. My mood depends on me being able to use porn.
APPENDIX F

Pornography History Questionnaire for Studies 1, 2, & 3

Directions: For the purposes of this study, pornography or porn (also known as sexually explicit material) is defined as material designed to cause sexual arousal or sexual excitement. Such materials generally show images of nudity or different types of sexual acts (e.g., vaginal sex, anal sex, oral sex, masturbation, group sex, bondage, etc).

1. Have you watched porn in the last 30 days?
   Yes
   No

2. In a typical or average week, approximately HOW MANY TIMES do you view porn?
   0
   1 or 2 times
   3 to 5 times
   6 to 10 times
   11 +

3. About how long does a TYPICAL SESSION of watching porn last?
   5 minutes or less
   6 to 10 minutes
   11 to 20 minutes
   21 to 30 minutes
   31 to 60 minutes
   1 to 2 hours
   2 to 3 hours
   3 hours +

5. Please select all the methods you use to watch porn.
   Internet (e.g., websites, search engines, etc.)
   Rented or purchased videos or DVDS?
   Smart phone (e.g., Iphone, Blackberry, Droid, etc)
   Magazines or erotic books
   Other ______________

6. Where are you when you watch porn? Select all that apply:
   At my home/apartment/ bedroom
   Romantic partner’s place (e.g., boyfriend/girlfriend, husband/wife, partner)
   Friend(s) house/apartment
   Stranger(s) house/apartment
   Adult Bookstore
   Bath house/ sex house / sex motel
   Other ______________
7. Are you with anyone when you watch porn? Select all that apply.
   Alone
   With a romantic partner (e.g., boyfriend/girlfriend, husband/wife, partner)
   Friend(s)
   Stranger(s)
   Online date (e.g., craigslist, dating site, etc)
   Person(s) via online webcam
   Other ____________

8. How much money do you spend on porn each month?
   0 dollars per month
   Less than $25 per month
   $26-$50 per month
   $50+ per month

9. Please select all the drugs you TYPICALLY USE when you watch porn.
   Alcohol (e.g., beer, liquor)
   Cannabis (Marijuana)
   Caffeine (e.g., pop/soda, energy drinks, etc)
   Cocaine powder or Crack Cocaine
   Ecstasy/MDMA
   Methamphetamines (e.g., crystal meth)
   Nicotine (e.g., cigarettes)
   Prescription Opiates (painkillers) (e.g., oxycontin, vocodin)
   Street Ritalin, Adderall or Concerta
   Other ________________

10. How old were you when you first saw porn? _________

11. How old were you when you first became sexually aroused at the sight of porn? _____

12. Have you ever masturbated to porn?
   Yes
   No (skip 12a)

12a. If yes, how old were you when you first masturbated to porn? _________

13. How often do you masturbate when watching porn? ____________________%

15. Have you ever received professional help for your porn use (i.e., seen a counselor, therapist, psychologist, etc.)?
   Yes (answer 15a)       OR       No
15a. If yes, how helpful was the professional treatment you received?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not At All</td>
<td>Very Helpful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Helpful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Would you like to get professional help for your porn use but have not yet done so?
   Yes OR No

17. Has anyone ever recommended that you seek professional help because of your porn use?
   Yes OR No (skip question 18)

18. Who was it?
   Romantic partner (e.g., boyfriend/girlfriend, husband/wife, partner)
   Friend(s)
   Family member(s) (e.g., parents, siblings, etc.)
   Religious or spiritual advisor (pastor, minister, priest, etc)
   Other: __________________

**Directions:** Researchers find it useful to classify pornography as falling into one of two general types. Of the pornography that you watch, please estimate the percentage that falls into each of the two categories. The two percentages should add up to 100%.

**SOFTCORE pornography** refers to material that generally depicts naked or partially clothed women and/or men in sexually suggestive situations, but does not include explicit images or video of genitals (e.g., penis, vagina) or sexual penetration.

27. How much of the porn you watch do you consider SOFTCORE? __________

**HARDCORE pornography** shows either naked or partially clothed people and includes images or video of genitals and explicit sexual acts (e.g., vaginal or anal penetration, oral sex, group sex, etc.).

