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Acceptance and Commitment Therapy as a Treatment for Problematic Internet Pornography Viewing

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Despite the prevalence of problematic Internet pornography viewing and the breadth of intervention approaches to potentially address it, no studies to address this problem have been reported to date. An emerging treatment approach, Acceptance and Commitment Therapy (ACT), holds promise as a treatment for Internet pornography viewing because of its focus on processes hypothesized to underlie this maladaptive behavior. In the first experiment on the treatment of problematic Internet pornography viewing, 6 adult males who reported that their Internet pornography viewing was affecting their quality of life were treated in eight 1.5-hour sessions of ACT for problematic pornography viewing. The effects of the intervention were assessed in a multiple-baseline-across-participants design with time viewing pornography as the dependent variable. Treatment resulted in an 85% reduction in viewing at posttreatment with results being maintained at 3-month follow-up (83% reduction). Increases were seen on measures of quality of life, and reductions were seen on measures of OCD and scrupulosity. Weekly measures of ACT-consistent processes showed reductions that corresponded with reductions in viewing. Large reductions were seen on a measure of psychological flexibility, and minor reductions were seen on measures of thought-action fusion and thought control. Overall, results suggest the promise of ACT as a treatment for problematic Internet pornography viewing and the value of future randomized trials of this approach.

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THE INFLUENCE OF THE Internet is widespread, especially in the case of pornography in which the easy access to pornographic material has brought about new challenges. It is estimated that 12% of the Internet is made up of pornography and 13% of the U.S. population views Internet pornography regularly. Of those who view regularly, nearly 75% are male (Internet Filter Learning Center, 2008). A recent study found that 67% of young men and 49% of young women agreed that viewing pornography is acceptable, and 87% of male respondents and 31% of female respondents reported that they viewed pornography (Carroll et al., 2008). This would suggest that, for males, there is a portion (20% in this case) that views pornography and finds it unacceptable. Another recent study found that 17% of individuals who viewed pornography on the Internet met criteria for problematic sexual compulsivity (Cooper, Delmonico, & Burg, 2000). Research suggests that there are significant costs associated with the problematic viewing of Internet pornography (the term "viewing" will be used from now on to refer to the viewing of Internet pornography in cases in which it is problematic for the individual) for some. These individuals report difficulties with depression, social isolation, damaged relationships, career loss or decreased productivity, and financial consequences (Schneider, 2000). Viewing can be experienced as problematic for personal and moral reasons, social and relationship reasons, time spent viewing, and viewing in problematic situations such as at work. Thus, even though viewing may not be inherently problematic, the consequences for individuals for whom it is problematic may be significant.

Research on viewing is found in the literature on general problematic sexual behavior, and the focus of this research has been on how best to

conceptualize and diagnose the behavior. It has been designated as sexual addiction (Orzack & Ross, 2000), sexual impulsivity (Mick & Hollander, 2006), sexual compulsivity (Cooper, Putnam, Planchon, & Boies, 1999), out-of-control sexual behavior (Salisbury, 2008), and hypersexual behavior (Rinehart & McCabe, 1998). Three formal classes of disorders have been used to provide criteria and terminology to conceptualize problematic sexual behavior: substance use disorders, impulse control disorders, and obsessive-compulsive spectrum disorders.

Regardless of the title given to the behavior, the characteristics of the disorders to which it is compared suggest that viewing can be triggered by various events and includes persistent thoughts and urges to view that are regulated through the act itself. This position is supported by recent work on viewing which shows that the amount one struggles and attempts to control urges to view mediates how problematic the viewing becomes (Crosby & Twohig, 2008), and ancillary work with similar disorders such as OCD (Abramowitz, Lackey, & Wheaton, 2009), trichotillomania (Norberg, Wetterneck, Woods, & Conelea, 2007), and substance abuse/dependence (Forsyth, Parker, & Finlay, 2003). Therefore, treatments that address the struggle with these types of inner experiences, have a focus on behavior change, and provide direction for behavior change appear most applicable to Internet pornography viewing.

