Pornography Addiction and Mental Health Disorders

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Acceptance of Senior Honors Thesis

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Abstract

This study aims to understand the differences between mental health disorders in a sample of pornography users, addicts, and non-users. Participants in the study included males and females who visited a paraprofessional counseling center on a college campus (n=1048). Between non-users and users of pornography, one-way analysis of variance planned comparison results indicated that participants significantly differed in scores of Depression, Anxiety, and Global Severity Index as measured by the Brief Symptom Inventory 18 (BSI 18). Non-Suicidal Self-Injurious behaviors as measured by the Ottawa Self-Injury Inventory; and Grandiosity/Narcissism as measured by the Spiritual Assessment Inventory. Independent sample t-test scores indicated that self-reported pornography addicts and non-addicted pornography users only differed in scores of Somatization as measured by the BSI 18.

Pornography Addiction and Mental Health Disorders

Recently, pornography addiction was rejected as a disorder from the upcoming edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Robinson, 2011), despite numerous studies indicating the negative effects that excessive pornography use has on an individual. Several studies have indicated that both sex and pornography are addictive behaviors (White & Kimball, 2009; Kwee, Dominquez, & Ferrell, 2007; Levine, 2010; Young, 2008; Carnes, Murray, & Charpentier, 2005) that need to be better understood. Mental health disorders that have been associated with pornography usage include depression (Schneider, 2000; Ybarra & Mitchell, 2005), global severity of psychological symptoms (Brand, Laier, Pawlikowski, Schächtle, Schöler, & Altstötter-Gleich, 2011), and anxiety (Levin, Lillis, & Hayes, 2012; Morrison, Harriman, Morrison, Bearden, & Ellis, 2004). Additionally, individuals with narcissistic personality disorder have been found to experience more fleeting romantic relationships lacking intimacy and commitment than non-narcissistic individuals (Twenge, 2007), something which pornography users also suffer (Lambert, Negash, Stillman, Olmstead, & Fincham, 2012).

Background

Cooper, Griffin-Shelley, Delmonico, and Mathy (2001) found that a high percentage of individuals with online sexual problems or troubles related to pornography usage not seen in the average individual reported having current or prior contact with a mental health professional for both present and past psychiatric medication and counseling. In addition, Cooper et al. (2001) indicated that it is unclear whether or not

seeking psychological help is an antecedent or a consequence of online sexual problems and addiction to pornography.

Whether or not a significant difference exists between those individuals who do and do not view pornography and their indications of mental health disorders is yet to be fully addressed in literature. Additionally, as seen in the discrepancies in the literature, when studying addiction, it is difficult to determine whether or not an individual has a predetermined neurological likelihood to become addicted to a certain substance, or if addiction comes after the consumption of said substance (Sahm, 2003; Kurti & Dallery, 2012).

Definitions of pornography were not given to the participants when they answered the questionnaire. Since participants in this study self-reported their pornography usage, and since their definitions of pornographic material may differ depending on their own understanding of the word, a standard definition of pornography will not be given.

Literature Review

Addiction

Extensive pornography usage among individuals has been found to include problematic behaviors, including addiction, that interfere with some areas of functioning (Wetterneck, Burgess, Short, Smith, & Cervantes, 2012). According to Hilton and Watts (2011), a neurological study of addiction shows that not only do known chemical changes occur in the brain at the onset of addiction, but anatomical and pathological changes can also occur, resulting in hypofrontal syndromes. These syndromes include: compulsivity, emotional liability, impaired judgment, and impulsivity.

Impulsivity is a root of addiction that can eventually be detrimental if not put in check by proper frontal lobe processing. According to pornography research, both impulsivity and compulsivity have been found to be more damaging to individuals who experience problematic Internet pornography usage, or addiction, than those who do not use pornography with the same severity (Wetterneck, Burgess, Short, Smith, & Cervantes, 2012). With such serious problems affecting individuals with addictions, the need for better diagnoses, treatment, and determination of underlying causes of different addictions is at an all time high. The exact number of individuals who exhibit addictive behaviors is largely unknown due to the lack of diagnoses targeting impulsivity (Tamam, Zeingin, Karakus, & Ozturk, 2008).

Sexual addiction is a serious problem that has been defined as a "chronic, relapsing disorder in which repeated sexual stimulation persists despite serious negative consequences" (Levine, 2010, p. 264). These negative consequences can include a failing marriage, sexually transmitted infections or diseases from entering into sexual activity with other infected individuals, a decline in job performance, and other similar consequences detrimental to the individual's life. Individuals with a sexual addiction have been known to alleviate their sexual urges by means of pornography consumption, and can experience many of the non-physical consequences of sexual addiction through pornography consumption alone (Levine, 2010).