28. How much of the porn you watch do you consider HARDCORE? ________

29. Please type in your three favorite varieties of porn (e.g., bondage, girl-on-girl, guy-on-guy, group sex, anal sex, oral sex, etc.).
   (1) _______________, (2) _______________, and (3) _______________
APPENDIX G

Demographic Questionnaire for Studies 1, 2, & 3

1. Your age: 
   _____________ years

2. Your current year in school:
   Freshman
   Sophomore
   Junior
   Senior
   Graduate
   Other: __________

3. Your sexual orientation
   Heterosexual (straight)
   Homosexual (gay)
   Bisexual
   Other: ______

4. Relationship status:
   Single (not dating/some dating)
   In a serious relationship
   Engaged/Married
   Separated/Divorced/Widowed

5. With whom do you currently live?
   Alone
   With roommate(s) (same gender)
   With roommate(s) (same or opposite gender)
   Romantic partner (boyfriend, girlfriend, wife, husband)
   Parents or family members

6. Your ethnicity (check as many as apply):
   Caucasian
   African American
   Hispanic/Latino
   Asian American
   Native American
   Indian
   Biracial/multi-racial
   Other: __________
7. What is your current religious preference?
   Agnostic
   Atheist
   Baptist
   Buddhist
   Church of Christ
   Eastern Orthodox
   LDS (Mormon)
   Presbyterian
   Roman Catholic
   United Church of Christ (Congregational)
   Other Christian
   Other Religion
   None

10. Rate yourself on each of the following traits as compared with the average person your age.
    I want the most accurate estimate of how much you see yourself.

    Religiousness
    Highest 10%
    Above Average
    Average
    Below Average
    Lowest 10%
APPENDIX H

Cue Exposure Vignettes: Study 1

Craving-for-Pornography:

Please read this very slowly and try to imagine you are in the following situation:

You are home alone sitting in front of your computer. You are listening to music and feeling relaxed and at ease. As you imagine yourself sitting in front of the computer, you think about either checking your email or spending a few minutes on some of your favorite websites. Before you decide what to do, you start to think about how you felt the last time you watched porn on the computer. You begin to feel yourself become strongly interested in either checking out some porn on one of your favorite sites or surfing the Internet for something new. Imagine how you would feel – perhaps a bit nervous, very excited, and really turned on. You notice that your heart is racing as you think about the type of porn that you like to watch. Now take a few seconds to imagine you are actually sitting in front of your computer right now and are thinking about opening up one of your favorite porn sites.

Control:

Please read this very slowly and try to imagine you are in the following situation:

You are home alone sitting in front of your computer. You are listening to music and feeling relaxed and at ease. As you imagine yourself sitting in front of the computer, you think about either checking your email or spending a few minutes on some of your favorite websites. Before you decide what to do, you start to think about a research paper you need to write for your class. Although working on class assignments is not your favorite thing to do in your spare time, you decide that you might as well find some of your sources you will need to help write the paper. Imagine how you would feel – perhaps relaxed and a bit interested to find some new material to write your paper. Now take a few seconds to imagine you are actually sitting in front of your computer right now and are ready to go online to find for sources for your research paper.
APPENDIX I

Recruitment Email for Study 2

Understanding Men’s Sexual Behaviors and Practices

Dear BGSU Student,

You are receiving this email because you are a male undergraduate student enrolled at BGSU. I am inviting you to participate in a study on the attitudes and practices of pornography use among male students attending BGSU. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU.

In order to participate you must (a) be at least 18 years old, (b) male, and (c) have watched pornography at least once in the last 6 months. The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to be entered into a raffle to win either one $200 Wal-Mart gift card or one $100 Wal-Mart gift card.

You may wish to complete the survey in a private location where no one will be able to see your answers. I anticipate that your participation in this study will take approximately 15 to 20 minutes.


Thanks again,

Shane

******************************************************
Shane W. Kraus, M.A.
Doctoral Candidate, Clinical Psychology
Department of Psychology
Bowling Green State University
Bowling Green, OH 43403
E-mail: swkraus@bgsu.edu
APPENDIX J

Informed Consent for Study 2

Before the study begins, there are several things for you to note:

Purpose

- You are invited to participate in a research study in which we are interested in asking you some questions about your attitudes about and behaviors associated with using pornography. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU.

- Some items you will be asked are sexually explicit and personal in nature. I will also ask you to provide some demographic information about yourself. You may decide to skip any question that you are not comfortable answering.

Eligibility Requirements

- You are eligible to participate in this study if you are (a) at least 18 years old, (b) a male student at BGSU, and (c) have watched pornography within the last 6 months.

Procedure

- Your participation will involve completing a questionnaire on the Internet. I estimate that your total participation will take about 18 to 24 minutes.