A review of the literature found no controlled reports for the treatment of viewing in general, Internet pornography specifically, or problematic sexual behaviors that cover this topic. The relevant treatment literature that does exist refers to the treatment of problematic sexual behaviors in terms of clinical judgment and experience with little empirical research using motivational interviewing (MI) (Del Giudice & Kutinsky, 2007), cognitive behavior therapy (CBT) (Young, 2007), 12-step programs (Schneider, 1994), and emotion-focused therapy (Reid & Woolley, 2006). However, none of these studies utilized experimental designs, and often the participants presented with variants of viewing (e.g., compulsive Internet use, relationship problems from viewing). Given the paradoxical nature of urges to view, acceptance-based interventions such as Acceptance and Commitment Therapy (ACT) (Hayes, Strosahl, & Wilson, 1999) may also be an option for this behavior. ACT is a type of psychotherapy that falls under the CBT umbrella because it targets inner experiences (thoughts, feelings, bodily sensations) and utilizes behavior change strategies, targets problems as they are presently occurring, and has an empirical

focus. ACT is a process-based intervention and therefore is also informed by research on shared processes that support many forms of pathology and research showing that movement of those processes affects outcomes (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

ACT targets six particular processes that generally aim to decrease the effects of many inner experiences on overt behavior (e.g., urges to view in this case) and increase the effects of other inner experiences (e.g., self-created values to engage in meaningful activities) on one's actions. Specifically, inner experiences are targeted through addressing *acceptance* (willingness to experience inner experiences and not work to regulate them when useful), *defusion* (experiencing inner experiences as they are without additional verbal functions), *self as context* (experiencing oneself as the context in which inner experiences occur and not being defined by inner experiences), *being present* (noticing inner and outer experiences as they occur, nonjudgmentally), *values* (defining areas of life that are important that one is willing to work toward), and *committed action* (moving in the valued direction). Ultimately, this work will foster *psychological flexibility*, which is the ability to move in a meaningful direction without particular regard for any inner experience. These specific processes are supported on their own in component studies (e.g., Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Levitt, Brown, Orsillo, & Barlow, 2004; Masuda, Hayes, Sackett, & Twohig, 2004), and studies of psychological flexibility in general (Hayes et al., 2006).

There is a growing body of literature to support ACT in the treatment of a variety of disorders (as reviewed in Hayes et al., 2006), including areas that are commonly described as conceptually similar to viewing. To date, there have been multiple controlled trials that have shown ACT to be an effective treatment for nicotine smoking cessation (e.g., Brown et al., 2008; Gifford et al., 2004), polysubstance abuse (Hayes, Wilson, et al. 2004), and marijuana dependence (Twohig, Schoenberger, & Hayes, 2007). The effectiveness of ACT for OCD has been shown in a controlled trial and a multiple baseline across participants design (MBL) (Twohig, 2008; Twohig, Hayes, & Masuda, 2006a). Finally, there is extensive research on ACT and habit reversal in the treatment of trichotillomania (Twohig & Woods, 2004; Woods, Wetterneck, & Flessner, 2006), and ACT alone for chronic skin picking (Twohig, Hayes, Masuda, 2006b); both trichotillomania and chronic skin picking are types of impulse control disorders. Clearly, similarities between these disorders and viewing do not make ACT an appropriate treatment for viewing, but

coupled with minimal research and theoretical logic, it does indicate that it is a reasonable place to start.

This study sought to test whether ACT is an effective treatment for adults who report that viewing is interfering with their quality of life. Because there are no controlled studies on the treatment of viewing in the psychological literature, this initial attempt began with a time-series design. Time-series designs allow the experimental assessment of the effectiveness of an independent variable and offer a large amount of information on the course of behavior change. Six adults who viewed regularly enrolled in the study. Changes in Internet pornography viewing following eight sessions of ACT was examined in a MBL design. Pre-, posttreatment, and 3-month follow-up assessments of outcome and process measures, as well as weekly ACT process assessments, were taken.

