



The Role of Experiential Avoidance in Problematic Pornography Viewing

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Published online: 18 July 2018

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Abstract

Research suggests that online pornography use can have harmful consequences for some individuals, but the psychological processes that contribute to problematic viewing are unclear. This study sought to evaluate the role of experiential avoidance in the negative consequences of online pornography viewing in a small cross-sectional survey sample of 91 male college students who reported viewing. Results indicated that viewing pornography for experientially avoidant motivations was related to more frequent viewing and predicted self-reported negative consequences of viewing over and above other motivations (e.g., sexual pleasure, curiosity, excitement seeking). Although more frequent viewing was related to more self-reported negative consequences, this relation was consistently mediated by viewing for experiential avoidance in this sample. Study limitations included a homogeneous sample of primarily white students, a relatively low rate of reported pornography viewing, and use of only self-report assessment. Results suggest that viewing to avoid unwanted emotions might account for both frequent viewing and its negative consequences, highlighting a promising target for future interventions seeking to reduce problematic pornography viewing.

Keywords Experiential avoidance · Acceptance and commitment therapy · Mindfulness · Pornography · Internet addiction

Internet pornography use is a relatively recent but prevalent phenomenon (Kraus et al. 2016; Sabina et al. 2008; Wright et al. 2013). Research indicates the effects of pornography use are contextual, having positive and negative effects. For some, pornography use is associated with a range of problems, including poor sexual functioning, increased negative emotions, isolation, relationship dissatisfaction, spiritual concerns, disregarding responsibilities, and financial consequences (e.g., Baltazar et al. 2010; Doring 2009; Harper and Hodgins 2016; Young 2008). Conversely, for others, pornography use is associated with beneficial effects, including improved sexual functioning, sex life, attitudes towards sex, and quality of life (e.g., Albright 2008; Poulsen et al. 2013; Twohig et al. 2009). For example, a study of college-aged men and women found that the majority of participants self-reported positive effects on their personal and intimate lives related to their pornography consumption (Hald and Malamuth 2008).

These mixed results raise obvious questions about the use of pornography. Why might viewing be problematic for some but not for others, and what psychological processes contribute to viewing being problematic? To begin addressing this, attempts have been made to classify problematic pornography use in relation to diagnostic concepts such as addiction (Duffy et al. 2016), compulsions (Cooper et al. 1999), or hypersexual behavior (Stein et al. 2001). However, it is still unclear why some individuals struggle with compulsive, addictive, and/or otherwise harmful viewing patterns.

One approach to identifying mechanisms that contribute to problematic viewing is to consider the function (why people view), rather than just the topography (the form and frequency) of viewing. Research indicates that individuals vary on their motivators (also labeled establishing operations) for viewing pornography (Reid et al. 2011). Focusing on the function of viewing, compared to the form, is important for helping determine who is suitable for treatment. Classifying viewing as problematic based on the amount of viewing is bound to wrongly label those for whom viewing has no negative consequences or has a positive impact on their lives. Instead, classification is better served by a functional definition of problematic viewing related to unwanted consequences of the viewing behavior (e.g., What is being avoided? How does it impact quality of life?). This method of conceptualization is

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consistent with other psychological diagnoses and behavioral conceptualizations of problematic behaviors.

Of the possible variables that might help identify the function for viewing pornography, experiential avoidance may be particularly relevant. Experiential avoidance refers broadly to rigid patterns of behavior that attempt to reduce, change, or otherwise control unwanted inner experiences (e.g., thoughts, emotions, urges) despite the negative consequences that may arise from doing so (Hayes et al. 1996). A large body of research indicates that experiential avoidance contributes to a wide range of psychological problems (Hooper and Larsson 2015), including other addictive/compulsive behaviors such as alcohol use (Levin et al. 2012b), hair pulling (Begotka et al. 2004), skin picking (Twohig et al. 2006), self-harm (Chapman et al. 2006), and binge eating (Lillis et al. 2011). Part of why experiential avoidance is so problematic is that individuals rigidly engage in patterns narrowly focused on escaping aversive states, despite the negative consequences over time and in other areas of life. Furthermore, these avoidant behaviors often elicit more negative thoughts and feelings, which leads to more experiential avoidance, and thus creating an ongoing cycle (Chowla and Ostafin 2007; Hayes et al. 1996). This process might likewise lead to frequent, rigid patterns of pornography viewing, irrespective of negative consequences in other areas of life such as relationships, work, or religion.

Previous research supports a potential link between problematic pornography viewing and experiential avoidance. Two studies have been conducted using a general measure of experiential avoidance, not tailored to viewing, called the Acceptance and Action Questionnaire (AAQ; Bond et al. 2011). These studies found that experiential avoidance was elevated among those whose use of pornography was problematic (Wetterneck et al. 2012) and that frequent pornography viewing was more associated with impaired quality of life among those high in experiential avoidance (Levin et al. 2012a). These findings suggest experiential avoidance is related to problematic viewing. However, no research has yet examined whether experiential avoidance accounts for why viewing leads to negative consequences. Furthermore, research has not yet used a specific measure of viewing for experientially avoidant reasons, or how the role of experiential avoidance compares to other factors in viewing.