Risks

- The anticipated risks to you of participating in this study are no greater than those normally encountered in daily life.

Benefits

- The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to be entered into a raffle to win either one $200 Wal-Mart gift card or one $100 Wal-Mart gift card.

- In addition, by participating in this study, you will learn about how psychologists conduct research on this kind of topic. We hope to publish an article summarizing the overall results of this study, but no one person's answers will be presented -- only a summary of data from many subjects.
Participation is anonymous and completely voluntary

- Please note that your questionnaire answers are **anonymous**. We will not be collecting any information from you that would enable us to connect you, personally, with your survey responses. However, if you elect to be entered in the lottery for a prize, we will need you to provide your email address so we may contact you if you are a winner.

- Please remember that any information you provide will be kept **completely confidential** and the list of contact information used for the lottery will be destroyed after the study is complete. Your responses will not be saved until you click the “Submit” button at the end of the survey.

- Your participation is **completely voluntary**. You are free to **withdraw at any time**. You may decide to skip questions or discontinue participation at any time without penalty. Please note that deciding to participate or not will not affect your grades or class standing or your relationship with Bowling Green State University, your professors, the Psychology department, or the researcher.

- The data collected from the survey will be stored on a secure password protected computer in a locked office. Even if you decide to enter the drawing, we would be unable to link your answers on the questionnaires to your email address. The email address and data collected from the survey will be stored on a secure computer in a locked office.

Online Survey Participation

- Because the Internet is not 100% secure in terms of privacy, please do not leave the partially completed survey open or unattended if completing it on a public computer. If you choose to participate, you may also want to clear the browser cache and page history.

Your Rights as a Participant

- You are free to withdraw consent and to discontinue participation in the project at any time. You may click on the “X” at the top right hand corner of your computer window to exit the survey. Your responses will not be saved until you click the “Submit” button at the end of the survey.

- As a participant, you have the right to have all questions concerned with the study answered by the researcher, and you may request a summary or copy of the results of the study after its completion. At the end of the study, you will be given information about the purpose of this study.
Contact Information

- If you have any questions or comments about this study, you can contact the Principal Investigator, Shane Kraus, M.A., at (419) 372-4567, or the Project Supervisor, Harold Rosenberg, Ph.D., at (419) 372-7255. You may also contact the Chair, Human Subjects Review Board, Bowling Green State University, (419) 372-7716 (hsrb@bgsu.edu), if any problems or concerns arise during the course of the study.

- Participation in this project is voluntary. Please click on one of the buttons below to indicate your informed decision regarding whether or not you will participate in this study.

- This project was reviewed and approved by the BGSU Human Subject Review Board (HSRB) as Project Number: H11D261GE7 (Expires May 15, 2012)
APPENDIX K

Pornography Craving Questionnaire (PCQ-12)

**Directions:** Please indicate how much you agree or disagree with each of the following statements. Remember, we are interested in how you are thinking or feeling RIGHT NOW, as you are filling out the questionnaire.

1 = Disagree Completely
2 = Disagree Somewhat
3 = Disagree a Little
4 = Neither Agree Nor Disagree
5 = Agree a Little
6 = Agree Somewhat
7 = Agree Completely

1. The thought of watching porn makes me sexually aroused.
2. I would feel less bored if I watched porn right now.
3. I will watch porn as soon as I get the chance.
4. If I were watching porn this minute, I would feel energized.
5. If I watched porn right now, I would have difficulty stopping.
6. I have an urge to watch porn right now.
7. If I were watching porn this minute, I would feel happier.
8. If the situation allowed, I would watch porn right now.
9. Right now, I am making plans to watch porn.
10. I would feel less stressed if I watched porn right now.
11. My heart would beat faster if I were watching porn right now.
12. I want to watch porn right now.
APPENDIX L

**Passion Scale – Adapted for Pornography (Vallerand et al. 2003)**

Instruction: Please answer the following questions about your porn use.

Disagree Completely
Disagree Somewhat
Disagree A Little
Neither Agree nor Disagree
Agree
A Little Agree
Somewhat Agree
Completely Agree

1) Using porn exposes me to a variety of experiences.

2) My mood depends on me being able to use porn.

3) The new things that I discover while using porn allow me to appreciate it even more.

4) I almost feel obsessed with using porn.

5) Using porn provides me memorable experiences.

6) I am emotionally dependent on using porn.