Methods

PARTICIPANTS

Participants included the first six adults who responded to an advertisement recruiting adults who had problems with "Internet pornography addiction." Two additional individuals called reporting past struggles with viewing but no current viewing, and thus, they were not scheduled for intake sessions. No other participants were excluded. Participant 1 viewed exclusively at work, and he viewed heterosexual intercourse. Participant 2 was questioning his sexual orientation and viewed gay male pornography. Participants 3, 4, and 5 viewed pornography depicting heterosexual intercourse. Participant 6 viewed nude pictures of females which he would doctor for clarity and save on his computer. He would save over 100 photographs per viewing session. The number of days each participant viewed and the average time spent viewing per session are listed in Table 1 (these are different than pretreatment averages which are averages of viewing across all days prior to treatment). Additional participant characteristics are provided in Table 1.

MEASURES

Self-Monitoring (Twohig et al., 2006a, 2006b)
Participants were given 3 × 5 note cards and asked to record the duration of their viewing and the number of instances of masturbation. At the end of each day, the participants reported the numbers to the experimenter via telephone to a message machine or through electronic mail, ensuring roughly contemporaneous self-monitoring. Hours viewing served as the primary dependent variable.

Table 1
Participant Characteristics

Participant	P1	P2	P3	P4	P5	P6
Sex	M	M	M	M	M	M
Mar. Stat.	M	S	S	M	S	M
Age	39	23	29	23	21	24
Yrs of Ed.	20	13	16	14	14	17
Race	C	C	C	C	C	C
Sexual orient.	H	Q	H	H	H	H
Yrs. viewing	8	6	8	12	11	8
Yrs. Prob.	8	6	4	12	10	6
Time viewing	0:57	2:10	0:21	1:18	3:00	0:50
Days per wk	5	3	2.5	2	7	5
Prev tx.	none	BT	none	none	none	none
Prev dx.	none	none	none	none	ADHD OCD	none
Meds	none	none	none	none	Adderal (80 mg per day)	none

Note. Sex: M = male; Marital status: M = married, S = single; Years of education begin with first grade (e.g., 12 = high school education, 16 = four years of post high school education); Sexual orientation: H = heterosexual, Q = questioning; Race: C = Caucasian; Time viewing = average time viewing per session at baseline; Days per week = average number of days viewing per week at baseline; Previous diagnoses: ADHD = Attention Deficit Hyperactivity Disorder, OCD = obsessive compulsive disorder.

Obsessive Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998)
The OCI is a 42-item measure of obsessive features. Items are rated on a 0 to 4 point scale for frequency of the symptom and severity of the associated distress. The OCI is scored by summing the scores from the individual items for each subscale. Scores on each subscale range from 0 to 168. The means for individuals diagnosed with OCD on the distress and frequency subscales are 66.3 ($SD = 31.9$) and 66.4 ($SD = 29.4$), respectively, and nonpatient controls on the same subscales have means of 25.3 ($SD = 20.9$) and 34.2 ($SD = 21.2$), respectively. The OCI has high alpha coefficients for individuals with OCD ($\alpha = .92$ for the distress rating and .93 for frequency rating), good test retest reliability ($r = .87$ for distress and .84 for frequency), and shows good discriminative and convergent validity.

Acceptance and Action Questionnaire (AAQ; Hayes, Strosahl, et al., 2004)
The AAQ is a 9-item questionnaire that measures psychological flexibility. Questions are rated on a 7-point Likert-type scale. Lower scores reflect greater experiential willingness and ability to act in the presence of difficult thoughts and feelings. Upper quartile scores for clinical samples are 42, and 38 for nonclinical samples. The AAQ has minimally adequate internal consistency ($\alpha = .70$), test-retest reliability after a 4-month period of $r = .64$, and

strong relationships with behaviors that are believed to serve emotionally avoidant functions such as worry (Roemer, Salters, Raffa, & Orsillo, 2005) and trichotillomania (Woods et al., 2006).

Quality of Life Scale (QOLS; Burckhardt, Woods, Schultz, & Ziebarth, 1989)
The QOLS is a 16-item scale that measures how satisfied people are with the quality of their lives in several areas (e.g., relationships, employment, health, recreation) and has been used in a variety of populations. The items are rated on a 1- to 7-point scale, with 7 being more pleased. The measure is scored by summing the scores for all 16 items. It has been found to be internally consistent (α between .89 and .92) and has temporal stability (r between 78 to .84 over 3 weeks).

