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Aggression and Depression Factors in Pornography Use of College Aged Individuals

Brandon Scott

Senior Thesis

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Abstract

After multiple legal, cultural and technological changes, pornography's accessibility and role in modern western culture has expanded exponentially (Kammeyer, 2008). This paper examines the possible correlates of specific emotions to pornography use, perceived effects of pornography use and gender differences in college aged individuals. Participants were Trinity College students (N = 47) who were asked by email to fill out an anonymous, online survey. As expected, male participants showed a significantly higher frequency of pornography use. Initial analysis using the Beck Depression Inventory and the Aggression Questionnaire (Buss & Perry, 1992) showed no significant relationship to frequency of pornography use for the overall group or when the group was separated by gender. A significant positive correlation was found for the relationship between male pornography use and perceived depression post use. Female participants' perceived depression and aggression post use in relation to frequency of use had a significant negative correlation.

Introduction

Sexuality is a central, internal force that is a common factor of human existence (LeVay, Baldwin, & Baldwin 2015). Being such a central force, the actions we take to express or experience this sexuality are incredibly important. One of such forms being the use of pornography, especially in the modern times, when pornography has become so easily accessible. Since the rise of internet pornography in the 90's and the continued expansion of online pornography since then, it seems of increased importance to understand how pornography may affect us and what personal traits may correlate to pornography usage. One website in particular, *Pornhub.com*, according to their 2016 year end annual report, had an average of 99 gigabytes of pornography streamed per second from their website alone, with an average of 64 million visits a day. The vastness of internet pornography has become so infinite, the term "rule 34" has been coined to mean "there is porn of it, no exceptions" in order to express that any non-pornographic idea that exists has some pornographic version of it on the internet. To make this rule more accurate, "rule 35" was later added to state "if no porn is found of it, it will be made." The internet has allowed not only unprecedented access but an unprecedented variety of pornography, which gives everyone the ability to express or experience whatever sexual desires they may have (Paasonen, 2011).

Even before our digital era sparked higher availability of pornography in the early to mid-90's, pornography was a topic of research and controversy. In the United States Supreme court ruling of *Stanely V Georgia* (1969) the court system essentially normalized pornographic use in the home, allowing the "right to privacy" for anyone who wished to own or possess "obscene material." This ruling sparked the creation of the President's Commission on Obscenity and Pornography of 1970 aimed to examine and study the facets and possible effects of pornography use (Linz, 1989).

For pornography researchers, aggression, which often is a focus of male pornography use (Vega & Malamuth, 2007; Foubert, Brosi, & Bannon, 2011; Baer, Kohut, & Fisher, 2015) has become a concern given the danger of increased aggression to third party individuals and has been examined both as a character trait and an emotional reaction to pornography (Linz, 1989; Mulac, Jansma, & Linz, 2002; Foubert, Brosi, & Bannon, 2011; Baer, Kohut, & Fisher, 2015).

Though the risk factor of aggression is an external one, internal risks such as depression have also been a common focus of study (Yoder, Virden, & Amin, 2005; Nelson, Padilla-Walker, & Carroll, 2010; Weaver et al., 2011; Willoughby, Carroll, Nelson, & Padilla-Walker, 2014; Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015; Tylka, 2015). Both aggression and depression thus have represented possible or theoretical risks and/or risk factors of pornography use.

Pornography Use and Definitions

Humans expressing their thoughts, feelings and views of the world around them through artistic forms of representation date to the earliest found cave paintings, so it is a logical conclusion that expression of the thoughts, feelings and views of sexuality could be just as ancient. From the songs of the frenzied festival of Dionysus to the Kama Sutra to the vivid and sexual novellas of Boccaccio, sex somehow always finds its way out of the bedroom (Loth, 1962). To label any of these erotic poems, books, or works of art representing the human sexual nature as pornography, does run into a problem that is familiar to modern pornography researchers; what exactly is pornography? Is there a difference between pornography and erotica (Kappeler, 1986; Kammeyer, 2008)? Does personal preference change the definition of pornography? Although sexual representation has existed for millennia, the exact idea of what pornography is has been harder to pin down.

The origins of the term pornography in English first appeared in 1857, over a half a century after the sexually explicit works of the Marquis de Sade, and the term pornographia was termed by the early modern scholar Grantham Turner, combining the Greek words for “whore” and “painter” (Kammeyer, 2008; Thauvette, 2012). The earlier use of the term therefor seemed to be highly related to representation of what most of society would call obscene (Thauvette, 2012). When considering a more current definition of pornography, The Oxford English Dictionary defines pornography as;

“n. printed or visual material containing the explicit descriptions or display of sexual organs or activity, intended to stimulate erotic rather than aesthetic or emotional feelings (p. 1328-1329)”

In a modern sense, the current definition proposed by The Oxford English Dictionary then focuses on two primary aspects; evocation of feelings and sexual content. Although erotica

may have a softer tone in social understanding (Loftus, 2002), both pornography and erotica could be said to evoke an erotic response to some representation of sexual stimuli. This helps us also understand the last question as well; whether personal preference changes the definition of pornography, since what is sexual to one person may not be sexual to another, which could then change what we define as pornographic. It is the variability in what can be termed pornographic that then becomes a major issue (Andrews, 2012).