Negative, Non-Mental Health Consequences of Pornography

Related to sexual addiction, pornography causes many of the same negative consequences in individuals' lives. Previous research (Bryden & Grier, 2011) addressed the suspicion that pornography is one of the causal factors of rape. It was argued that in

situations where rapists view pornography in which women enjoy the act, the belief that the crime is not truly unlawful begins to formulate in the perpetrator's mind. Bryden and Grier (2011) also proposed that pornography that held no rape scenes encouraged rapists to force a woman into sex because of a deluded belief that sex with a stranger constitutes an enjoyable act, despite her protests to the contrary. However, the researchers also confess a lack of full knowledge about this problem and argue that pornography still needs to be further studied in order to make a more accurate prediction (Bryden & Grier, 2011).

In casual pornography viewing, research has indicated that those who view pornography and those who do not view pornography differ significantly in the types of problems that they experience in life (Twohig, Crosby, & Cox, 2009). It was suggested that such problems as legal/occupational issues, social implications, physical problems (including pain and injury), and financial troubles were directly linked to pornography usage (Twohig, Crosby, & Cox, 2009).

In Mulac, Jansma, and Linz's (2002) study, the researchers found that male individuals who viewed sexually explicit films displayed attitudes of abusive dominance, increased anxiety, and rejected sexual offers from their partners more often than those men who viewed non-sexually explicit films. Mulac et al. (2002) indicated that their study contained some evidence that men who view sexually explicit material treat women in a more demeaning and degrading manner than those who do not view pornography at all. However, Mulac et al. (2002) did contend that there are other underlying factors and complex explanations to these findings besides the simple act of viewing pornography. Additionally, prolonged exposure to pornographic material has been found to increase the

acceptance of both male dominance and female servitude in males as well as females (Zillmann & Bryant, 1988).

The Internet and Pornography

The Internet allows users to experience a sense of anonymity as well as to enjoy greater access to sites that allow them to view pornography than print sources afford. With easier access to pornographic material, more individuals are finding themselves exploring online sites that allow them to engage in sexual exploration (Cooper et al., 2001), which has been found to negatively impact an individual's everyday life (Brand et al., 2011).

As reported by Young (2008), Websense, Inc. claimed that accessing pornography was the leading cause, at a rate of 42%, for disciplinary action or termination in the workplace. The ability to access the Internet while at work obviously contributes to this. An addict's desire to view pornography, even in the workforce, often overwhelms the responsibilities he or she holds in the workplace. The Internet provides the tools necessary for porn addicts to execute their desires wherever and whenever the Internet is available.

Pornography and Mental Health Disorders

Studies on pornography usage and mental health disorders have indicated that compared to non-pornography users, users have reported higher levels of depressive symptoms, a poorer quality of life and more mental and physical health suppressive days (Weaver III, Weaver, Mays, Hopkins, Kannenberg, McBride, 2011). Additionally, higher levels of anxiety in pornography users (Morrison et al., 2004) and instances of narcissistic personality disorder in the pornographic material itself (Mercer, 2004) have

been discovered. Global severity of psychological symptoms has also been related to self-reported problems in individuals' daily lives as linked to pornography usage (Brand, Laier, Pawlikowski, Schächtle, Schöler, & Altstötter-Gleich, 2011).

Depression. Many mental health disorders are experienced by individuals outside of psychiatric units. Among these mental health disorders, according to the Centers for Disease Control and Prevention (2011), depression affects one in ten adults in the United States, with 4.1% of Americans experiencing Major Depressive Disorder. Several interviews with individuals who self-reported using pornography or cybersex on the Internet reported symptoms of depression (Schneider, 2000). Using cybersex subscales and indications of pornography usage, significant differences were found between symptoms of depression endured by women who were and were not addicted to sex (Corley & Hook, 2012). However, Corley and Hook (2012) reported finding no significant correlation between viewing pornography and not viewing pornography in scores of depression with the Depression Anxiety Stress Scale-21.

In terms of pornography found on the Internet and pornography offline, those individuals who have sought pornography online are more likely to report clinically concerning depressive symptoms than those individuals who seek pornography from a different means than the Internet (Ybarra & Mitchell, 2005). In a religious male sample, those individuals who did not use pornography had higher levels of self-worth and lower levels of depression than those men who had viewed pornography (Nelson, Padilla-Walker, & Carroll, 2010).

Anxiety. The term anxiety refers to the psychological and physiological stress that is characterized by somatic, emotional, cognitive, and behavioral characteristics.

Anxiety can produce somatization of psychological stress when presented in either a severe or continuous method. In a sample of college males who viewed pornography online, levels of anxiety were higher in individuals who both viewed pornography and demonstrated experiential avoidance levels (Levin, Lillis, & Hayes, 2012). Previous research has also found inverse correlations between male and female college students' levels of sexual anxiety and their reported exposure to sexually explicit materials (Morrison et al., 2004), indicating that the higher the sexual anxiety was, the more pronounced the exposure to sexually explicit material. With this in mind, it should be noted that while sexual anxiety is similar to anxiety, it should not be confused with generalized anxiety disorder. Further research on anxiety, including generalized anxiety, does not currently exist as it relates to pornography usage.