The current study sought to clarify the potential role of experiential avoidance in problematic viewing using a measure of motivations (establishing operations) to view pornography that includes subscales for emotional avoidance as well as sexual curiosity, sexual pleasure, and excitement seeking (Pornography Consumption Inventory [PCI]; Reid et al. 2011). The PCI emotional avoidance subscale maps on well to experiential avoidance, with items assessing avoidant functions of pornography use (e.g., "I use it to avoid feeling uncomfortable or unpleasant emotions"). Although experiential avoidance is a broader construct that includes other types of

avoidance and escape besides pornography use as well as a broader range of aversive internal stimuli than emotions, the PCI emotional avoidance subscale affords a well-validated measure that assesses a key aspect of experiential avoidance as applied to pornography use. Recent studies have found that versions of the AAQ that are tailored to problem areas better capture experiential avoidance specific to the problem behavior better than the AAQ alone (e.g., Houghton et al. 2014; Lee et al. 2017). Although no pornography-viewing-specific version of the AAQ exists, the emotional avoidance subscale of the PCI appeared to be a reasonable alternative to capture experiential avoidant behavior within this narrow domain and was therefore used as the primary predictor in the current study.

The study predicted that viewing for emotional avoidance would be the strongest predictor of viewing frequency and self-reported negative outcomes from viewing. Furthermore, the study hypothesized that viewing frequency would predict self-reported negative consequences, and that this effect would be mediated by viewing for emotional avoidance. If these predictions were confirmed, it would suggest that viewing for experientially avoidant reasons is an important contributor to problematic pornography viewing.

Method

Participants and Procedures

The study included a sample of 91 male college students who reported viewing online pornography. This data was collected from a larger survey of 728 college students (236 identified as being male with 39% reporting viewing online pornography). Only male participants were included in this study given that 90% of females reported no viewing and only 2% reported viewing on a weekly basis (indicating viewing frequencies were relatively absent among females and distinct from males, warranting separate analysis). Males who reported any viewing were included irrespective of reported frequency to maximize variability in pornography viewing frequency and negative outcomes to be examined in relation to experiential avoidance.

Participants in the study were 21.31 years old on average ($SD = 3.99$, range = 18–45 years old). In terms of race/ethnicity, 93% identified as being white, 4% Hispanic or Latino, 1% American Indian/Alaska Native, 1% Native Hawaiian or Pacific Islander, and 1% black or African American. Approximately half of the sample (52%) was in their first year in college, with 24% in their second year, 18% in their third year, and 6% in their fourth year or higher. In terms of relationship status, 63% were currently single, 25% were dating, 10% were married, and 2% were divorced. Additional demographics were added part way through the study and were completed by 42 participants in the current sample, indicating that the vast majority identified as being heterosexual ($n = 40$,

95%), with one participant identifying as bisexual and one identifying as gay. Of the 42 participants, the majority ($n = 23$, 55%) identified as belonging to the Church of Jesus Christ of Latter-Day Saints (LDS; i.e., Mormon), with 33% reporting no religious affiliation ($n = 14$).

On average, participants reported viewing online pornography 1.62 h a week (*Median* = 1.00, *SD* = 1.56, *Range* = 0–8 h, 17% viewing 3 or more hours a week). This average amount of viewing per week and rate of frequent viewing (3 or more hours) is similar to those reported in a previous non-clinical study of over 1,000 males who view pornography ($M = 1.9$, $SD = 1.4$, 14% viewing 3 or more hours a week; Kraus et al. 2016). In terms of frequency of days viewing pornography in the current study, 25% reported viewing once a month or less, 27% 2 or 3 days a month, 21% 1 or 2 days a week, 15% 3 to 5 days a week, and 12% every day or almost every day, which again was similar to a large nonclinical study of over 1,000 male adults (Regnerus et al. 2016). That said, these estimates do not include the 61% participants ($n = 491$) from the larger study that reported no pornography use, which is much higher than the 14% rate of no pornography use found in a previous study using the same question item with 313 young adult men across six universities (Carroll et al. 2008). Thus, the current sample of pornography viewers reported similar rates of viewing to other community samples, but the rate of participants reporting no pornography viewing from the larger sample was markedly higher than previous studies.

Participants average scores on the CPUI compulsivity ($M = 3.14$, $SD = 1.84$), effort ($M = 1.67$, $SD = 1.05$), and distress subscales ($M = 4.07$, $SD = 2.38$) were equivalent or higher to those found in a validation study using nonclinical community and university samples of pornography viewers (Grubbs et al. 2015). Thus, the sample reported similar rates of viewing-related problems as other samples that report viewing pornography.

Students were recruited from relevant courses offering credit for research participation (primarily in psychology) at a mid-size university in the Mountain West. Participation involved completing an online survey delivered through the Qualtrics survey platform, which assessed a wide range of variables, with a subset reported for the current study as relevant to studying the role of experiential avoidance in problematic viewing. All procedures were approved by the institution's Internal Review Board.

Measures

Pornography Viewing Items

The first items assessing pornography use in the survey were a series of single items regarding occurrence and overall harm from viewing based on measures used in previous studies (Carroll et al. 2008; Hald and Malamuth 2008). It should be

noted that participants were not provided with a definition for pornography; rather what defined viewing pornography was left to the discretion of the participant. Participants were first assessed on whether they viewed online pornography with the question “How frequently do you view online pornographic material (i.e., internet pornography websites)?” on a 6-point scale ranging from 1 (“none”) to 6 (“every day or almost every day”; Carroll et al. 2008). Those indicating at least 2 (“once a month or less”) were asked additional questions about their viewing and included in the study. Frequency of online pornography viewing was subsequently assessed in terms of the average number of hours per week with the question “How much time on average do you spend on internet pornography per week?” This follow-up item was used as the primary viewing frequency variable to provide more sensitivity to the higher end of viewing in this sample.