The difficulties in matching up a definition to the word “pornography” at its base appears a philosophical one but it does represent challenges to modern researchers of pornography as well (Malamuth, Addison & Koss, 2000). Though many researchers simply use the term by itself, possibly assuming that its meaning is inherent within its understanding, others have tried to be more specific in their description (Hald & Malamuth, 2008; Wijaya Mulya & Hald, 2014; Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015). Those who attempted to give a definition often would borrow or create definitions such as “media consisting of graphic sex acts (including penetration) being shown or described in videos, movies, magazines, books, or online” (Foubert, Brosi, & Bannon, 2011) or “sexually explicit content including images, videos, and/or chat rooms” (Weaver et al., 2011) or “sexually explicit images, videos, sound clips, or erotic fiction” (Baer, Kohut, & Fisher, 2015) which all rely on some form of sexual representation, which then can differ in its explicit format (i.e., books, magazines, chat rooms, videos, etc.). Although there is no adhered to modern standard of how to define pornography in pornography research, a salient feature seems to be an understanding that pornography is sexual by nature. Given the understanding that pornography is sexual by nature, the definition of what is pornographic may change between individuals without losing the consistency of how we define pornography in whole (Kohut, 2014). In other words, just because two people may disagree if a certain video, picture or story is pornographic, does not change what pornography is, since anything that gives that particular person sexual excitement and is some representation of a sexual stimuli, would still be pornographic to that individual. In the famous words of Justice Potter Stewart in his concurring opinion towards the definition of pornography in the case of *Jacobellis v. Ohio* (1964); “I know it when I see it” (Tarrant, 2016).

Within pornography research, definitions of pornography vary but the way in which pornography use is measured also varies. Some researchers measure usage in a simple, binary manner. For instance, Weaver et. al (2011) asked participants to respond if they use pornography

and how important that use was, but then grouped everyone into the categories of either Sexually Explicit Media Behavior (SEMB) non-users or SEMB users. Out of a sample of 509 individuals who took their survey, 205 (36.7%) were classified as SEMB users, with the remainder being classified as non-users. Of the participants in the study, 51.9% of respondents were female and 48.1% were male, and when gender was analyzed, the study found 78% of SEMB users were male and only 22% were female. Though the study did not look at frequency of usage, it did show that within a randomly selected group of individuals from the Seattle-Tacoma area, SEMB was not an uncommon behavior and SEMB was more common in male than female respondents.

Classifying participants as users and non-users of pornography is one common practice in pornography research (Perry, Accordino, & Hewes, 2007; Foubert, Brosi & Bannon, 2011; Weaver et. al, 2011). The other common practice is to measure out time frequency by asking subjects how often they use pornography and give options ranging from never to daily or more than daily (Nelson, Padilla-Walker, & Carroll, 2010; Willoughby et. al, 2014; Baer, Kohut & Fisher, 2015; Brown, 2015). Though many researchers appear to favor ranges that include multiple times a week, weekly, bi-weekly and monthly (with various similar ranges added or subtracted from that range) there have been others that tried to look at frequency by amount of hours or minutes the participant uses pornography on average (Levin, Lillis & Hayes, 2012). Others asked participants a combination, such as Yoder, Virden and Amin's (2005) study of pornography and loneliness which asked participants how many days they watched pornography a week and how many hours a day which resulted in an average of 2.426 days a week and 2.482 minutes a day of pornography use from their participants. The study Pornresearch.org by Smith, Attwood and Barker (n.d.) which looked at a variety of factors including gender, format of pornography watched and reasons for watching, used slightly more subjective terminology (i.e., "As often as I can", "Most days", "Maybe once a week", "Several times a month", and "Occasionally") and found that the majority of their 5,490 respondents report using porn "most days." A study by Levin, Lillis and Hayes (2012) asked how many hours per day their participants used pornography with the majority (50.4%) responding an average of 0 hours a day and 41.7% reporting an average of 1 hour a day, with the remainder of their sample reporting in one of the remaining 4 categories (1-2 hours, 2-3 hours, 4-5 hours, 5 hours or more). Despite the positively skewed results, if we simply group users versus non-users and assume respondents who answered 0 hours a day do not have any pornography use, we can see that 49.6% of the

survey's respondents use pornography. Attempting to compare these studies to better understand overall frequency of use is thus difficult given the variation in how frequency itself is measured, but what we can draw from past research, is that pornography use is found to be fairly common.

Of the studies that looked at both male and female pornography use, they all seem to be in agreement to Hald's (2006) gender comparative study which indicated pornography consumption was significantly higher for men than for women (Pornresearch.org, n.d.; Albright, 2008; Weaver et. al., 2011; Willoughby et. al, 2014; Harper & Hodgins, 2016)..

Aggression

One of the common traits examined or discussed in pornography research is aggression (Linz, Donnerstein, & Penrod, 1988; Mulac, Jansma, & Linz, 2002; Vega & Malamuth, 2007; Bridges et. al, 2010; Foubert, Brosi, & Bannon, 2011; Baer, Kohut, & Fisher, 2015; Hald & Malamuth, 2015; Wright, Tokunaga, & Kraus, 2016). This is because of the risk factor some pornography researchers and pornography opponents contribute to pornography use; the increase in either rape acceptance beliefs or the reinforcement of anti-women schemas and the possible aggressiveness that may manifest itself in coercive sexual behavior from pornography use (Linz, 1989; Loftus, 2002; Paasonen, 2011). Interestingly, this behavior is often considered only in relation to male pornography users (Vega & Malamuth, 2007; Kingston et. al, 2008; Foubert, Brosi, & Bannon, 2011; Baer, Kohut, & Fisher, 2015). The obvious dangers of heightened aggression thus make it an important factor to analyze when looking at human sexuality and in this instance, pornography usage.

Most of the survey studies we have found seem to be in agreement that pornography use has some correlation to aggression. (Vega & Malamuth, 2007; Kingston et. al, 2008; Foubert, Brosi, & Bannon, 2011; Baer, Kohut, & Fisher, 2015). In a study by Foubert, Brosi and Bannon (2011), 489 fraternity men were asked to answer questions about their pornography usage and general attitudes and feelings related to sexual aggression and rape. The study found that a higher use of pornography correlated to a lower bystander willingness to help a woman being sexually assaulted, and a higher rating on Malamuth's Attraction to Sexual Aggression Scale.

A study by Vega and Malamuth (2008), which looked at 102 college aged males also found a correlation between pornography use and sexual aggression. This study looked at factors of hostile masculinity (attitudes supporting violence against women, overall hostility towards

women and sexual dominance), sex drive, and general hostility. The inter-correlation of some of these factors (hostile masculinity and sex drive), which Malamuth called the Confluence Model of Sexual Aggression (Malamuth, Addison & Koss, 2000), indicated that higher degrees of sex drive and hostile masculinity combined with higher amounts of pornography usage show a stronger positive relation to sexual aggression than any of these variables alone (Vega and Malamuth, 2008).