7) I have difficulty imagining my life without using porn.

8) Using porn reflects the qualities I like about myself.

9) When the urge is so strong, I can't help myself from using porn.

10) Using porn fits in with the other activities in my life.

11) I cannot imagine living without porn.

12) For me, using porn is a passion that I manage to control.

13) I have a tough time controlling my need to use porn.

14) I am enthusiastic about using porn.
APPENDIX M

**Sexual Behaviors Questionnaire**

Directions: Please respond honestly to the following questions:

1. Are you currently sexually active?
   - Yes
   - No

2. Have you ever been treated for a sexually transmitted disease (STD) (e.g., Chlamydia, Gonorrhea, Herpes, Human Papilloma Virus, etc)?
   - Yes
   - No (skip 2a)

2a. How many times have you been treated for an STD? __________

3. During your entire life, with how many partners have you had sexual intercourse.

| 0 | 1 | 2-3 | 4-6 | 7-10 | 11-15 | 16-20 | 21-29 | 30+ |

4. With how many partners have you had sexual intercourse within the past year.

| 0 | 1 | 2-3 | 4-6 | 7-10 | 11-15 | 16-20 | 21-29 | 30+ |

5. With how many partners have you had sexual intercourse on one and only one occasion?

| 0 | 1 | 2-3 | 4-6 | 7-10 | 11-15 | 16-20 | 21-29 | 30+ |
APPENDIX N

Brief Sensation Seeking Scale (BSSS) (Hoyle et al., 2002)

**Directions:** Please circle the response from “Strongly Disagree” to “Strongly Agree” that best corresponds with your personal view about each statement.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

1. I would like to explore strange places.
2. I would like to take off on a trip with no pre-planned routes or timetables.
3. I get restless when I spend too much time at home.
4. I prefer friends who are excitingly unpredictable.
5. I like to do frightening things.
6. I would like to try bungee jumping.
7. I like wild parties.
8. I would love to have new and exciting experiences, even if they are illegal.
APPENDIX O

Compulsive Internet Use Scale (CIUS) (Meerkerk et al., 2009)

Directions: Please answer the following questions about your use of the Internet for private purposes.

Never    Seldom    Sometimes    Often    Very Often

1. How often do you find it difficult to stop using the Internet when you are online?

2. How often do you continue to use the Internet despite your intention to stop?

3. How often do others (e.g., partner, children, parents, or friends) say you should use the Internet less?

4. How often do you prefer to use the Internet instead of spending time with others (e.g., partner, children, parents, or friends)?

5. How often are you short of sleep because of the Internet?

6. How often do you think about the Internet, even when not online?

7. How often do you look forward to your next Internet session?

8. How often do you think you should use the Internet less often?

9. How often have you unsuccessfully tried to spend less time on the Internet?

10. How often do you rush through your (home) work in order to go on the Internet?

11. How often do you neglect your daily obligations (work, school, or family life) because you prefer to go on the Internet?

12. How often do you go on the Internet when you are feeling down?

13. How often do you use the Internet to escape from your sorrows or get relief from negative feelings?

14. How often do you feel restless, frustrated, or irritated when you cannot use the Internet?
APPENDIX P

Sexual Compulsivity Scale (Kalichman & Rompa, 1995)

**Directions:** A number of statements that some people have used to describe themselves are given below. Read each statement and then circle the number to show how well you believe the statement describes you.

- Not at all like me
- Slightly like me
- Mainly like me
- Very Much like me

1. My sexual appetite has gotten in the way of my relationships.

2. My sexual thoughts and behaviors are causing problems in my life.

3. My desires to have sex have disrupted my daily life.

4. I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors.

5. I sometimes get so horny I could lose control.

6. I find myself thinking about sex while at work.

7. I feel that sexual thoughts and feelings are stronger than I am.

8. I have to struggle to control my sexual thoughts and behavior.

9. I think about sex more than I would like to.

10. It has been difficult for me to find sex partners who desire having sex as much as I want to.
APPENDIX Q

Social Desirability Scale (SDS-17) (Stober, 2001)

**Directions:** The following questions are True/False. Please circle the correct answer that best fits how you feel about yourself.