Overall harm from viewing pornography was assessed with the question “To what extent do you believe that your consumption of online pornography, overall, has had a harmful effect on your life?” with responses on a 7-point scale ranging from “not at all” to “to an extremely large extent.” This item was taken from a larger measure designed to assess various effects from viewing pornography (Hald and Malamuth 2008).

Cyber Pornography Use Inventory (CPUI)

The CPUI (Grubbs et al. 2015) assesses compulsive online pornography use and was used in this study as an outcome measure of harmful viewing consequences. This 9-item measure has three subscales that assess harmful use patterns including excessive efforts to view pornography (e.g., “I have put off important priorities to view pornography”), emotional distress (e.g., “I feel ashamed after viewing pornography online”), and perceived compulsivity (e.g., “I feel unable to stop my use of online pornography”). It should be noted that the CPUI instructions do not provide a definition of what constitutes online pornography. Items are rated on a 7-point scale ranging from 1 (“not at all”) to 7 (“extremely”). The CPUI has been found to have adequate internal consistency (α ranging between .68 and .93) and to best fit a three-factor model consistent with its subscales (Grubbs et al. 2015). Research also indicates the validity of the CPUI in assessing problematic pornography viewing including correlating with other measures of hypersexual tendencies and frequency of pornography viewing as well as differentiating between known groups who engage in compulsive viewing or not (Grubbs et al. 2015). The CPUI was originally developed and validated in a sample of evangelical Christian college students, and therefore appears suitable for other religious student samples. The internal consistency for the CPUI in the current study was $\alpha = .85$ for CPUI distress, $\alpha = .74$ for CPUI effort, and $\alpha = .64$ for CPUI compulsivity.

Cognitive and Behavioral Outcomes of Sexual Behavior Scale-Revised (CBOSB-R)

A modified version of the CBOSB (McBride et al. 2007) was used as an outcome measure in the current study to further examine potential harmful consequences from Internet pornography viewing. The original CBOSB assessed 20 potential negative consequences that individuals were worried may occur as a result of their sexual activities (including issues not directly relevant to viewing such as sexually transmitted diseases). The CBOSB-R was modified to assess specifically whether eight potential consequences occurred in the past month as a result of Internet pornography use. These include a variety of problems including three items assessing distress (e.g., “I felt guilty”; “I experienced spiritual distress”), two items assessing relationship problems (e.g., “My relationships with a spouse or other relationship partner were damaged”), and three items assessing problems with school, work, and finances (e.g., “I experienced problems at work”). The CBOSB-R instructions stated, “In the past month, as a result of your Internet pornography use, did the following happen to you?” Each item was rated on a 6-point scale ranging from 1 (“not at all”) to 6 (“all the time”). The CBOSB-R demonstrated adequate internal consistency in the current study ($\alpha = .81$).

Pornography Consumption Inventory (PCI)

The 15-item PCI (Reid et al. 2011) was used to assess motivations for viewing pornography. This measure includes four subscales that assess specific motivations including excitement seeking, sexual curiosity, and sexual pleasure as well as emotional avoidance. The emotional avoidance subscale includes items that are theoretically consistent with the construct of experiential avoidance and are more specifically related to pornography viewing. Therefore, this subscale was used as a proxy to measure pornography-viewing-specific experiential avoidance. Items are rated on a 5-point scale ranging from 1 (“never like me”) to 5 (“very often like me”). An example item for emotional avoidance is “I use it to avoid feeling uncomfortable or unpleasant emotions,” for sexual curiosity “It fuels an interest I have to understand more about sex,” for excitement seeking “I use it to provide some novelty or variety in my life,” and for sexual pleasure “I use it to feel physical pleasure.” The PCI was the last pornography-related assessment provided in the survey, but it did provide a definition of what constitutes pornography “For this questionnaire, pornography should be defined as material that (1) creates or elicits sexual feelings or thoughts and (2) contains explicit exposure or descriptions of sexual acts involving the genitals, such as vaginal or anal intercourse, oral sex, or masturbation.” The PCI has been found in samples struggling with pornography viewing to have adequate internal consistency (α ranging between .71 and .95), test–retest reliability ($r = .86$), and to

best fit a four-factor model consistent with its subscales (Reid et al. 2011). The PCI subscales have also demonstrated convergent validity (e.g., correlations with hypersexual behavior symptoms, impulsive personality traits) and divergent validity consistent with the unique reasons for viewing that are assessed (e.g., PCI emotional avoidance correlating more strongly with negative emotionality variables than PCI sexual pleasure or PCI sexual curiosity; Reid et al. 2011). The PCI had adequate internal consistency in the current study, although the excitement seeking subscale was somewhat low (sexual pleasure $\alpha = .88$, sexual curiosity $\alpha = .90$, emotional avoidance $\alpha = .93$, excitement seeking $\alpha = .65$).

Acceptance and Action Questionnaire-II (AAQ-II)

The 7-item AAQ-II (Bond et al. 2011) was used as a measure of general experiential avoidance, providing an opportunity to further examine the role of experiential avoidance and its relationship to PCI emotional avoidance in problematic pornography viewing. AAQ-II items include “I’m afraid of my feelings” and “Emotions cause problems in my life.” The AAQ-II and its variants represent the most widely used measure of experiential avoidance and has been found to relate to problematic viewing in previous studies (e.g., Levin et al. 2012a). The 7-item AAQ-II has been found to be a reliable and valid measure in previous research, including specifically with college students (Bond et al. 2011) and in examining online pornography viewing (Levin et al. 2012a). The AAQ-II had adequate internal consistency in the current study ($\alpha = .90$).