Though some of the research on correlations between aggression and pornography usage have been through survey research methods, there have been numerous attempts at studying the possible effects of pornography use and aggression factors experimentally (Linz, Donnerstein, & Penrod, 1988; Mulac, Jansma, & Linz, 2002; Davis et. al, 2006; Hald, Malamuth & Lange, 2013; Hald & Malamuth, 2015).

One of the earlier studies which looked at men's reaction to pornography experimentally was done by Linz, Donnerstein & Penrod (1988). In their study, they randomly placed participants in one of three groups; a group that would view an R rated "slasher" motion picture, a group that would view an R rated "teen-sex" film and a group that would view an X rated pornographic film. Those three groups were further split into a two film group, where the participants would only watch two viewings of the films they were assigned to, or a five film group, where they would view five movies of the films they were assigned to. After each film viewing, affective and cognitive perceptions were analyzed. Once subjects had viewed their final film, they were contacted by a fictitious organization, recruiting them to take part in a law school experiment. They were asked by this fictitious law school experimenter to view a video tape of a mock trial where an individual was accused of sexual assault. In the mock trial, there were eye witnesses and physical evidence against purporting the defendants guilt. The participants were then asked to give judgments about both the defendant and the alleged rape victim. In all three film groups, the individuals who had watched five instead of two films, showed less empathy towards the victim, with stronger objectification of women in general and less empathy towards rape victims in general. Interestingly the study did find that reduction in empathy towards the mock trial "victim" and rape victims in general, were stronger for the R rated slasher movie group then either the R rated teen sex film group or the X rated explicit pornography group.

For Linz, Donnerstein & Penrod (1988) the response of their subjects may have been a result of modeling and desensitization. Though the pornography group watched sexually explicit

material, the movies chosen showed less aggression, violence or degradation towards women than the R-rated slasher films. Because of this key difference, the idea that different types of sexually explicit films may trigger different types of responses evolved and turned into a 2002 study by Mulac, Jansma & Linz. In their 2002 study, they had participants either watch a sexually explicit and “degrading” film, a sexually explicit and “non-degrading” film and a non-sexual film for a control. The all-male participants then interacted with a female partner attempting to solve a series of puzzles. In general, most of the men who viewed either sexually explicit film showed more dominance and anxiety when interacting with their female partner, compared to the control group. Interestingly, men who did not fit into a specific sex category according to Bem’s Sex Role Inventory (Bem, 1974), and watched the degrading sexually explicit film showed higher degrees of dominance and lower degrees of anxiety when interacting with their female partner. This result showed that there can be internal factors that magnify aggressive traits and feelings such as dominance without anxiety, after exposure to, possibly certain types, of pornography.

Mulac, Jansma & Linz (2002) were not the only ones to look for possible magnifying factors that could heighten anti-women, aggressive or dominant attitudes post pornography use. In a study by Hald, Malamuth and Lange (2013), two hundred subjects were asked about their past pornography use as well as personality questions that dealt with overall agreeableness before being exposed to 30 min of “nonviolent” pornography. After the exposure, participants were asked to fill out an outcome questionnaire that examined various aspects of sexism (i.e., hostile sexism, benevolent sexism, overall attitudes towards women). What the study found, was that, among men, past pornography use was significantly associated with hostile sexist and less egalitarian attitudes towards women. Interestingly, this particular study found that both male and female participants with lower levels of agreeableness displayed higher sexist attitudes post pornography exposure.

So although, as discussed earlier, one of the main concerns about pornography use and aggression has historically had to do with men’s response and possible negative behavior from increased use, we start to see that both women and men may have an increased aggressive response from experimental exposure. In a meta-analysis of 22 studies, done by Wright, Tokunaga & Kraus (2016), pornography consumption was found to be significantly associated with sexual aggression for both men and women. The meta-analysis also found that there was a

strong correlation to verbal and physical aggression as well, with a stronger relationship to verbal aggression.

These experimental studies indicate that there may be a relationship between pornography exposure and sexual aggression but other research also indicates there may be a connection between exposure to pornography and physical or verbal aggression. That then sparks the question as to whether or not the relation between pornography use and aggressiveness is limited to a person's sexual nature or if it encompasses a person's overall possible propensity for aggression. Kingston, et al. (2008), created a longitudinal study which explored the possibility of criminal recidivism's relation to pornography use and looked at both violent crime arrests post initial release and sexual crime arrests post release. They observed that higher pornography use correlated to higher recidivism for both violent offences and for sexual offences, which could support the Wright, Tokunaga & Krause (2016) meta-analysis that reported higher levels of overall aggression as well as sexual aggression in relation to pornography use. Obviously the recidivism could have more to do with impulse control factors than aggressive factors alone, but it does bring more support to the concept that pornography use may have a general relationship to aggression rather than a sexual specific relation to aggression.

There are some contradictions in past research about physical aggressions relationship to pornography use. In a study by Brown (2015), who analyzed results from the RELATE institute which had surveys completed by 1630 heterosexual couples, it was found that when using a partner assessment of physical aggression, male pornography use was not significantly associated with higher reports of physical aggression.

Despite the contradictions in previous research regarding certain aspects of aggressions relationship to pornography use, it does appear that an increased usage of pornography may have a positive correlation to some aggressive factors, such as aggressive beliefs (lack of rape victim empathy, hostile sexism, hostile masculinity, etc) and aggressive behaviors (verbal aggression, hostility). Given the evidence for heightened verbal aggression and overall hostility, we predict that these factors will show the strongest relation to pornography usage, with physical aggression possibly being a close third.