Thought Action Fusion Scale (TAF; Shafran, Thordarson, & Rachman, 1996)
The TAF scale contains 19 items designed to measure how much participants equate thought and action. Items are rated from 0 (*strongly disagree*) to 4 (*strongly agree*). It has two distinct subscales: (1) having a thought makes an event more likely to happen (likelihood TAF) and (2) having the thought is the same as engaging in the action (moral TAF). Mean scores of an obsessional sample (diagnosed with OCD or high scores on an OCD severity measure) on the likelihood subscale are 9.18, and 3.12 for the community sample, and scores on the moral subscale were 20.03 for the obsessional sample and 12.74 in the community sample. The internal consistency was acceptable (α = .88), 3-month test-retest reliability for the total score were (r = .52), and it shows construct validity with other measures (Rassin, Merckelbach, Muris, & Schmidt, 2001).

Thought Control Questionnaire (TCQ; Wells & Davies, 1994)
The TCQ is a 30-item self-report measure that assesses the use of thought control strategies. The scale has a total score and five subscales: distraction, social control, worry, punishment, and reappraisal. Internal consistency of the subscales ranged from .64 to .79 (average of subscales is .71). Test-retest reliability was r = .83 for the total score. This is a widely used measure of this construct for obsessive compulsive and anxiety-related disorders and has been shown to change as a result of cognitive behavioral interventions (e.g., Reynolds & Wells, 1999).

Penn Inventory of Scrupulosity (PIOS; Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002)
The PIOS is a 19-item self report measure that assesses scrupulosity (religious and morally based obsessive thoughts). The PIOS has two subscales: fears of having committed sin and fears concerning punishment by God. Items are rated on a scale that ranges from 0 to 5 (0 = *never* and 5 = *constantly*). The full scale has excellent internal consistency (α = .91) and appropriate convergent and discriminant validity.

Face Valid ACT Processes Questions
An ACT-for-viewing measure was crafted for this study following an approach that has been found to be useful in other ACT (e.g., Bach & Hayes, 2002; Twohig et al., 2006a) and CBT (e.g., Rhéaume & Ladouceur, 2000) research. Participants were asked, "How believable are your thoughts about viewing?" "How often do you fight against your thoughts?" "How distressing are your thoughts?" "How similar is having a thought to acting on it?" and "How much does thinking a thought affect whether you will engage in the behavior?" Participants were asked to rate on a 0-to-100 scale (0 = *not at all* and 100 = *very much*). Scores are presented as an average of all questions. Psychometric properties are not available on this measure as it was created for this investigation.

PROCEDURE
Participants were recruited through announcements in undergraduate psychology courses, flyers on the campus and in the community, and through an advertisement in the local newspaper in a metropolitan city in the Western U.S. Interested participants called the investigator, questions about the study were answered, and the initial assessment session was scheduled. During the initial assessment session, the presence of viewing was assessed using a clinical interview. Because diagnostic criteria do not exist, "problematic pornography viewing" was defined as (a) viewing pornography more than three times a week on some weeks and (b) the viewing causes difficulty in general life functioning. If the viewing was accounted for by some other diagnosable disorder, that participant would have been excluded from the study; that did not occur. Relevant demographic data were collected, and participants completed the pretreatment questionnaire packet. Participants were given index cards to self-monitor the amount of time that they viewed, and these numbers were reported to the investigators on a daily basis. Participants 2–6 received treatment and participated in the study at the same time (i.e., concurrent multiple baseline across participants design), whereas Participant 1 began treatment after the other participants (i.e., nonconcurrent). Additionally, the five ACT process questions were completed immediately before each therapy session.

Treatment consisted of eight weekly 1.5 hour sessions of ACT (Hayes et al., 1999) for viewing.