Data Analysis Plan

First, the distribution of each variable was checked for normality and preliminary descriptive statistics were examined. To examine whether viewing frequency relates to self-reported negative viewing outcomes, zero order correlations were conducted. Additional zero order correlations examined whether each predictor for viewing was related to viewing frequency and self-reported negative outcomes from viewing. Follow up hierarchical linear regressions were conducted to further examine whether emotional avoidance accounted for viewing frequency and negative outcomes above and beyond other predictors for viewing. The first step of the regression included sexual curiosity, sexual pleasure, and excitement seeking motivations, with the second step adding emotional avoidance. A post hoc power analysis indicated that a sample of 91 participants with power of .80 is sensitive to detecting at $p < .05$ a small zero-order correlation of $r = .21$ as well as a small effect of $f^2 = .14$ in a multivariate regression with four predictor variables.

The next set of analyses sought to examine whether emotional avoidance mediates the relation between viewing frequency and each self-reported negative outcome. The cross product of coefficients test was used in each model to determine whether a

mediational effect was significant (Preacher and Hayes 2008). This method uses a nonparametric test for the significance of the mediational pathway with bootstrapping. Resulting confidence intervals are reported to test for the significance of mediation, which is indicated by confidence intervals that do not contain zero. Each path of the mediational model (a, b, c, c') and the proportion of variance accounted for in the relation between viewing and outcomes were also reported to support further interpretation of the mediational effects.

To further determine whether emotional avoidance was the strongest predictor of the motivational variables, additional mediational analyses tested whether excitement seeking, sexual pleasure, or sexual curiosity also mediated the relation between viewing frequency and negative outcomes. Any significant mediational findings were followed up with a multiple mediator model including both the motivational variable as well as emotional avoidance to determine whether both reasons for viewing independently mediated outcomes.

A final set of analyses examined whether viewing for emotional avoidant reasons might mediate the previously found relation between general experiential avoidance as measured by the AAQ and negative outcomes from viewing (Levin et al. 2012a; Wetterneck et al. 2012). This could help further clarify how general experiential avoidance leads to problems from pornography viewing, particularly whether its due to using viewing as a form of experiential avoidance. The same set of mediational analyses were conducted as used with viewing frequency, but now examining general experiential avoidance as the predictor variable.

Results

Preliminary Analyses

When checking the distribution of each variable for subsequent parametric analyses, average pornography viewing hours and the CPUI effort subscale were both highly skewed. These variables were transformed to approximate a normal distribution using a logarithmic and exponential transformation respectively. After these transformations, all variables approximated a normal distribution.

Does Viewing Frequency Predict Self-Reported Negative Outcomes?

This first series of analyses examined whether average hours of viewing a week correlated with self-reported negative outcomes from viewing (i.e., CBOSB-R, overall harm, CPUI effort, CPUI compulsivity, and CPUI distress). Significant correlations were found between viewing hours and every outcome besides a trend with CPUI distress (see Table 1). Correlation coefficients ranged from .20 to .55. In each case, viewing more

often related to greater rates of self-reported negative consequences, compulsive viewing, and distress from viewing.

What Viewing Motivations Predict Frequency and Self-Reported Negative Outcomes from Viewing?

The next series of analyses examined the relation between viewing motivation and both viewing rate and self-reported negative outcomes from viewing (see Table 1). Zero order correlations indicated that average weekly viewing hours correlated with viewing for emotional avoidance ($r = .44$), excitement seeking ($r = .23$), and sexual pleasure ($r = .38$) but not sexual curiosity ($r = -.08$). In each case, greater endorsement of these reasons was associated with more viewing. A subsequent hierarchical regression (see Table 2) indicated that only sexual pleasure and emotional avoidance independently predicted viewing frequency, such that greater motivation predicted greater viewing frequency.

Analyses next examined the relation between motivations for viewing and negative outcomes (i.e., CBOSB-R, overall harm, CPUI effort, CPUI compulsivity, and CPUI distress). Zero order correlations indicated that each motivation for viewing consistently correlated with each self-reported negative outcome (see Table 1). The strongest and most consistent correlations were with viewing for emotional avoidance, with significant correlation coefficients ranging from .43 to .59 with each outcome. Correlations were such that greater motivations to view for emotional avoidance, excitement seeking, or sexual pleasure were all associated with greater negative outcomes, whereas greater motivations to view for sexual curiosity were associated with lower negative outcomes.

A series of hierarchical regressions further examined the unique role of emotional avoidance in predicting viewing consequences (second step) above and beyond other viewing motivations entered in the first step (see Table 2). In each case, the first step of the regression without emotional avoidance was significant in predicting outcomes, due mostly to higher excitement seeking and lower sexual curiosity reasons predicting higher negative outcomes from viewing. The addition of emotional avoidance in step 2 led to a significance increase in variance accounted for with each negative outcome (ΔR^2 ranging from .07 to .12). For three out of five outcomes, the inclusion of emotional avoidance led to excitement seeking no longer being a significant predictor of negative outcomes. Thus, greater emotional avoidance and lower sexual curiosity were the most consistent, independent predictors of negative viewing outcomes.

Does Viewing for Emotional Avoidance Account for the Relation between Viewing Frequency and Self-Reported Negative Outcomes?