Depression

Another possible risk factor for heightened pornography use is depression (Yoder, Virden, & Amin, 2005; Weaver et al., 2011; Levin, Lillis & Hayes, 2012; Willoughby, Carroll, Nelson, & Padilla-Walker, 2014; Tylka, 2015). While the dangers of heightened aggression are overt and obvious, the dangers of depression can run the gambit from effecting the quality of individual relationships, to job stability, to overall ability to enjoy one's life. The most extreme result of depression is of course suicide, and the danger of depression lies in its ability to be unseen, to be hidden away from socially prying eyes and minds until it leads to a final end. It is for these dangers that we believe depression is an important possible factor to analyze when it comes to the emotional correlations and the self-perceived effects of pornography use.

In a survey study completed by Weaver et al. (2011), five-hundred and fifty-nine Seattle-Tacoma Internet-using adults were surveyed on their sexually explicit media use behavior (SEMB). As mentioned earlier, the respondents were organized as either SEMB users or SEMB non-users. Participants in the study who reported as SEMB users had significantly higher reports of depressive symptoms than SEMB non-users. Female SEMB users showed a higher reporting of poorer quality of life and more diminished health days than male SEMB users, but when Weaver et al. (2011) examined female SEMB non-users compared to male SEMB non-users, they found a similar pattern and thus concluded there was no significant gender difference in negative emotional effects of pornography usage.

Another survey study with a large sample size of seven-hundred and ninety-two individuals done by Willoughby, Carroll, Nelson, & Padilla-Walker (2014), found a strong correlation between pornography use and depressive symptoms. Unlike the Weaver et al. (2011) study, Willoughby, Carroll, Nelson, & Padilla-Walker (2014) found that only female respondents showed a significant positive correlation between pornography use and depression. The study used certain controls to mitigate any obvious confounds that may account for this discrepancy, such as religiosity. Though the examiners believed religiosity to be a valid control, it could have also taken away some of the data that could indicate depressions relation to pornography use in males as well, by not taking into account guilt factors for using pornography in religious men.

In another study, Nelson, Padilla-Walker, & Carroll (2010) surveyed one-hundred and ninety-two young men on their pornography usage and acceptance, as well as their religiosity and multiple other personality characteristics (self-esteem, drug use, depression, etc.). All

participants in the study reported that they believed viewing pornography was wrong and the study showed a significant relationship between pornography use and depression in relation to religiosity. Depression's correlation in this study to pornography use is theorized to be associated with feelings of guilt (Nelson, Padilla-Walker, & Carroll, 2010). It is possible that the guilt from viewing pornography then fosters the feelings of depression that may be temporarily relieved with pornography use, which in turn helps foster more depressive feelings from religious guilt.

The correlation between a self-belief that viewing pornography is somehow wrong, pornography usage and depression, exists in more than just religious guilt factors. Self-perception of pornography addiction also shows a strong relationship between pornography usage and depression. Three studies, completed by Grubbs, Volk, Exline & Pargament (2015), found that overall distress (perceived stress and depression measured by the 10-item version of the Center for Epidemiological Studies Depression Scale, and anxiety measured by the short form of the State Anxiety Inventory) was positively related to pornography use, but only in individuals who self-identified as having a pornography addiction.

As we can see, there exists various disagreements about the relationship between depression and pornography use in current research. A study by Tyka (2015) used a sample of three hundred and fifty-nine college age males and a study by Levin, Lillis & Hayes (2012) which used a sample of one hundred and fifty-seven college aged males, both found a direct positive correlation between depression and pornography use, which would be in agreement to the Weaver et al. (2011) study but would be in disagreement with the Willoughby, Carroll, Nelson, & Padilla-Walker (2014) study, possibly for the for mentioned reasons. We also have various ideas of what may influence the depression factors. Questions on religiosity and self-perceived addiction are brought up as possible factors. No matter the complexities of influencing factors, and given the possible reasons discussed for certain disagreements, the one clear factor we can theorize is that there is some relationship between pornography use and depression.

Magnification Approach

As previously discussed, there are a multitude of factors thought to influence feelings of depression and feelings of aggression in relation to pornography usage. The confluence model of aggression, agreeableness factors, religious intent and self-perceived addiction all could act as magnifying factors, influencing a stronger response to pornography use. Given the deep

instinctual nature of sexuality and the emotional reactivity that exists within both depression and aggression, we would like to assume a simpler approach to the perceived effects of pornography usage. If factors relating to aggression can predict higher levels of aggression with increased pornography use, and if self-perceived distress, brought on by religious guilt or perceived addiction, could correlate to higher degrees of depression with higher pornography usage, then what about simplifying the factors to direct magnification? A higher degree of baseline aggression, we then theorize, may show an interaction with self-perceived aggression after pornography use and a higher frequency of pornography usage. Similarly, we theorize that higher scores on a baseline of depression, will show an interaction with self-perceived depression after pornography use and a higher frequency of pornography usage.

Theory Summary

Given the above research, we predicted that male participants would use pornography at a higher frequency than female participants. We also predicted that a positive correlation would exist between aggression and pornography consumption as well as depression and pornography consumption. Given the similarities in both depressive and aggressive correlates in both genders, in previous pornography research, we also theorized that there would not be a significant difference in gender for overall aggression, the perceived aggression, the overall BDI scores and the perceived depression in relation to pornography consumption.

Moreover, we predicted a magnifying effect of these emotions in the perception of them after pornography use. Specifically, we predicted that individuals who had a higher baseline score of depression, who used pornography more frequently, would have a higher perception of depression post use and individuals who had a higher baseline score of aggression, who used pornography more frequently, would have a higher perception of aggression post use.

Methods

Participants and Procedure

An anonymous survey was sent out to 258 randomly selected Trinity students using the survey tool Qualtrics. Completed surveys were obtained from 47 students; however, only 34 of the 47 reported using pornography. Of the remaining 34 participants, eight did not indicate their frequency of use and were excluded resulting in a final sample size of 26. Our participants were self-categorized as 18-19 (n=5), 20-21 (n=16) and 22-23 (n=5) years of age. Of those who answered on their frequency of use, 15 reported as male and 11 reported as female.