Narcissism. While research on narcissism as a presenting disorder of pornography users is lacking, some studies have mentioned the possible relationship between the two. Narcissism and homosexual pornography usage were suggested to be linked in such a way that those actors featured in pornographic material displayed their bodies in ways that would be characteristic of individuals diagnosed with a narcissistic personality disorder (Mercer, 2004), suggesting that individuals who view such pornography mirror the narcissism presented. In a further analysis of homosexual pornography, Mercer (2004) found that there was evidence of both narcissism and voyeurism in most material.

While a direct link does not necessarily exist between pornography use and narcissistic personality disorder, narcissistic tendencies to seek out brief romantic relationships that lack intimacy, fidelity, and commitment (Twenge, 2007) have been

found in those individuals who view pornography (Lambert, Negash, Stillman, Olmstead, & Fincham, 2012).

Further research on narcissistic personality disorder and pornography usage has not yet been explored.

Present Study

The purpose of this study is to discover whether or not there exists a co-morbidity between pornography addiction and mental health disorders, and whether or not individuals who understand their pornography usage as an addictive behavior differ significantly from those individuals who do not consider their usage to be addictive. Previous research suggests that mental health disorders are linked to pornography usage already (Cooper et. al, 2001). Research, however, is scarce in focusing exclusively on the possible link between pornography addiction and mental health disorders such as depression, anxiety and spiritual narcissism/grandiosity.

The hypothesis and research questions for this study are as follows:

Research Question 1: Will pornography usage (current, non-active, and non-existent) have a significant impact on scores of Depression, Somatization, Anxiety, Spiritual Narcissism/Grandiosity, Global Severity (or general mental health), Compulsivity/Addiction, and Non-Suicidal Self-Injurious thoughts?

Research Question 2: Will individuals who have never viewed pornography significantly differ in scores of Depression, Anxiety, Somatization, Spiritual Narcissism/Grandiosity, Global Severity Index, and Non-Suicidal Self-Injurious thoughts than those individuals who have viewed pornography before, but have not viewed it within the last 30 days?

Research Question 3: Will individuals who currently view pornography significantly differ in scores of Depression, Anxiety, Somatization, Spiritual Narcissism/Grandiosity, Global Severity Index, and more Non-Suicidal Self-Injurious thoughts than those individuals who have not currently viewed or have never viewed pornography?

Research Question 4: Will those individuals who report higher levels of compulsive use significantly differ from those individuals who said that they are not addicted to pornography in scores of Depression, Somatization, Anxiety, Spiritual Narcissism/Grandiosity, Global Severity Index, and Non-Suicidal Self-Injurious thoughts?

Hypothesis 1: Self-reported pornography addiction will be a predictor for those participants who have indicative levels of Depression, Anxiety, Global Severity, Grandiosity, and Non-Suicidal Self-Injurious thoughts.

Method

Participants

Data for the current study was collected from individual students who sought counseling through a university's paraprofessional counseling center in the southeastern United States in the academic years 2010-2011 and 2011 to the spring semester of 2012. Upon entrance to the paraprofessional counseling center, students were required to answer several questions regarding their visit to the facility. Data for the present study was collected from individuals who answered questions on the Spiritual Assessment Inventory (SAI), the Cyber-Pornography Use Inventory (CPUI), the Ottawa Self-Injury Scale (OSI), and the Brief Symptom Inventory 18 (BSI 18). Participants included those aged 18-25 with the majority of participants ranging from 18-21 (Figure 1). More males

than females completed the survey, with 747 males and 295 females being included in the present study. The majority of the participants were of White/Caucasian descent (n = 836), with the second highest amount of participants including Black/African-American descent (n = 100). Hispanic (n = 43), Asian (n = 23), and "other" (n = 36) were also included, but did not make up a majority of the participants. Demographics for the analysis including pornography users and non-pornography users are represented below.