A series of analyses examined whether viewing for emotional avoidance mediates the relationship between average viewing

Table 1 Zero Order Correlations between Variables

	PV Hours	CBOBSB-R	Overall Harm	CPUI-E	CPUI-C	CPUI-D	PCI-EA	PCI-ES	PCI-SP	PCI-SC
PV Hours	–									
CBOBSB-R	.28**	–								
Overall Harm	.26*	.78***	–							
CPUI – Effort	.45***	.60***	.46***	–						
CPUI – Compulsivity	.55***	.72***	.70***	.63***	–					
CPUI – Distress	.20†	.86***	.77***	.50***	.69***	–				
PCI – Emotional Avoidance	.44***	.52***	.50***	.58***	.59***	.43***	–			
PCI – Excitement Seeking	.23*	.25*	.32**	.50***	.42***	.17	.56***	–		
PCI – Sexual Pleasure	.38***	.13	.13	.34**	.41***	.09	.38***	.55***	–	
PCI – Sexual Curiosity	-.08	-.33**	-.32**	-.09	-.18†	-.40***	-.08	.32**	.16	–
AAQ-II	.28**	.31**	.31**	.40***	.28**	.25*	.44***	.29**	.19†	-.02

† $p < .10$, * $p < .05$; ** $p < .01$; *** $p < .001$. PV Hours = Weekly average hours of viewing, CBOBSB-R = Cognitive and Behavioral Outcomes of Sexual Behavior-Revised, Overall Harm = Self-report item of general negative outcomes from PV, CPUI = Cyber Pornography Use Inventory, PCI = Pornography Consumption Inventory, AAQ-II = Acceptance and Action Questionnaire-II. All positive correlations indicate expected relations between greater viewing, greater negative outcomes, and greater experiential avoidance

hours and self-reported negative outcomes from viewing (see Table 3). Consistent with the zero order correlations, viewing hours predicted each negative outcome (c path). Furthermore, viewing hours significantly predicted viewing for emotional avoidance (a path) and emotional avoidance predicted each negative outcome when controlling for viewing hours (b path).

The cross product of coefficients analyses indicated that viewing for emotional avoidance significantly mediated the relation between viewing hours and negative outcomes, as indicated by bootstrapped confidence intervals not containing zero. In three out of five models, viewing hours no longer predicted negative consequences when including the mediational path. The proportion of variance accounted for by viewing for emotional avoidance ranged between 35% and 78%. Thus, the relation between viewing hours and negative outcomes from viewing was largely accounted for by viewing for emotional avoidance reasons.

Additional mediational analyses tested whether other reasons for viewing were also mediators. The only significant mediating effects were found for sexual pleasure and excitement seeking in mediating the relation between viewing frequency and CPUI compulsivity (excitement seeking point estimate = 2.11, 95% CI = .04, 5.39; sexual pleasure point estimate = 2.51, 95% CI = .42, 5.23). It should be noted that frequency of viewing continued to predict CPUI compulsivity after controlling for either excitement seeking or sexual pleasure, with only 10% and 21% of the variance between viewing frequency and compulsivity accounted for by each mediator respectively. Furthermore, when excitement seeking, sexual pleasure, and emotional avoidance were all entered concurrently into a multiple mediator model to predict CPUI compulsivity, only emotional avoidance was a significant mediator, point estimate = 4.16, 95% CI = .91, 9.66. Thus, viewing for

emotional avoidance was the only consistent, notable mediator between viewing frequency and negative outcomes.

Does Viewing for Emotional Avoidance Account for the Relation between General Experiential Avoidance and Self-Reported Negative Viewing Outcomes?

Zero order correlations (see Table 1) indicated small to moderate correlations between general experiential avoidance (AAQ-II) and viewing frequency and negative outcomes from viewing, with correlation coefficients ranging from $r = .25$ to $.40$. The AAQ-II also correlated significantly with two of the four reasons for viewing pornography (emotional avoidance, $r = .44$, and excitement seeking $r = .29$).

Based on these patterns and previous research indicating a relation between general experiential avoidance and problematic viewing (Levin et al. 2012a; Wetterneck et al. 2012), an additional series of mediational analyses examined whether viewing for emotional avoidance mediates the relation between general experiential avoidance (AAQ-II) and self-reported negative outcomes from viewing (see Table 3). General experiential avoidance predicted each negative outcome from viewing (c path). Furthermore, general experiential avoidance predicted viewing for emotional avoidance (a path) and viewing for emotional avoidance predicted each negative outcome after controlling for general experiential avoidance (b path).

Cross product of coefficients analyses again indicated that each mediational pathway was significant. In each case, the relation between general experiential avoidance and negative outcomes was no longer significant after including viewing for emotional avoidance as a mediator. The proportion of

Table 2 Hierarchical Regression Analyses Testing Reasons for Viewing Predicting Self-Reported Negative Viewing Outcomes

Outcome	Step	Excitement Seeking β	Sexual Pleasure β	Sexual Curiosity β	Emotional Avoidance β	ΔR^2
PV Hours	1	.08	.36**	-.17		.17***
	2	-.15	.32**	-.05	.39***	.09**
CBOSB-R	1	.42**	-.03	-.46***		.25***
	2	.16	-.07	-.34**	.43***	.12***
CPUI - Effort	1	.54***	.09	-.28**		.32***
	2	.38**	.05	-.17†	.38**	.09**
CPUI - Compuls.	1	.40**	.25*	-.35***		.34***
	2	.17	.21*	-.24*	.40***	.10***
CPUI - Distress	1	.35**	-.02	-.51***		.27***
	2	.15	-.06	-.42***	.34**	.07**
Overall Harm	1	.51***	-.08	-.47***		.30***
	2	.31*	-.11	-.38***	.34**	.07**

† $p < .10$, * $p < .05$; ** $p < .01$; *** $p < .001$. PV Hours = Weekly average hours of viewing, CBOSB-R = Cognitive and Behavioral Outcomes of Sexual Behavior-Revised, CPUI = Cyber Pornography Use Inventory, Overall Harm = Self-report item of general negative outcomes from PV

variance accounted for by the mediator ranged between 57% and 93%. Thus, it appears that general experiential avoidance predicts negative outcomes from viewing due to its impact on viewing for emotional avoidance.