Material

All participants filled out the anonymous survey (see Appendix A) online via emailed link. The first question of the survey was a determination question, which asked if the participant used pornography. If the person said no, the survey closed out and thanked them for their time. If they said yes, the survey continued and the participants answered questions to determine base line levels of aggression and depression, pornography usage, and self-perceived emotional effects of pornography use.

Aggression

Base levels of aggression were determined using an aggression questionnaire found on PsychTESTS, created by Buss, A. H., & Perry, M. (1992). The questionnaire looked at physical aggression, verbal aggression, anger and hostility using generalized personality questions which relied on 1-5 likert response scaling of 1 (extremely unlike me) to 5 (extremely like me).

Depression

Base levels of depression were determined using the Beck Depression Inventory. The BDI-I used 21 questions which were scored from 0-3 to determine base level of depression in participants.

Frequency of Pornography Use

Frequency of Pornography Use (FPU) was determined by a question in which participants could respond with a 1 (more than once a day) to 7 (less than once a month). Scores were then reversed for analysis so that higher scores equated to higher pornography usage.

Self-perceived emotional effects of pornography usage

Participants answered two questions which asked them to describe how they felt at least one hour after using pornography which looked at feelings of aggression and feelings of depression. The hour mark was used to compensate for the refractory period after orgasm, given the common co-occurrence of masturbation with pornography usage. Perceived Aggression Post Pornography Use (PAPP) was rated between 1 (a large decrease in aggressive feelings) and 7 (a large increase in aggressive feelings). Perceived Depression Post Pornography Use (PDPP) was rated between 1 (a large increase in happy feelings) and 7 (a large increase in depressive feelings). Both the PAPP and PDPP scales were designed as spectrum scales with a neutral or no change option in the middle as to avoid test question bias.

Results

Frequency of Pornography Use Differences

Results from a t-test analysis indicate male pornography use ($M = 3.867$, $SD = .915$) was significantly higher than female pornography use ($M = 2.273$, $SD = 1.104$), $t(24) = 4.023$, $p < .001$.

Bivariate Analysis

For the overall sample, the correlation between BDI scores and pornography frequency were positively correlated but showed no statistical significance, $r(23) = .117$, $p = .576$, *ns*.

For the overall sample, the correlation between the Aggression Questionnaire scores and pornography frequency were also positively correlated but showed no statistical significance $r(24) = .266$, $p = .189$, *ns*.

Perceived aggression post pornography use and perceived depression post use was

positively correlated for the entire group and showed statistical significance, $r(24) = .432, p = .027$.

Overall aggression and BDI scores were significantly, positively correlated, $r(25) = .559, p = .004$. Hostility and BDI scores were also significantly, positively correlated, $r(25) = .750, p < .001$.

Table 1. Bivariate correlations for overall group

<i>Measure</i>	<i>BDI-I</i>	<i>BP-PA</i>	<i>BP-VA</i>	<i>BP-An</i>	<i>BP-Ho</i>	<i>BP-OA</i>	<i>FPU</i>	<i>PAPP</i>	<i>PDPP</i>
<i>BDI-I</i>	---								
<i>BP-PA</i>	.364	---							
<i>BP-VA</i>	.315	.466**	---						
<i>BP-An</i>	.412*	.751**	.696**	---					
<i>BP-Ho</i>	.750**	.407*	.485*	.644**	---				
<i>BP-OA</i>	.559**	.803**	.781**	.936**	.776**	---			
<i>FPU</i>	.117	.357	.141	.056	.244	.266	---		
<i>PAPP</i>	-.017	-.075	.153	.113	-.042	.058	-.118	---	
<i>PDPP</i>	.183	-.178	-.046	-.092	.045	-.715	-.136	.432*	---

*Note: * = correlation sig at .05 level (2 tailed) ** = correlation sig at .01 level (2tailed). BDI-I= Beck Depression Inventory I BP-PA= Buss-Perry Physical Aggression subscale BP-VA= Buss-Perry Verbal Aggression subscale BP-An= Buss-Perry Anger subscale BP-Ho= Buss-Perry Hostility subscale BP-OA= Buss-Perry Overall Aggression Questionnaire score FPU= Frequency of Pornography Use PAPP= Perceived Aggression Post Pornography PDPP= Perceived Depression Post Pornography*

When separated by gender, men showed non-significant correlations between the BDI or the Aggression Questionnaire and pornography use. They did, however, show a positive correlation between perceived depression post pornography use and their frequency of pornography use, $r(12) = .525, p = .045$.

Women showed a non-significant correlation between the BDI or the Aggression Questionnaire and pornography use as well but did show a significant negative correlation between PAPP use and their FPU, $r(9) = -.613, p = .045$.

Women also showed a very significant, strong negative correlation between their PDPP and their FPU, $r(9) = -.796, p = .003$

Table 2. Bivariate correlations for male and female participants

<i>Measure</i>	<i>FPU</i>	<i>PAPP</i>	<i>PDPP</i>
<i>FPU</i>	----	.053	.525*
<i>PAPP</i>	-.613*	----	.254
<i>PDPP</i>	-.796**	.592	----

*Note: Bivariate correlations for male participants (n=15) are presented above the diagonal and bivariate correlations for female participants (n=11) are presented below the diagonal. *= correlation sig at .05 level (2 tailed) **= correlation sig at .01 level (2tailed). FPU= Frequency of Pornography Use PAPP= Perceived Aggression Post Pornography PDPP= Perceived Depression Post Pornography*

Regression Analysis

Multiple regression analysis was used to test if FPU and overall aggression scores from the Aggression Questionnaire significantly predicted participants perceived aggression post pornography use. The results indicate the two predictors did not explain the variance ($R^2 = .023, F(2, 23) = .266, p = .796$). It was found that neither overall aggression ($\beta = .096, p = .657$) nor FPU ($\beta = -.144, p = .508$) significantly predicted PAPP.