Traditional behavior change procedures such as moving the computer to a public area or disconnecting the Internet were not utilized to maximize the technological distinction between the present approach and more traditional methods. The first author served as the therapist for all participants. One week after treatment was completed, participants were asked to discontinue self-monitoring, return to the research laboratory, and complete the assessment packet. At three months posttreatment, participants were asked to self-monitor for one week and again completed the assessment packet.

Acceptance and Commitment Therapy for Problematic Internet Pornography Viewing
The ACT protocol that was utilized in this investigation is fairly consistent with published treatment manuals (e.g., Hayes et al., 1999). Certain elements of the protocol were adjusted to better fit the issues with which this population struggles. The same protocol was used with all participants, but like any treatment outcome study, adjustments were made to conform to each individual participant. Specific exercises are outlined in Table 2.

Table 2
ACT for viewing components

Session	Treatment Components	Exercises/Content
1	Informed Consent	• Warning that therapy may result in emotional discomfort
		• Commitment to complete all eight sessions
	Limits to Confidentiality	• Suicide, homicide, and abuse of children or disabled adults
		• The viewing of child pornography will be reported
	Values	• Increasing quality of life
		• Support client goals of either no viewing or reduced and controlled amounts of viewing
	Acceptance	• Identify the distinction between viewing and urges to view
		• Short-term vs. long-term effectiveness of attempts to control urges
		• Identify the negative impact of attempts to control urges
		• Highlight paradoxical nature of attempts to control urges using the *Man in the Hole* metaphor
2	Acceptance	• Reinforce the futility of attempts to control urges
		• Identify attempts to control urges as part of the problem using the *Polygraph*, *Chocolate Cake*, and *What are the Numbers?* exercises
		• Discussion of the social contexts that support regulation of private events using the *Rule of Private Events* exercise
		• Introduce acceptance as an alternative to control using the *Two Games* metaphor
3	Acceptance	• Review acceptance by demonstrating that the willingness to experience urges is a chosen behavior and alternative to control using the *Two Scales* metaphor
		• Identify the decrease in effort required to willingly experience urges
	Values	• Brief discussion of client values to give purpose and meaning to acceptance
		• Discuss what could be gained by letting go of the control agenda
	Committed Action	• Behavioral commitments to gradually reduce viewing
		• Behavioral commitments to engage in value-based activities instead of attempting to control urges
4-6	Defusion	• Teach the limits of language and its role in suffering using the *Your Mind is Not Your Friend Intervention*
		• Undermine cognitive fusion using the *Passengers on the Bus* metaphor
	Self as Context	• Identify the self as the context where inner experiences occur using the *Chessboard* metaphor
		• Explain that the client does not choose what inner experiences occur, but that they can choose what to do with them
	Contact with Present Moment	• Help the client be present with their inner experiences using the *Awareness of Inner Experiences* exercise
		• Identify the importance of being present while not being heavily attached to inner experiences
	Acceptance	• Identifying opportunities for acceptance from out of session practice
		• Encourage acceptance of any problematic inner experiences
	Committed Action	• Behavioral commitments to continue to reduce viewing
		• Behavioral commitments to engage in value-based activities instead of attempting to control urges
7-8	Values	• Define the concept of values
		• Clarify the client's values and assess the consistency of the his/her behavior with those values using the *Values Assessment Homework*
	Committed Action	• Behavioral commitments to continue reduced viewing
		• Increased behavioral commitments to engage in valued living based on recent values work
		• Discussion of relapse management using the ACT skills

Note. All italicized exercises are from Hayes et al. (1999).

Session 1. Treatment began with informed consent, description of the treatment, and a commitment to participate in all sessions was received from the participant. Goals for treatment were agreed upon (including level of viewing). Through discussion it was clarified that viewing only regulated inner experiences in the short-term but not in the long-term and that the process negatively affects quality of life (limitations in family, occupational/educational, and social areas). Exercises and discussions were used to highlight the paradoxical nature of the fight against urges to view. Homework involved paying attention to this process.

Session 2. This session continued to focus on the paradoxical nature of attempting to control urges to view. A series of exercises was completed to help the participant see if it was possible to control inner experiences (thoughts, feelings, sensations, motivation). The occurrence of sexual arousal was characterized as a normal part of being human. *Acceptance* of arousal and urges to view were offered as an alternative to attempting to control them.