The cross product of coefficient test was not significant when viewing for sexual pleasure or sexual curiosity were entered as the mediator. Excitement seeking was a significant mediator for CPUI compulsivity, point estimate = .07, 95% CI = .01, .14, variance accounted for = 39%, CPUI effort, point estimate = .001, 95% CI = .000, .002, variance accounted for = 28%, and overall harm from viewing, point estimate = .02, 95% CI = .001, .036, variance accounted for = 22%. However, general experiential avoidance continued to predict two of the three outcomes after controlling for excitement seeking: CPUI effort ($\beta = .002$, $t = 2.83$, $p = .01$), overall harm ($\beta = .06$, $t = 2.61$, $p = .01$), and CPUI compulsivity ($\beta = .10$, $t = 1.60$, $p = .11$). Furthermore, when both excitement seeking and emotional avoidance were entered into a multiple mediator model, only emotional avoidance remained a significant mediator for CPUI effort, point estimate = .001, 95% CI = .000, .003, CPUI compulsivity, point estimate = .14, 95% CI = .05, .26), and overall harm, point estimate = .42, 95% CI = .02, .08. Thus, viewing for emotional avoidance was again the only consistent, notable mediator between general experiential avoidance and negative outcomes.

Discussion

This study sought to examine the role of experiential avoidance in problematic online pornography viewing. Results indicated that several motivations for viewing were correlated with viewing frequency and self-reported negative consequences from viewing, but viewing for emotional avoidance was the strongest and most consistent predictor. Although more frequent viewing was related to more self-reported negative consequences, mediational analyses indicated that this was mostly accounted for by viewing for emotional avoidance reasons. Overall, these results suggest that experiential avoidance may account for frequent viewing and its negative consequences.

In addition to experiential avoidance, there are a variety of reasons why someone might view online pornography including for sexual pleasure, excitement seeking, or sexual curiosity. Although sexual pleasure and excitement seeking are related to more frequent viewing and self-reported negative outcomes in some cases, these effects were largely accounted for by experiential avoidance when it was added into regression models. Furthermore, experiential avoidance was the only consistent mediator between viewing frequency and negative outcomes. It is interesting that sexual curiosity actually demonstrated a negative relation to viewing problems, suggesting that individuals who view out of curiosity are actually less likely to have

Table 3 Results Testing Viewing for Emotional Avoidance as a Mediator in Predicting Self-Reported Negative Viewing Outcomes

Outcome variable	<u>a path</u>	<u>b path</u>	<u>c path</u>	<u>c' path</u>	<u>Product of coefficients</u>		Proportion mediated (1 - c' / c)
	X-M	M(X)-Y	X-Y	X(M)-Y	Point estimate	Bootstrapping 95% CI	
PCI-EA as a mediator between PV hours and negative outcomes							
CBOSB-R	4.39***	4.49***	2.73**	.76	9.37	[3.75, 17.65]	72%
CPUI – Effort	4.39***	5.40***	4.38***	2.20*	.07	[.001, .02]	50%
CPUI – Com.	4.39***	4.84***	5.87***	3.84***	5.28	[1.85, 10.34]	35%
CPUI – Dist.	4.39***	3.79***	1.88†	.17	6.56	[2.32, 12.93]	78%
Overall Harm	4.39***	4.75***	2.74**	.59	2.27	[.92, 4.15]	78%
PCI-EA as a mediator between AAQ-II and negative outcomes							
CBOSB-R	4.51***	4.66***	3.04**	1.01	.21	[.10, .40]	67%
CPUI – Effort	4.51***	5.33***	3.90***	1.69†	.002	[.001, .003]	57%
CPUI – Com.	4.51***	5.91***	2.62*	.19	.16	[.07, .27]	93%
CPUI – Dist.	4.51***	3.70***	2.37*	.66	.14	[.06, .27]	72%
Overall Harm	4.51***	4.17***	3.34**	1.45	.04	[.02, .08]	57%

† $p < .10$, * $p < .05$; ** $p < .01$; *** $p < .001$. *t*-test values are reported for paths tested: X-M = predictor and mediator, M(X)-Y = mediator and outcome controlling for predictor, X-Y = predictor and outcome, X(M)-Y = predictor and outcome controlling for mediator. PV = Pornography viewing, PCI-EA = Pornography Consumption Inventory – Emotional Avoidance, CBOSB-R = Cognitive and Behavioral Outcomes of Sexual Behavior-Revised, CPUI = Cyber Pornography Use Inventory, AAQ-II = Acceptance and Action Questionnaire-II as a measure of general experiential avoidance

negative consequences from viewing, even after controlling for emotional avoidant reasons. Thus, these findings support the theory that the function of pornography viewing is key to whether it is problematic (Levin et al. 2012a). In other words, the negative consequences of pornography viewing may be due more to viewing as a means of avoiding/escaping aversive internal states, rather than the frequency of viewing or viewing for pleasure, curiosity, or excitement. This is consistent with definitions of hypersexual behavior disorders, which include in the diagnostic criteria that individuals engage in sexual behavior in order to avoid/escape aversive internal states (Reid et al. 2012). This may help explain why some individuals who view pornography encounter problems (e.g., because they are viewing as a form of experiential avoidance), whereas others do not (e.g., because they are viewing out of curiosity).