Multiple regression analysis was also used to test if frequency of pornography use and overall depression scores from the BDI-I significantly predicted participants PDPP. The results indicate the two predictors did not explain the variance ($R^2 = .047, F(2, 22) = .544, p = .588$). It was found that neither BDI-I scores ($\beta = .197, p = .358$) nor FPU ($\beta = -.118, p = .580$) significantly predicted PDPP.

When separating the group by gender, the regression analysis for FPU and overall aggression scores as predictors of PAPP showed similar, non-significant results for the variance of both male ($R^2 = .110, F(2, 12) = .073, p = .930$) and female ($R^2 = .683, F(2, 8) = 3.505, p =$

.081) participants. The results indicate that neither overall aggression for the male ($\beta = -.098, p = .743$) or female ($\beta = .312, p = .274$) participants significantly predicted PAPP. For male participants, FPU did not act as a valid predictor of PAPP ($\beta = .034, p = .909$) but for female participants, FPU did act as a statistically valid predictor of PAPP ($\beta = -.688, p = .032$).

When using regression analysis to see if FPU and BDI scores acted as valid predictors for PDPP for either gender, we did find some interesting results. For our male participants, FPU and BDI scores did not explain the variance for PDPP scores ($R^2 = .532, F(2, 12) = 2.365, p = .136$). However, for our female participants, FPU and BDI acted as valid predictors, explaining 76.9 % of the variance in PDPP scores ($R^2 = .769, F(2, 7) = 11.638, p = .006$).

Discussion

As supported by previous research (Pornresearch.org; Albright, 2008; Weaver et. al., 2011; Willoughby et. al, 2014; Harper & Hodgins, 2016), male participants used pornography significantly more frequently than female participants. Our hypothesis that there would be a positive linear relationship between the FPU and depression for the overall group, as scored by the BDI-I was not supported. Our hypothesis that there would be a positive linear relationship between the FPU and aggression for the overall group, as scored by the Buss-Perry Aggression Questionnaire, was not supported. There was also no statistically significant relationship between either of our post pornography use perceived measures and our participants FPU for the overall group. When separating the group by gender, we found no significant correlation between aggression, as scored by the Aggression Questionnaire, or depression, as scored by the BDI-I for either gender. Without a correlation, or even marginal trend, between aggression and the participants FPU, our hypothesis that there would be a magnification effect, that higher scores on both aggression and FPU would predict higher scores on PAPP also could not be supported, showing non-significance through regression analysis. Similarly, since depression and the participants FPU showed no significant correlation, our hypothesis that higher scores on the BDI-I and higher scores on the participants FPU would predict higher scores on their PDPP also could not be supported. With no relationship between participants FPU and their scores on either the Buss-Perry Aggression Questionnaire or the BDI-I, a magnification effect could not be supported since, in essence, there was no relationship between depression or aggression and

pornography use that could magnify the perception of the participants depression or aggression post pornography use.

Part of the possible reasoning neither aggression nor depression showed any significant correlations to our overall groups could have been from a lack of statistical power. Although we had 47 respondents, 1 respondent did not consent to the survey and 12 who did consent do not use pornography and were not applicable to the remainder of the survey. Of the remaining participants, only 26 answered the question about their frequency of pornography use and of the 26 who answered questions on their pornography use, multiple participants had missing data elsewhere that gave greater difficulty to analysis.

Despite such weak statistical power, however, we did find a few interesting results during analysis. First, there was a positive relationship between how aggressive and how depressive a person felt one hour post pornography use. In other words, when our participants felt happier post pornography use, they also tended to feel a stronger release of PAPP and when our participants reported to feel more depressed post pornography use, they also scored higher on their feelings of aggression post use. Our study also showed a positive correlation between overall aggression and BDI scores, and a strong positive correlation between feelings of hostility, one of the aggression sub groups in the Buss-Perry Aggression Questionnaire, and BDI scores. The positive linear relationship between aggression and depression, if we believe perceived feelings of depression or aggression could be accurate, would seem to help explain why PAPP and PDPP scores had a statistically significant, positive relationship. Another possible explanation could simply be that positive feelings post pornography use would relate better to other positive feelings post use and that negative feelings post pornography use would relate better to other negative feelings post use. If a participant claims to have felt happier after use, would they also feel comfortable reporting higher degrees of perceived aggression? And if a participant claims to feel more depressed after pornography use, would they feel comfortable reporting a higher release of aggression? The additional complication of having participants report perceived emotions that they needed to remember from previous pornography use, since our study was not experimental and could not have them report their perceptions immediately after pornography use, could also have modified our participants answers.

Separations by gender also helped develop some interesting results. One of our initial hypotheses was that depression would correlate to higher frequency of pornography use, and

though neither male nor female participants showed any significant correlation between BDI and frequency of pornography use, both male and female participants did show a significant relationship between self-perceived feelings of depression and pornography use.

For male participants, a higher frequency of pornography use was correlated to a higher degree of self-perceived depression one hour after pornography use. Although the BDI scores showed no relationship to frequency of pornography use, if self-perception is accurate, the positive relationship between men's pornographic viewing and their perceived depression after viewing would seem to be in line with past research and suggests that men who view pornography more frequently perceive themselves as being more depressed following their use.

Women had a relationship between their self-perceived depression and their frequency of pornography use, but in the opposite direction. For our female participants, a lower frequency of pornography use was correlated to a higher degree of depression post pornography use, and a higher frequency of pornography use correlated to a stronger feeling of happiness one hour post pornography use. Regression analysis also showed that FPU and BDI scores for women acted as predictors for their PDPP scores. Interestingly, women also showed the same pattern with self-perceived aggression whereas less frequent pornography use was correlated with more aggressive feelings one hour post pornography use. It should be noted, however, that no female participant reported increased feelings of aggression post pornography use and thus our results only indicate that there is a stronger perceived release of aggression when our female participants had a higher frequency of use and a weaker perceived release of aggression when our female participants had a lower frequency of use. Our findings that a higher frequency of pornography use correlated to less PAPP and higher feelings of happiness post use would only be contradictory to previous research if we assume that the memory of a perceived emotion equates to the reality of emotion post pornography use.