Session 3. This session continued to teach acceptance of particular inner experiences while engaging in actions that are consistent with the client's goals (e.g., not viewing). The concept of *values* was introduced, and behavioral commitments tied to the participant's values (e.g., time with significant other or friends, schoolwork) versus controlling urges to view were discussed. Every following session ended with a commitment to engage in values-based activities and gradually decrease viewing.

Sessions 4–6. These sessions focused on *defusion, self as context, being present,* and *acceptance.* Defusion was addressed through discussions on the limitations of language and exercises aimed at highlighting these processes in an experiential fashion. Treating the self as the context in which inner experiences occur rather than being made up of inner experiences occurred in this therapy. Participants were taught skills to be present with their inner experiences through traditional mindfulness exercises. These exercises were taught in such a way that they helped foster being present with inner experiences and external events, while not being heavily attached to them. Acceptance of inner experiences and pursuing one's values continued to be addressed. This was often addressed by discussing participants' experiences with behavioral commitment exercises that occurred between sessions.

Sessions 7–8. These sessions focused on values and increased behavioral commitments. One session was spent defining values, defining the participant's values, and on an analysis of how consistent actions are with values. Based on values, larger behavioral commitments were agreed upon. An ACT-consistent description of relapse was covered.

Treatment Integrity
All sessions were audiotaped, and 33.3% were scored for treatment integrity by the second author. The sessions that were reviewed were selected randomly but systematically so that of the eight total sessions at least two sessions from each participant and two of each session number were reviewed. The tapes were scored for the quantity and quality of the coverage of each component of ACT using a validated and reliable scoring system previously used in ACT research (Twohig et al., 2006a, b). Scores of 1 indicate the variable was never explicitly covered, 2 = the variable occurred at least once and not in an in-depth manner, 3 = the variable occurred several times and was covered at least once in a moderately in-depth manner, 4 = the variable occurred with relatively high frequency and was addressed in a moderately in-depth manner, 5 = the variable occurred with high frequency and was covered in a very in-depth manner. The *acceptance, defusion, values,* and *committed action* ACT processes were rated in at least one session with a 5, and the *self as context* and *contact with the present moment* ACT processes were rated in at least one session with a 4. Means for each process over the eight sessions are as follows: acceptance $M = 3.56$ ($SD = 1.17$), defusion $M = 3.50$ ($SD = 1.00$), self as context $M = 1.63$ ($SD = 0.86$), contact with the present moment $M = 2.06$ ($SD = 0.83$), values $M = 4.00$ ($SD = 1.12$), and committed action $M = 3.31$ ($SD = 0.68$). The therapist's overall adherence to the manual and overall competence were rated very highly, M's = 4.94 ($SD = 0.24$) and 4.31 ($SD = 0.77$), respectively. In addition, the sessions were scored for therapeutic practices that were inconsistent with ACT, including challenging cognitive content, indicating that thoughts or feelings cause overt behavior, and behavior management to regulate private events. All ACT inconsistent measures received scores of 1, indicating they were not observed.