The mediational findings suggest that the frequency of pornography viewing is not the inherent source of problems, but rather it is the tendency to view as a form of experiential avoidance that leads to negative outcomes. That said, the more individuals view for emotionally avoidant reasons, the more frequently they also view pornography, so these processes are interrelated. This is consistent with theoretical predictions regarding how experiential avoidance contributes to problematic viewing. If someone is highly focused on avoiding unwanted thoughts and feelings and view pornography as a means of experiential avoidance, then pornography viewing may occur and continue despite having other negative outcomes. This may occur due to greater reinforcement value for escape from aversive internal states relative to other consequences or due

to insensitivity to other negative consequences from rule governed behavior. For example, one may view pornography when distressed to get immediate relief, even if it is at work, a partner disapproves, it conflicts with one's personal goals or values, and so on. The resulting negative consequences that may arise from such contextually insensitive pornography viewing (i.e., viewing when it is ineffective or harmful), may lead to further unwanted thoughts and feelings that lead to further viewing to avoid these inner experiences. This pattern of engaging in a behavior problematically as a means of emotional avoidance has also been found in other addictive and compulsive behaviors (e.g., Ham and Hope 2003; Houghton et al. 2014).

This study also adds to previous research indicating the relation between general experiential avoidance and problematic pornography viewing (Levin et al. 2012a; Wetterneck et al. 2012), by finding that this relation is mediated by viewing for emotional avoidance reasons. Although the specific temporal and causal relations cannot be confirmed in a cross-sectional design, the theoretically specified mediational model suggests that general experiential avoidance leads to greater emotionally avoidant reasons to view, which leads to negative outcomes from viewing. This is not to say that all individuals who are experientially avoidant are likely to engage in problematic pornography viewing, but there appear to be a subset of experientially avoidant individuals who use pornography to fulfill this function. The factors that contribute to why pornography is used for avoidance for some individuals rather than other avoidant behaviors is less clear and warrants further

research. It is worth noting that although this is the primary pathway through which experiential avoidance leads to problematic viewing, there may be other pathways as well. For example, individuals may also struggle due to using experiential avoidance to help reduce or otherwise control one's pornography viewing (e.g., trying to avoid or suppress urges to view). In support of this, one study found that pornography use became problematic, not when the amount of viewing was high, but rather when participants attempted to control their sexual-related thoughts and urges (Twohig et al. 2009). Thus, future research is needed to clarify other pathways besides viewing for emotional avoidance, through which experiential avoidance contributes to problematic viewing.

Of note, experiential avoidance also can relate to excessive striving for positive internal states (Levin et al. 2010; Swails et al. 2016). For example, implicit judgments of positive emotions have been found to relate to experiential avoidance (Levin et al. 2010) and anxious clinging to positive emotions has been found to correlate with psychological distress (Swails et al. 2016). This raises the question of whether individuals may likewise engage in experientially avoidant, problematic viewing as a means of striving for positively reinforcing internal states (e.g., pleasure, excitement seeking). Consistent with this, regression analyses indicated that excitement seeking and pleasure predicted some aspects of problematic viewing, but also that these relations were accounted for at least in part statistically by emotional avoidance. Thus far researchers have emphasized the negative reinforcement function of viewing in relation to emotional avoidance (including in broader clinical criteria for hypersexual behavior disorders; Reid et al. 2012), but an excessive focus on striving for positive internal experiences may also be relevant to problematic viewing. If future research identified such a pattern this might inform interventions given their relevance to different antecedent conditions (e.g., sexual arousal or neutral states versus aversive internal states) and treatment targets (e.g., letting go of pursuing positive states versus accepting current negative states).

The current study findings offer some guidance for the treatment of problematic pornography use with regards to the key role of emotional avoidance. Conceptualizing pornography use from a functional stance appears to be most appropriate given the results of this and related studies (Levin et al. 2012a; Twohig et al. 2009; Wetterneck et al. 2012). As with the treatment of many behaviors, its purpose and effects on quality of life are more important than what the action is or looks like. The results of this study suggest that targeting reasons for viewing, such as emotional avoidance, and linking the role of experiential avoidance to viewing may positively affect outcomes. Experiential avoidance has successfully been utilized as a target of treatment for individuals with problematic pornography use, specifically using acceptance and commitment therapy (ACT; Hayes et al. 2011), a modern cognitive behavioral therapy designed to reduce experiential avoidance.

One treatment study of six males who reported problematic pornography use found an 85% reduction in pornography viewing from ACT with results being maintained at a 3-month follow-up (Twohig and Crosby 2010). Moreover, a measure of experiential avoidance saw a 26% decrease from pre-treatment to follow-up. Likewise, a larger follow-up study utilizing ACT as a treatment focused on addressing experiential avoidance also resulted in strong reductions in pornography viewing versus a waitlist condition (93% reduction in ACT vs. a 21% reduction in the waitlist; Crosby and Twohig 2016). This suggests that future work should continue to address the emotional avoidant function of viewing in addition to the effects of viewing on quality of life.