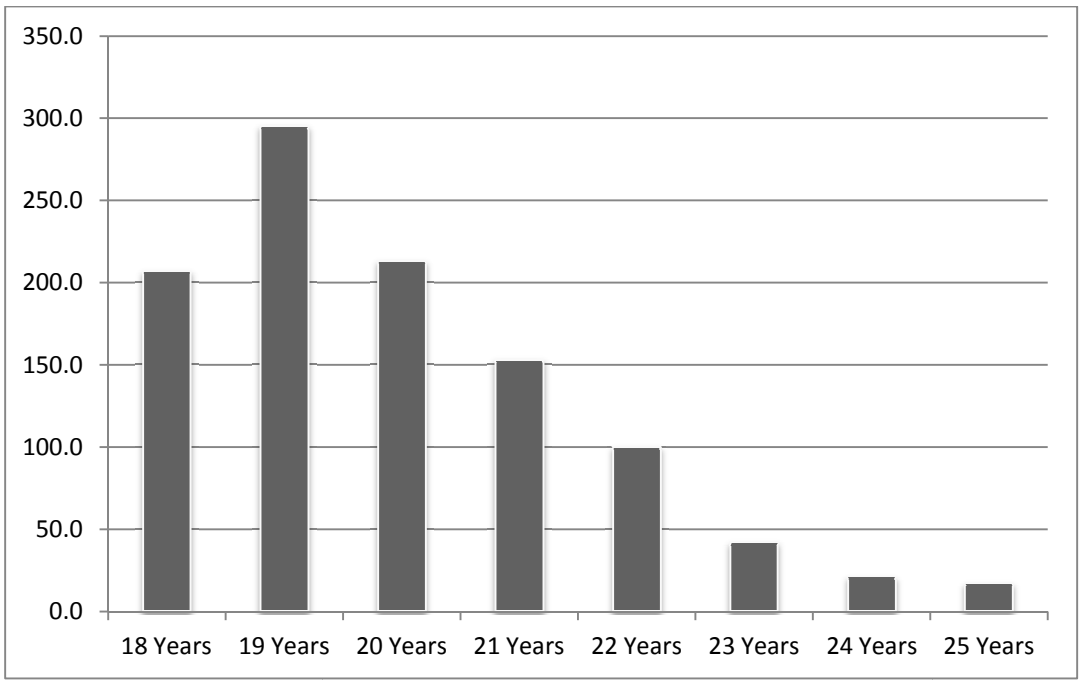

Figure 1. Age of participants who answered the item "I have viewed pornography in the past."

Instruments

Brief Symptom Inventory 18 (BSI 18). The BSI 18, as its name suggests, is an 18 item self-report inventory including three subscales: Somatization (SOM), Depression (DEP), Anxiety (ANX), and the Global Severity Index (GSI). The BSI 18 is included in a series of testing instruments developed out of the Brief Symptom Inventory (BSI;

Derogatis, 1993) and the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994), which was originally derived from the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). The BSI 18 was developed from these scales as a highly sensitive screening measurement for psychiatric disorders and psychological disintegration and as a means to measure treatment outcomes that may develop (Derogatis, 2000). Reliability of this inventory was assessed using a community sample of 1,134 participants and 719 psychiatric subjects. Coeefficient alphas for the scales were as follows: SOM (α=.74), DEP (α=.84), ANX (α=.79), and GSI (α=.89) (Derogatis, 2000). Validity of this testing instrument was determined by statistical tests indicating a high correlation with the SCL-90-R instrument in a sample of 1,134 community members, GSI (.93), SOM (.91), DEP (.93), and ANX (.96) (Derogatis, 2000).

Cyber Pornography Use Inventory (CPUI). The CPUI consists of three subscales (Guilt, Compulsivity, and Online Sexual Behavior-Social) totaling 31-items, primarily consisting of Likert questions (Grubbs, Sessoms, Wheeler, & Volk, 2010). Internal reliability of this scale was found to be relatively high in a secular level (α=.72), with the addictive patterns/Compulsivity scale also being consistent (α=.88). Further research on the validity and reliability still needs to be conducted for these scales.

Spiritual Awareness Inventory (SAI). The SAI includes five subscales: Awareness of God, Instability, Grandiosity, Realistic Acceptance, and Disappointment. For this present study, only the Grandiosity scale was used. The SAI was developed by Hall and Edwards (2002) in order to assess spiritual development. The Grandiosity subscale was evaluated and validated by the Narcissistic Personality Inventory (NPI) and consists of seven items with eigenvalues ranging from .73 to .53 (Hall & Edwards, 2002).

Reliability of the Grandiosity scale was determined by calculating the coefficient alpha measure of internal consistency, (α=.73) (Hall & Edwards, 2002). Grandiosity significantly correlated with all three NPI subscales (Authority, Exhibitionism, and Exploitiveness), with NPI Exhibitionism and Exploitiveness having the highest correlations (respectively, 0.22 and 0.27; $p<.001$) (Hall & Edwards, 2002). Hall and Edwards (2002) lay claim to a high construct validity for the Grandiosity subscale of the SAI.

Ottawa Self-Injury Inventory (OSI). The OSI-clinical test is a self-report measure used to determine the non-suicidal self-injurious (NSSI) psychosocial and clinical functions of individuals within the past one to six months. The measure includes 21 items and helps to identify the frequency of these NSSI thoughts and actions. Currently, evaluations of the OSI's psychometric properties are still being determined, but preliminary data from the measure's creators indicate both reliability over a two week span (r=.52-.74 across all domains) and validity in adolescent samples (Cloutier & Nixon, 2003).

Procedure

Before beginning the data analysis for the current study, an exploratory analysis was performed in order to get a better idea of the individuals being assessed. Upon calculating the ages of the original 1,164 students who initially partook in the survey conducted at the paraprofessional counseling center, it was discovered that 22 participants were either under 18 years old, or did not include a date of birth. These individuals were not included in the present study or the data analysis for ethical reasons. After running an exploratory analysis, another 48 participants were found to be over the

age of 25 and considered to be outliers. These additional participants were not included in the study. A total of 1,048 participants replied to the survey questionnaires applicable to this study, and were included in the data analysis.