Though purely speculative, a few explanations may exist for our findings regarding women's relationship between their PAPP, PDPP and their FPU. First, it is possible that the women who view pornography more infrequently are viewing it, not out of a desire to view pornography, but from relational or peer pressure. If this explanation is accurate, by viewing pornography not by ideal choice, the female participants who viewed pornography less frequently and felt negatively after could simply have been having a logical reaction. This explanation, however, would only account for the part of our sample that felt no benefit or felt a

negative reaction post pornography use with more infrequent use. Though to our knowledge, no study has looked at perceived aggression or depression post use, we may consider a study done by Hald and Malamuth (2008) to better understand our results. In the study, 300 Dutch men and 300 Dutch women were asked questions about their perception of their pornographic use in regard to their sex life, their attitudes towards sex, their perceptions and attitudes towards the opposite gender, their sexual knowledge and their life in general. The questions which were categorized as describing their “life in general” are probably of most relevance as they looked at the perceived effects of pornography to the participants overall life satisfaction, problems in life, and quality of life. The study found more positive than negative perceived effects of pornography within the “life in general” questions. This study was then replicated in Indonesia with similar results (Wijaya Mulya & Hald, 2014).

Given so much of the existing research shows negative correlations and effects of pornography use (Addison, & Koss, 2000; Kingston, Fedoroff, Firestone, Curry, & Bradford, 2008; Malamuth; Foubert, Brosi, & Bannon, 2011; Weaver et al., 2011; Tylka, 2015), our results of a perceived positive effect from our female participants and the perceived positive effects from both male and female participants in the Hald and Malamuth (2008) study as well as the Wijaya Mulya & Hald (2014) study beg the question whether our actual emotions mirror our perceived emotions in regard to pornography’s effects, or whether we are viewing our recent history through rose colored glasses. Can we accurately remember our emotions, especially in regard to a hot topic like pornography? Or do we skew our past experiences to fit other factors such as our current emotional state, views on pornography or views on how our emotions may be perceived by others? What makes our results even more interesting is the fact that the study by Hald and Malamuth (2008) as well as the study by Wijaya Mulya and Hald (2014) showed a perceived positive effect of pornography for both men and women, but in our study, positive perceived effects were only reported by our female participants, with our male participants reporting higher PDPP with a higher frequency of use. Thus our results only would seem to mirror the positive perceived effects found in the previous research for our female participants while our male participants reported more negative perceived effects, specifically feelings of depression post use.

Limitations

As noted previously, our small sample size was a significant limitation to this current study. Part of the reason for this small sample was that the studies design was set to concentrate only on pornography users, and thus non-users were automatically dropped out in the beginning of the survey. Most past pornography research, even the research that concentrated specifically on effects or correlations to higher frequencies of pornography use, used non-users as a “0” frequency. The lack of a “0” frequency in our study could have altered our results and kept hidden specific correlations often found in previous research, such as correlations to depression or aggression.

Our sample itself was limited to students of a private liberal north eastern school, Trinity College. The specific population could have influenced results that did not mirror past research as well. Self-report surveys in general are at risk for response bias, and to limit the population to one small liberal arts north eastern college could of course change both the legitimate responses of participants and their possible biases.

Future research

We would propose a longitudinal study involving both pornography users and non-users for a future research study. In the proposed study, both users and non-users would log onto an anonymous digital journal and track their daily mood once a day using objective measures. The pornography users would also track if they used pornography that day, for how long, how many times and why they used pornography. At the end of the study, pornography users would be asked about their perceived mood post pornography use as a way to compare perceived mood post use with objective daily measures that they had filled out throughout the study.

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1. Appendix A.

Survey

The survey questions were as follows

Determination question:

Do you ever watch pornography? (If answer is no, the survey would end)

Yes

No

Relationship status:

Please choose one of the following which would best fit your current relationship status:

I am...

1. Single and uninvolved romantically or physically
2. Single and involved romantically or physically with another person
3. Single and involved romantically or physically with multiple partners
4. Monogamous less than one year
5. Monogamous more than one year

Beck depression scale

Please choose the answer that best fits your feelings within the past two weeks

Question 1

1. I do not feel sad
2. I feel sad
3. I am sad all the time and can't snap out of it
4. I am so sad and unhappy that I can't stand it

Question 2

1. I am not particularly discouraged about the future
2. I feel discouraged about the future

3. I feel I have nothing to look forward to
4. I feel the future is hopeless and that things cannot improve

Question 3

1. I do not feel like a failure
2. I feel I have failed more than the average person
3. As I look back on my life, all I can see is a lot of failure
4. I feel I am a complete failure as a person

Question 4

1. I get as much satisfaction out of things as I used to
2. I don't enjoy things the way I used to
3. I don't get real satisfaction out of anything anymore
4. I am dissatisfied or bored with everything

Question 5

1. I don't feel particularly guilty
2. I feel guilty a good part of the time
3. I feel quite guilty most of the time
4. I feel guilty all of the time

Question 6

1. I don't feel I am being punished
2. I feel I may be punished
3. I expect to be punished
4. I feel I am being punished

Question 7

1. I don't feel disappointed in myself
2. I am disappointed in myself
3. I am disgusted with myself
4. I hate myself

Question 8

1. I don't feel I am any worse than anybody else
2. I am critical of myself for my weaknesses or mistakes
3. I blame myself all the time for my faults
4. I blame myself for everything bad that happens

Question 9

1. I don't have any thoughts of killing myself
2. I have thoughts of killing myself, but I would not carry them out
3. I would like to kill myself
4. I would kill myself if I had the chance

Question 10

1. I don't cry any more than usual
2. I cry more now than I used to
3. I cry all the time now
4. I used to be able to cry, but now I can't cry even though I want to

Question 11

1. I am no more irritated by things than I ever was
2. I am slightly more irritated now than usual
3. I am quite annoyed or irritated a good deal of the time