There were notable limitations with this study. The study used a cross-sectional design, which makes it impossible to determine the temporal or causal relations between variables and substantially limits interpretation of the mediational analysis. Thus, although this study sought to examine if experiential avoidance accounts for how viewing leads to negative outcomes, these results are only preliminary and substantially limited by the design. That said, the study did test a theoretically specified mediational path. The key finding is that emotionally avoidant motives appear to be functionally important in the relation between viewing frequency and negative outcomes. Future studies would benefit from intensive longitudinal designs using ecological momentary assessment methods that could determine the more moment-to-moment relations between negative affect, viewing motives, viewing behavior, and negative outcomes. This method could also provide a more accurate assessment of viewing time by assessing behaviors on a more frequent, fine grain scale, albeit still limited by self-report.

The study was also limited by the sample. First, there were few minority participants, therefore limiting the potential generalizability of findings to other races and ethnicities. Second, the sample focused on college males, therefore somewhat limiting potential generalizations to other populations, both in terms of age group and in terms of how these processes might apply to females struggling with problematic viewing. Third, although only assessed in about half of the sample, there was a notably high rate of students identifying as being LDS, which may have further affected generalizability to nonreligious or other religious samples. That said, this is also a strength in terms of indicating the potential role of experiential avoidance for LDS men struggling with pornography viewing concerns, although this was not systematically tested to determine if experiential avoidance applies differently to LDS versus non-LDS participants, which could be examined among other religious variables in future studies. Fourth, the sample was derived from a larger sample that reported notably lower rates of viewing pornography relative to previous studies with young adult men (e.g., 61% versus 14%; Carroll et al. 2008). Although rates and reporting of compulsive

pornography use were comparable in the current sample relative to other community samples of adult males (Grubbs et al. 2015; Kraus et al. 2016; Regnerus et al. 2016), it is unclear how the current study sample differs from other populations given this represents a much smaller portion of the larger male student sample from which they were drawn. Fifth, although the emotional avoidance subscale of the PCI appears to map on well to experiential avoidance related to pornography viewing, it has not been formally validated for this purpose. Future research is needed to examine this measure as it relates to experiential avoidance. In addition, a new measure of experiential avoidance developed specifically for pornography viewing behavior would greatly assist future research in this area.

Despite these sample limitations, it is worth noting the sample did report fairly high rates of viewing, with notable heterogeneity. Thus, although the sample was homogeneous on some demographics, there was notable heterogeneity in viewing behaviors and outcomes, allowing for examination of the key study questions. Furthermore, preliminary research in other, more diverse populations have found similar patterns with regards to the relation between PCI-measured use of pornography for emotional avoidance and problematic pornography use including among gay males (Laier et al. 2015) males seeking help for hypersexual behavior problems (Reid et al. 2011), and adult male and female Israelis (Kor et al. 2014). That said, it is less clear based on previous research the degree to which these findings generalize to female adult samples. There are fewer studies examining predictors of problematic pornography use among females, but one study suggested that problematic use might be related more to sexual arousal and cravings (Laier et al. 2014). The current study does suggest that experiential avoidance is functionally important to problematic pornography use among white college men, particularly those who are LDS, but future research is needed to test these relations in more diverse populations and other specific subgroups.

There were some notable limitations with measurement. The study used self-report measures for all variables, which could have been affected by social desirability, particularly given the nature of the study topic. This might have inflated observed correlations between items due to shared underlying response factors, such as a willingness to disclose problem behaviors, particularly with regards to reported zero order correlations. That said, this is unlikely to account for the specific, stronger effects of emotional avoidance in predicting problem viewing, even when controlling for other related self-report measures in hierarchical regression and mediation analyses. A related issue is that the negative consequences from viewing measures were fairly broad and heterogeneous with regards to including a range of problematic outcomes (e.g., relationship problems, risky use at work, distress) in the same summary score. Yet, the CPUI provided a more refined measure of

specific features of problematic pornography use including compulsive use, excessive effort of use that interferes with other areas of life, and distress from use, each of which related to emotional avoidance in expected ways. The survey did not provide a definition of what constitutes viewing pornography for all but the last viewing measure (PCI). This meant that participants were provided minimal guidance on which of their behaviors were consistent with viewing internet pornography, which may have increased measurement error and reduced the effect sizes of some observed relations between variables. Furthermore, the reliance on self-report of viewing hours and other aspects of pornography viewing might be affected by college students' ability to reliably and accurately report their frequency or consequences of viewing. Although research on pornography use commonly relies on self-report, this may introduce additional methodological error or confounding effects related to biases in reporting the frequency of viewing behavior or its consequences. A final measurement issue is that the study did not include a variable to assess inattentive or inaccurate responding, which might have occurred, particularly given the online nature of the study and that it was offered for course credit. This might have added further methodological error and undetected biases in reporting.

Finally, the study did not include several potential variables that might be relevant in further clarifying problematic viewing patterns and the role of emotional avoidance including religious variables, type of pornography viewed, and sexual orientation. These variables represent plausible competing variables that might likewise account for negative outcomes from viewing or moderating factors that might alter the relation between emotional avoidance and problem viewing. Future research would benefit from including religiosity, type of pornography viewed, and sexual orientation, among other possible variables relevant to problematic viewing.

Overall, this study adds to a body of research indicating that online pornography viewing is not necessarily problematic, but *can* become problematic when it is part of a rigid pattern of experiential avoidance. A benefit of studying this mechanism is that there are known treatments that can target experiential avoidance, and therefore might highlight new methods for addressing problematic pornography viewing. Further research is needed to continue exploring when and how pornography viewing can be problematic to inform such interventions.

Compliance with Ethical Standards

Conflict of Interest The authors have no conflicts of interest to declare in relation to this manuscript.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the

institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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