Three groups of people were categorized based on their responses to certain questions within the self-report measure in order to get a clear understanding of the individuals being assessed. The first group consisted of those participants who responded to the statement "I have looked at pornography in the past." Those who responded "no" to this question were placed in the first non-usage group, "Non-Existent" (n=582). Individuals who answered positively to this question (n=465) were asked another question to better categorize them: "I have looked at pornography within the last 30 days." Those who responded "yes" to this item were placed in the pornography usage group, "User," (n=143), and those who responded "no" to this question were placed in the final non-usage group, "Not Active" (n=322).

A one-way Analysis of Variance (ANOVA) was performed on the responses from each group of participants for scores on the GSI, OSI, ANX, SOM, Grandiosity, and DEP scales. Two orthogonal planned contrasts were also performed to compare the means of the grouping variables using certain weights. One compared "Users" (0) to the average of the "Non-Existent" (+1) and "Not Active" (-1) groups, and a second compared the "User" (+2) to the "Non-Existent" (-1) and "Not Active" (-1) groups. Post Hoc analyses were performed on the significant interactions between groups in order to further understand the data.

An independent sample *t*-test was also performed on participants who responded to the question "I believe I am addicted to pornography" in the CPUI. Those who

responded “yes” to this question (n=94) were placed in one group, and those who responded “no” to this question (n=357) were placed in another group. This grouping was done in order to better assess whether pornography addiction, as opposed to casual usage, played a significant role in measures of DEP, ANX, GSI, SOM, NSSI, or Grandiosity.

A series of bivariate regressions was run on the GSI, OSI, ANX, SOM, Grandiosity, and DEP scales and the compulsivity scale of the Cyber-Pornography Use Inventory (CPUI), which, according to the CPUI, indicates an addiction. This was done in order to determine how well the various scales would predict those other scales being considered. While the bivariate regression results for all scales were calculated, the primary interest of this study is to determine how well the GSI, OSI, ANX, SOM, and DEP scales predict scores of compulsivity, and vice versa, in order to better understand mental health disorders and addictive pornography use as a whole.

Results

Two weighted, planned, contrast one-way ANOVAs and a single, non-weighted one-way ANOVA were performed for the different variables being studied (DEP, ANX, SOM, GSI, NSSI, and Grandiosity), by means of self-reported pornography usage groups previously related. Pornography usage was found to have a significant impact on several of the variables.

Pornography Usage in General

The first research question asked whether or not pornography usage in general (current, non-active, and non-existent) had a significant impact on scores of DEP, ANX, SOM, GSI, NSSI, Compulsivity/Addiction, and Grandiosity. A one-way Analysis of Variance test revealed that pornography usage did have a significant effect on scores of

DEP, ANX, GSI, NSSI, Compulsivity/Addiction, and Grandiosity, but not on scores of SOM (Table 1). DEP: $F(2, 901) = 18.431$, $p < .001$, $\square^2 = .039$; ANX: $F(2,901) = 3.845$, $p = .022$, $\square^2 = .008$; GSI: $F(2, 856) = 10.795$, $p < .001$, $\square^2 = .024$; NSSI: $F(2, 1044) = 10.787$, $p < .001$, $\square^2 = .020$; Compulsivity/Addiction: $F(1, 429) = 101.230$, $p < .001$, $\square^2 = .190$; Grandiosity: $F(2, 1008) = 6.736$, $p = .001$, $\square^2 = .013$.

Fisher's post hoc results indicated the following statistical significance for varying interactions. "Non-Existent" and "Non-Active" pornography users significantly differed in their scores of NSSI, $p = .001$. "Non-Existent" and "Current" pornography users also significantly differed in scores of NSSI, $p < .001$. "Non-Existent" and "Non-Active" pornography users, "Non-Existent" and "Current" pornography users, and "Non-Active" and "Current" pornography users all significantly differed in scores of DEP, $p = .001$, $p < .001$, and $p = .002$, respectively. ANX scores were significantly different for "Non-Existent" and "Non-Active" pornography users, as well as for "Non-Existent" and "Current" pornography users, $p = .033$ and $p = .023$, respectively. "Non-Existent" and "Non-Active" pornography users and "Non-Existent" and "Current" pornography users significantly differ in GSI scores, $p = .003$ and $p < .001$, respectively. Finally, scores of Grandiosity significantly differed for "Non-Existent" and "Non-Active" pornography users, and for "Non-Existent" and "Current" pornography users, $p = .001$ and $p = .019$, respectively.