4. I feel irritated all the time

Question 12

1. I have not lost interest in other people
2. I am less interested in other people than I used to be
3. I have lost most of my interest in other people
4. I have lost all of my interest in other people

Question 13

1. I make decisions about as well as I ever could
2. I put off making decisions more than I used to
3. I have greater difficulty in making decisions more than I used to
4. I can't make decisions at all anymore

Question 14

1. I don't feel that I look any worse than I used to
2. I am worried that I am looking old or unattractive
3. I feel there are permanent changes in my appearance that make me look unattractive
4. I believe that I look ugly

Question 15

1. I can work about as well as before
2. It takes an extra effort to get started at doing something
3. I have to push myself very hard to do anything
4. I can't do any work at all

Question 16

1. I can sleep as well as usual
2. I don't sleep as well as I used to
3. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
4. I wake up several hours earlier than I used to and cannot get back to sleep

Question 17

1. I don't get more tired than usual
2. I get tired more easily than I used to
3. I get tired from doing almost anything
4. I am too tired to do anything

Question 18

1. My appetite is no worse than usual
2. My appetite is not as good as it used to be
3. My appetite is much worse now
4. I have no appetite at all anymore

Question 19

1. I haven't lost much weight, if any, lately
2. I have lost more than five pounds
3. I have lose more than ten pounds
4. I have lost more than fifteen pounds

Question 20

1. I am no more worried about my health than usual
2. I am worried about physical problems like aches, pains, upset stomach, or constipation
3. I am very worried about physical problems and it's hard to think of much else
4. I am so worried about my physical problems that I cannot think of anything else

Question 21

1. I have not noticed any recent change in my interest in sex
2. I am less interested in sex than I used to be
3. I have almost no interest in sex
4. I have lost interest in sex completely

Buss-Perry Aggression Questionnaire

Please select the most accurate answer

Once in a while I can't control the urge to strike another person

Extremely uncharacteristic of me Extremely characteristic of me

Given enough provocation, I may hit another person

Extremely uncharacteristic of me Extremely characteristic of me

If somebody hits me, I hit back

Extremely uncharacteristic of me Extremely characteristic of me

I get into fights a little more than the average person

Extremely uncharacteristic of me Extremely characteristic of me

If I have to resort to violence to protect my rights, I will

Extremely uncharacteristic of me Extremely characteristic of me

There are people who pushed me so far that we came to blows

Extremely uncharacteristic of me Extremely characteristic of me

I can think of no good reason for ever hitting a person

Extremely uncharacteristic of me Extremely characteristic of me

I have threatened people I know

Extremely uncharacteristic of me Extremely characteristic of me

I have become so mad that I have broken things

Extremely uncharacteristic of me Extremely characteristic of me

I tell my friends openly when I disagree with them

Extremely uncharacteristic of me Extremely characteristic of me

I often find myself disagreeing with people

Extremely uncharacteristic of me Extremely characteristic of me

When people annoy me, I may tell them what I think of them

Extremely uncharacteristic of me Extremely characteristic of me

I can't help getting into arguments when people disagree with me

Extremely uncharacteristic of me Extremely characteristic of me

My friends say that I'm somewhat argumentative

Extremely uncharacteristic of me Extremely characteristic of me

I flare up quickly but get over it quickly

Extremely uncharacteristic of me Extremely characteristic of me

When frustrated, I let my irritation show

Extremely uncharacteristic of me Extremely characteristic of me

I sometimes feel like a powder keg ready to explode

Extremely uncharacteristic of me Extremely characteristic of me

I am an even-tempered person

Extremely uncharacteristic of me Extremely characteristic of me

Some of my friends think I'm a hothead

Extremely uncharacteristic of me Extremely characteristic of me

Sometimes I fly off the handle for no good reason

Extremely uncharacteristic of me Extremely characteristic of me

I have trouble controlling my temper

Extremely uncharacteristic of me Extremely characteristic of me

I am sometimes eaten up with jealousy

Extremely uncharacteristic of me Extremely characteristic of me

At times I feel I have gotten a raw deal out of life

Extremely uncharacteristic of me Extremely characteristic of me

Other people always seem to get the breaks

Extremely uncharacteristic of me Extremely characteristic of me

I wonder why sometimes I feel so bitter about things

Extremely uncharacteristic of me Extremely characteristic of me

I know that "friends" talk about me behind my back

Extremely uncharacteristic of me Extremely characteristic of me

I am suspicious of overly friendly strangers

Extremely uncharacteristic of me Extremely characteristic of me

I sometimes feel that people are laughing at me behind my back

Extremely uncharacteristic of me Extremely characteristic of me

When people are especially nice, I wonder what they want

Extremely uncharacteristic of me Extremely characteristic of me

Self-Perceived effects of Pornography Usage:

In the following questions, please pick a number on the scales from 1 to 7, indicating, to the best of your recollection, your general feelings around an hour after pornography use.

To the best of my recollection, an hour after pornography use I tend to feel...

(Aggression. Scale 1-7)

1. A large decrease in aggressive feelings
2. A moderate decrease in aggressive feelings
3. A minor decrease in aggressive feelings
4. No change positive or negative in aggressive feelings
5. A minor increase in aggressive feelings
6. A moderate increase in aggressive feelings
7. A large increase in aggressive feelings

To the best of my recollection, an hour after pornography use I tend to feel...

(Depression/Happiness scale 1-7)

1. A large increase in happy feelings
2. A moderate increase in happy feelings

3. A minor increase in happy feelings
4. No change towards happy or depressive feelings
5. A minor increase in depressive feelings
6. A moderate increase in depressive feelings
7. A large increase in depressive feelings

Frequency of Pornography Usage:

In the following questions, please pick a number on the scales from 1 to 7, indicating, to the best of your recollection, your frequency of pornography use on average.

1. More than once a day
2. Once a day
3. Less than once a day but at least 3 times a week
4. Less than 3 times a week but at least once a week
5. Less than once a week but at least once every other week
6. Less than every other week but at least once a month
7. Less than once a month

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