True
False

1. I sometimes litter. [Reversed]
2. I always admit my mistakes openly and face the potential negative consequences.
3. In traffic, I am always polite and considerate of others.
4. I always accept others opinions, even when they do not agree with my own.
5. I take out my bad moods on others now and then. [Reversed]
6. There has been an occasion when I took advantage of someone else. [Reversed]
7. In conversations, I always listen attentively and let others finish their sentences.
8. I never hesitate to help someone in case of emergency.
9. When I have made a promise, I keep it-no ifs, ands, or buts.
10. I occasionally speak badly of others behind their back. [Reversed]
11. I would never live off other people.
12. I always stay friendly and courteous with other people, even when I am stressed out.
13. During arguments I always stay objective and matter-of-fact.
14. There has been at least one occasion when I failed to return an item that I borrowed. [Reversed]
15. I always eat a healthy diet.
16. Sometimes, I only help because I expect something in return. [Reversed]
APPENDIX R

Cue Exposure Vignettes for Studies 2 & 3

Craving-for-Pornography:

Imagine you are in the following situation:

Imagine you are home alone sitting in front of your computer. You are listening to music and feeling relaxed and at ease.

As you imagine yourself sitting in front of the computer, you think about either checking your email or spending a few minutes on some of your favorite porn websites.

As you think about going online, you start to remember how you felt – perhaps a bit nervous, excited, and turned on -- the last time you watched porn on your computer.

Even now, you may notice how different you feel as you think about the type of porn that you like to watch -- girl-on-girl, oral sex, guy-and-guy, group sex, or anal sex.

After remembering how much you enjoyed watching your favorite porn videos the last time, you decide to go ahead and check out some porn on one of your sites.

Now take a moment to imagine you are actually sitting in front of your computer right now and have decided to look at one of your favorite porn sites.

Directions: Please count to 20 while you are looking at the image below, and then click on the NEXT button below:

![Adult Sex Site: Free Porn Pictures & Hardcore Movies](Image)

NOTE: This website contains sexually explicit adult content!
Control:

Please read this very slowly and try to imagine you are in the following situation:

You are home alone sitting in front of your computer. You are listening to music and feeling relaxed and at ease.

As you imagine yourself sitting in front of the computer, you think about either checking your email or spending a few minutes on some of your favorite websites.

As you think about going online, you start to think about a research paper you need to write for a class.

Imagine how you would feel – perhaps a bit concerned whether you’ll find what you need for the paper but also interested to see if you can find what you are looking for – articles, websites, newspaper clippings on the topic.

After remembering how much you enjoyed getting a head start finding material to write a paper for another class, you decide to go ahead and check out sites for this assignment.

Now take a moment to imagine you are actually sitting in front of your computer right now and are ready to go online to find sources for your research paper.

Directions: Please count to 20 while you are looking at the image below, and then click on the NEXT button below:

Term Paper Helper: Free Research Articles & Academic Resources

Note: This website is for use of registered students in an American university!
Understanding Men's Sexual Behaviors and Practices

Dear BGSU Student,

You are receiving this email because you are a male undergraduate student enrolled at BGSU. I am inviting you to participate in a study on the attitudes and practices of pornography use among male students attending BGSU. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU. You are eligible to participate in this study if you are (a) at least 18 years old and (b) a male undergraduate student at BGSU.

The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to receive extra credit for your participation.

Your participation will involve completing two sets of questionnaires – one week apart – using a link to the Internet. I estimate that your total participation in the first survey (Time 1) should take about 20-25 minutes. One week later, I will ask you to take another survey (Time 2), however, the time commitment will be much shorter, around 10-15 minutes.

You may wish to complete the survey in a private location where no one will be able to see your answers. Please note that your questionnaire answers are anonymous. I will not be collecting any information from you that would enable me to connect you, personally, with your survey responses. At the end of the survey, if you wish to receive extra credit for your participation, you will be directed to a new link where you can fill out the Extra Credit survey. Please remember to complete the extra credit survey after each time period (Time 1 and Time 2). I want to be able to give you full credit for your participation.

Click here to participate:

Thanks again,

Shane

Shane Kraus, MA
Doctoral Candidate, Clinical Psychology
Department of Psychology
Bowling Green State University
Bowling Green, OH 43403
swkraus@bgsu.edu
APPENDIX T

Recruitment Email for Study 3 – Time Two

Dear Student,

Last week, you received an email inviting you to participate in a study that I am conducting as part of my dissertation in the Department of Psychology at BGSU. This week, I would like you to complete the second part of the study (Time 2). I estimate that your participation will take around 10-15 minutes. Remember, you may wish to complete the survey in a private location where no one will be able to see your answers. Also, please remember that your questionnaire answers are anonymous and I will not be collecting any information from you that would enable me to connect you, personally, with your survey responses. At the end of the survey, please remember to complete the extra credit survey.