The third research question presented in this study sought to understand whether or not those individuals who viewed pornography and those who had never viewed pornography in their lives or were not currently viewing pornography differed in their scores of DEP, SOM, ANX, GSI, Grandiosity, and NSSI. Planned contrast results

indicate that whether an individual was a "User" or a "Non-User" (with the grouping of "Non-Existent" and "Non-Active" pornography usage) had a significant impact on scores of DEP, ANX, GSI, NSSI, and Grandiosity(Table 2), with DEP: t (901) = -5.877, $p < .001$; ANX: t (901) = -2.767, $p = .006$; GSI: t (856) = -4.618, $p < .001$; NSSI: t (1044) = -4.644, $p < .001$; and Grandiosity: t (1008) = -3.466, $p = .001$. As Table 2 indicates, scores of DEP, ANX, GSI, NSSI, and Grandiosity significantly differ for individuals who identified as "Users" and "Non-Users."

Table 1

One-way ANOVA comparisons of "Non-Existent," "Non-Active," and "Current" pornography users.

Condition	F	Mean Square
Depression	18.431***	1960.287
Somatization	1.708	245.386
Anxiety	3.845*	521.757
Global Severity Index	10.795***	1204.005
NSSI	10.787***	22.055
Grandiosity	6.736**	2.357

*Note: * = p < .05; ** = p < .01; *** = p < .001*

Pornography Use Within the Last 30 Days

Research question two asked whether or not pornography use for those individuals who have never viewed pornography and those individuals who had viewed pornography at some point in the past, but had not viewed pornography within the previous 30 days, had a significant impact on scores of DEP, SOM, ANX, GSI, NSSI, and Grandiosity. As shown in Table 3, only scores of DEP were significantly affected by pornography usage for individuals who had viewed pornography in the past, but not

Table 2

ANOVA planned contrast scores of "Users" and "Non-Users."

Condition	t	Std. Error
Depression	-5.877***	1.437
Somatization	-.524	1.671
Anxiety	-2.767**	1.624
Global Severity Index	-4.618***	1.517
NSSI	-4.644***	.186
Grandiosity	-3.466**	.078

*Note: * = $p < .05$; ** = $p < .01$; *** = $p < .001$*

within the last 30 days, and those who had never viewed pornography. DEP: t (901) = -3.098, $p = .002$.

Addictive Pornography Usage

The fourth and final research question asked whether or not those individuals who were addicted to pornography significantly differed from those individuals who said that they were not addicted to pornography in scores of DEP, ANX, SOM, GSI, NSSI, and

Grandiosity. As indicated in Table 4, addictive pornography users only significantly differed from non-addictive pornography users in scores of SOM. DEP: t (391) = -1.237, *ns* ; ANX: t (391) = .099, *ns* ; SOM: t (391) = 3.369, $p = .001$; GSI: t (380) = -.658, *ns* ; NSSI: t (499) = 1.399, *ns*; and Grandiosity: t (449) = .169, *ns*.

In addition to these findings, addiction as a measure of compulsivity was also evaluated with a one-way ANOVA for overall pornography usage ("Non-Existent," "Non-Active," and "Current" pornography users). These individuals were found to significantly differ in their levels of compulsion, F (1, 429) = 101.230, $p < .001$. Planned

Table 3

ANOVA planned contrast scores of those who have not viewed pornography in the last 30 days and those who have never before viewed pornography.

Condition	t	Std. Error
Depression	-3.098**	1.105
Somatization	1.557	1.284
Anxiety	-.597	1.284
Global Severity Index	-1.839	1.171
NSSI	-1.311	.144
Grandiosity	.116	.060

*Note: * = $p < .05$; ** = $p < .01$; *** = $p < .001$*

comparison tests were also run between "Users" and "Non-Users" (with "Non-Users" representing those who have "Non-Existent" used pornography and those who are "Non-Active" pornography users, and "Users" representing "Current" pornography users) as

well as "Non-Existent" and "Non-Active pornography users. These groups significantly differed in scores of addiction, with t (429) = -32.729, $p < .001$ and t (429) = -10.061, $p < .001$, respectively. This could indicate that the self-reported question of "I believe I am addicted to pornography" may not be an accurate analysis of pornography addiction.

Bivariate Correlation: Pornography Addiction as a Predictor

The first hypothesis (H1) suggested that addictive pornography use will be a strong predictor for depression, anxiety, global severity, non-suicidal self-injurious behaviors and thoughts, somatization, and grandiosity in a college-aged sample. A

Table 4

Independent t scores of those addicted and not addicted to pornography.

		95% CI	
Condition	t	LL	UL
Depression	-1.237	-4.127	.939
Somatization	3.369**	2.142	8.148
Anxiety	.099	-2.791	3.087
Global Severity Index	-.658	-3.439	1.714
NSSI	1.399	-.098	.580
Grandiosity	.169	-.124	.148

Note: CI = confidence interval; LL = lower limit, UL = upper limit

** = p < .05; ** = p < .01; *** = p < .001*

bivariate correlation was used to determine the strength of the linear association, if any, between scores on all 7 scales the current study discusses. To help determine whether future research should be done in considering addictive pornography as a possible

predictor for the mental health disorders of depression, grandiosity, global severity, non-suicidal self injurious behaviors and thoughts, and anxiety, correlations were run to see if there was any sort of link between these mental health disorders and pornography addiction.

After determining that individuals who self-proclaim to be addicted to pornography and those who claim not to be addicted to pornography do not significantly differ in their levels of Depression, Grandiosity, Global Severity, Anxiety, and Non-Suicidal Self-Injurious thoughts and behaviors as determined by the OSI, H1 begins to lose some ground. However, after running a bivariate correlation on all 7 of these scales being used, a different conclusion can be articulated.

Table 5

Bivariate Correlations of Participants

Measure	1	2	3	4	5	6	7
1. DEP	—						
2. SOM	.462□	—					
3. ANX	.622□	.620□	—				
4. GSI	.845□	.655□	.802□	—			
5. NSSI	.157**	.238□	.191□	.221□	—		
6. Compulsivity	.157**	-.030	.053	.108*	.050	—	
7. Grandiosity	-.004	.067*	.058	*.073	.063	-.011	—

Note: DEP = Depression as judged by the Brief Symptom Inventory 18 (BSI 18); SOM = Somatization from the BSI 18; ANX = Anxiety from the BSI 18; GSI = Global Severity Index from the BSI 18; OSI = Ottawa Self-Injury Inventory; Compulsivity was adapted from the Cyber-Pornography Use Inventory and used as a measure of addictive behavior.

* = $p < .05$; ** = $p < .01$; □ = $p < .001$.

The CPUI Compulsivity scale was used to determine addictive behavior instead of the self-reported "I believe I am addicted to pornography" item found within the CPUI in order to remove any possible denial with which the participants might be struggling. A strong linear relationship exists between scores of DEP and scores of Compulsivity, or addiction, and can be indicative of a relationship between the two measures (Table 4). Ignoring the correlations between the 7 scales of DEP, SOM, ANX, GSI, NSSI, and Grandiosity with each other, only the DEP ($r = .154$, $p = .002$) and GSI ($r = .114$, $p = .026$) scales seem to correlate with the Compulsivity scale, indicating a possible link between the three sets of subscales. Interestingly, the Grandiosity scale is only significantly correlated with the SOM scale for this present study ($r = .069$, $p = .037$). This finding could suggest that the Grandiosity scale is not a strong scale for the study at hand. Several other strong correlations exist within the 7 scales used in this study, and can be seen in Table 5.

Discussion

The current study explored the statistical differences between those individuals who had and those who had never viewed pornography; those who had never viewed pornography and those who had viewed pornography at some point in the past but not within the last 30 days; those who currently view pornography; those who had viewed pornography in the past but do not currently view, and those who had never viewed pornography; and self-described pornography addicts and those individuals who had viewed pornography but did not claim to be addicted to pornography on their self-

reported scores of Depression, Anxiety, Grandiosity, Global Severity Index, Somatization, and Non-Suicidal Self-Injurious behaviors and thoughts.

Implications

While several different aspects of pornography usage were evaluated in this study, it is most interesting to note that the findings of this study suggest that scores of those individuals who have a likelihood of being addicted to pornography and are compulsive in their usage strongly correlate with mean scores of Depression. Additionally, these scores have a medium effect size of 3.9%, suggesting a practical impact versus a theoretical one.

Curiously, the majority of significant findings were found to be in those comparisons of overall pornography usage ("Non-Existent," "Non-Active," and "Current" pornography users) and those of "Users" and "Non-Users" (with "Non-Existent" and "Non-Active" pornography users representing the "Non-Users" group and "Current" users representing the "Users" grouping variable) in scores of Depression, Anxiety, Global Severity Index, Non-Suicidal Self-Injurious thoughts, and Grandiosity, as seen in Tables 1 and 2. The only non-significant finding for the above mentioned groups were in those scores of Somatization.

In contrast, those self-reported addictive pornography users presented completely opposite significant differences, with findings suggesting that addicted pornography users were significantly different from non-addicted pornography users only in scores of Somatization. The significant findings in measures of addiction determined by the CPUI between "Users" and "Non-Users," as well as pornography usage as a whole, suggests that the single self-report question of "I believe I am addicted to pornography" is not an

accurate measurement of an individual's addiction. This finding suggests that there exists a need for more research to be done in non-addictive pornography use and the detrimental psychological effects that accompany it, including the presenting somatization of addictive pornography use in individuals. Measures of self-denial when it comes to pornography addiction and mental health disorders should also be looked at in more detail.

Effect size between groups of pornography use in general revealed that significant findings in the DEP, GSI, Compulsivity/Addiction, and NSSI scores varied between medium and large. The higher the effect size, the greater the independent variable has affected the dependent variables in the study. For this study, Compulsivity/Addiction and DEP were found to have the highest effect sizes. Scores of Grandiosity, GSI, ANX, and SOM had much smaller eta-squared values, suggesting that the current significant findings in this study are only of theoretical importance.