Click here to participate:

Shane

Shane Kraus, MA
Doctoral Candidate, Clinical Psychology
Department of Psychology
Bowling Green State University
Bowling Green, OH 43403
swkraus@bgsu.edu
APPENDIX U

Informed Consent for Study 3

Before the study begins, there are several things for you to note:

Purpose

- You are invited to participate in a research study in which we are interested in asking you some questions about your attitudes about and behaviors associated with using pornography. I am conducting this research project as part of my dissertation in the Department of Psychology at BGSU.
- Some items you will be asked are sexually explicit and personal in nature. I will also ask you to provide some demographic information about yourself. You may decide to skip any question that you are not comfortable answering.

Eligibility Requirements

- You are eligible to participate in this study if you are (a) at least 18 years old and (b) a male undergraduate student at BGSU.

Procedure

- Your participation will involve completing two sets of questionnaires – one week apart – using a link to the Internet. I estimate that your total participation in the first survey (Time 1) should take about 20 minutes. One week later, I will ask you to take another survey (Time 2), however, the time commitment will be much shorter, around 10 minutes.

Risks

- The anticipated risks to you of participating in this study are no greater than those normally encountered in daily life.

Benefits

- The benefits of participating in this project include: (a) advancing psychologists' understanding of people's attitudes and practices associated with watching pornography, (b) raising your awareness of your attitudes and practices regarding your pornography use, and (c) the opportunity to receive extra credit for your participation, if your instructor approves it for you.
- In addition, by participating in this study, you will learn about how psychologists conduct research on this kind of topic. We hope to publish an article summarizing the overall results of this study, but no one person's answers will be presented -- only a summary of data from many subjects.
Participation is anonymous and completely voluntary

- Please note that your questionnaire answers are anonymous. I will not be collecting any information from you that would enable me to connect you, personally, with your survey responses. At the end of the survey, if you wish to receive extra credit from for your participation, you will be directed to a new link where you can fill out the Extra Credit survey. The Extra Credit survey will ask you to enter the name of the class you are currently enrolled in and your first and last name so that I can make sure your instructor assigns you credit. However, please note that the Extra Credit survey CANNOT be tied in any way to your answers. Your answers WILL NOT BE SHARED with your instructor; only the principal investigator, Shane Kraus, will see your answers, and even he won’t be able to tie answers to names. Your instructor will receive only a list of the names of people who participated in the study so that you can get extra credit.
- Please note that you will receive extra for completing the study at both time points (Time 1 and Time 2). However, in order to receive full credit, you must complete both time points.
- Your responses will not be saved until you click the “Submit” button at the end of the survey.
- Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Please note that deciding to participate or not will not affect your grades or class standing or your relationship with Bowling Green State University, your professors, the Psychology department, or the researcher.
- The data collected from the survey will be stored on a secure password protected computer in a locked office. Even if you decide to enter the drawing, we would be unable to link your answers on the questionnaires to your email address. The email address and data collected from the survey will be stored on a secure computer in a locked office.

Online Survey Participation

- Because the Internet is not 100% secure in terms of privacy, please do not leave the partially completed survey open or unattended if completing it on a public computer. If you choose to participate, you may also want to clear the browser cache and page history.

Your Rights as a Participant

- You are free to withdraw consent and to discontinue participation in the project at any time. You may click on the “X” at the top right hand corner of your computer window to exit the survey. Your responses will not be saved until you click the “Submit” button at the end of the survey.
- As a participant, you have the right to have all questions concerned with the study answered by the researcher, and you may request a summary or copy of the results of the study after its completion. At the end of the study, you will be given information about the purpose of this study.
Contact Information

- If you have any questions or comments about this study, you can contact the Principal Investigator, Shane Kraus, M.A., at (419) 372-4567, or the Project Supervisor, Harold Rosenberg, Ph.D., at (419) 372-7255. You may also contact the Chair, Human Subjects Review Board, Bowling Green State University, (419) 372-7716 (hsrb@bgsu.edu), if any problems or concerns arise during the course of the study.
- Participation in this project is voluntary. Please click on one of the buttons below to indicate your informed decision regarding whether or not you will participate in this study.
- This project was reviewed and approved by the BGSU Human Subject Review Board (HSRB) as Project Number: H11D261GE7 (Expires May 15, 2012)