As seen in Table 4, significantly positive bivariate correlations were found between the scores of the four BSI 18 subscales, and between the NSSI measure from the OSI. This finding was expected and supports the validity and reliability of the BSI 18 and the NSSI thoughts from the OSI, since both deal with moderate psychological issues for which an individual might seek paraprofessional counseling. The significant positive correlational findings for measures of DEP and Compulsivity of pornography use, or addiction, could indicate that individuals who are addicted to pornography present strong signs of depression. Determining whether the depression or the addictive use came first would need to be judged by a study containing time-order relationship.

Unexpectedly, the only other scale to significantly correlate with Compulsivity was the Global Severity Index from the BSI 18. The significantly positive correlations of the GSI, which help to measure the overall psychological distress level of participants, and Compulsivity, could be an indicator of further research that needs to be done in other areas of psychological health and pornography addiction. Since the GSI scale correlates with the Compulsivity scale, and since the only other mental health disorder that also correlated with addictive pornography usage was DEP, an exploratory study on the types of mental health disorders and overall psychological stress that might not be defined, should be looked at in more detail at a later date.

The four research questions presented at the beginning of this study were answered by the data analyses, with significant differences in findings only truly existing between pornography users and non-pornography users. Significant differences in scores of DEP were also found between the independent variables of those "Non-Active" pornography users and those who have never used pornography. Further research into why individuals who had never viewed pornography and those who had, but not recently, should be conducted in order to better understand this finding. An interesting hypothesis to this finding would be that individuals who had viewed pornography at some point but no longer do so are experiencing a depressive low as a result of the sexual urges not currently being met that had been in the past. Since it was not determined which individuals had higher levels of depression and psychological stress, this finding could also suggest that individuals who had viewed pornography but had not been viewing it recently are more likely to suffer from depression and psychological stress as a result of their lack of use.

Limitations

Due to the nature of this study, a time order relationship was not established to study those individuals who were once addicted to pornography but later stopped their usage altogether, and vice versa. Given this limitation, addicted pornography users were assessed against those participants who were not addicted to pornography at the current time, leaving room for participant personality differences.

Because this time order relationship does not exist with any measure, it is difficult to determine whether the act of pornography leads to mental health issues, or if psychological disorders lead a person into viewing pornographic material.

Since the sample was collected at a university that prohibits the use of pornography or sexually explicit material, some participants may have felt increased pressure to be less truthful on their self-reported responses. Some items were reverse coded on the scales used for this study in order to avoid this limitation. However, for those individuals carefully reading each question and responding in an untruthful manner, the reverse coded items would not detect their fabricated responses. Additionally, regular self-report bias could play a role in the way in which the participants answered each question. That is, an individual may not believe him or herself to be addicted to pornography and respond negatively to that question, but in all actuality, does exhibit strong indicators of addiction to the material. The Compulsivity scale of the CPUI was used to help remove this limitation, but the validity and reliability of this scale by itself has yet to be tested in a sample such as this.

The participants' data was collected during their first visit to a paraprofessional-counseling center on a college campus. With this limitation, generalization is not present.

Moreover, pornography was more than likely not the presenting problem for which participants sought paraprofessional counseling and many participants could have rushed through the answers in order to finish the survey and begin their counseling session. Additionally, since the survey was exhaustive as a means of determining why the participants were seeking paraprofessional counseling, the longevity of the survey could have played a role in respondents answering in certain ways.

Future Research

With so little research completed on the relationship between mental health disorders and pornography usage, many more in-depth studies should be conducted in order to further advance this field. Those interested in research of pornography usage and mental health would be advised to investigate the relationships between both non-addictive pornography usage and casual pornography usage and how they play a role in healthy marital satisfaction of individuals already prone to depression. Additionally, research should be completed on several more mental health disorders in regards to more paraphiliac pornography viewing and the detriments that this might entail in various areas of an individual's life. Such mental health disorders that should also be researched would include: antisocial personality disorder, avoidant personality disorder, narcissistic personality disorder, bipolar disorder, eating disorders, paraphilias, and phobias related to relationships and sexual intercourse.

Additionally, time order relationship should be established within the boundaries of this current study. Analyzing the scores of individuals who have mental health disorders before viewing pornography and after viewing pornography, as well as analyzing individuals who do not have a diagnosed mental health disorder before viewing

pornography, would help researchers determine whether or not pornography is likely to cause or exacerbate mental health disorders. This would also help determine whether or not those with mental health disorders are more prone to seek out pornography as a means of sexual gratification than those individuals without a mental health disorder. The amount of time that individuals have gone without viewing pornography should also be a variable for future research when comparing samples of non-users to users.

Non-addictive pornography use and mental health disorders, as suggested earlier, should also be considered in order to determine any detrimental effects that might occur with casual pornography usage. It would be interesting to uncover whether or not casual use is an indicator of feelings of depression, grandiosity, and anxiety. Research into non-addictive use of pornography on a generalized scale has yet to be truly examined in depth when comparing this group to mental health.

Gender, age, pornography mediums (such as television, Internet, magazine, etc.), addictive use versus non-addictive use, and relationship status would also be interesting to study within the scope of pornography usage and mental health disorders.

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