RESULTS
Frequency of Internet Pornography Viewing
Self-monitoring rates of viewing are the main dependent variable and are presented in Figure 1. Data were collected throughout treatment, but the posttreatment period was defined by the seven data points collected after the eighth and final session. Rates of viewing were steady throughout a 1-to-7 week baseline. Five of six participants showed
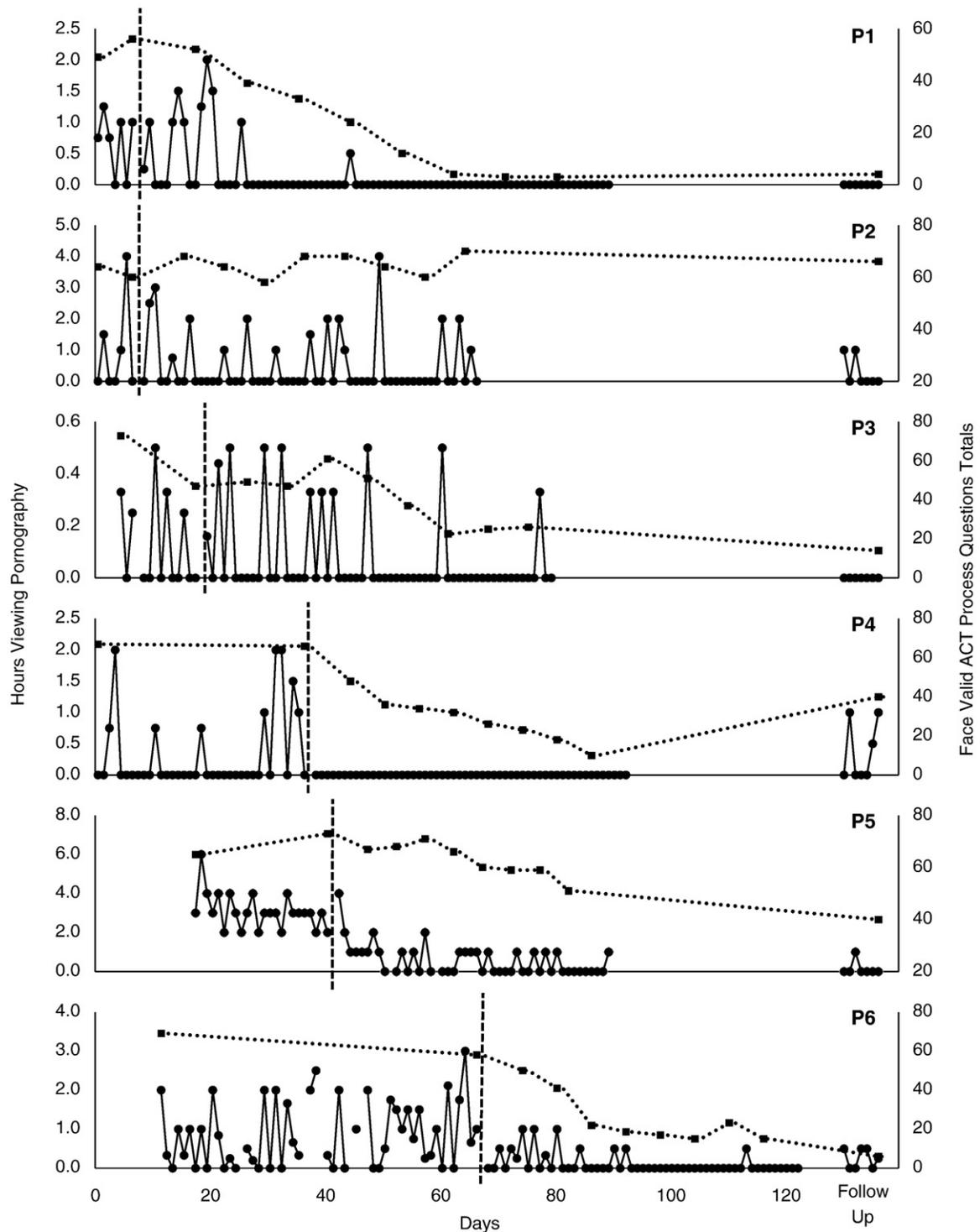
FIGURE 1   Daily frequency of viewing and weekly ACT process scores for the six participants in baseline, treatment, and follow-up phases.

clinically notable reductions in viewing from pre-to posttreatment; the sixth (Participant 2) showed a reduction but the rate was still elevated. At 3-month follow-up, three participants were at posttreatment levels, two were at reduced levels, and one was at pretreatment levels of viewing.

Participant 1. The pretreatment average for Participant 1's viewing was $M = 0.68$ hours ($SD = 0.49$) per day. His viewing was near zero after two sessions and generally stayed at that level until the end of treatment (posttreatment $M = 0$, $SD = 0$) and maintained at follow-up ($M = 0, SD = 0$).

Participant 2. Participant 2's pretreatment average level of viewing was $M = 0.93$ hours ($SD = 1.48$) per day. He viewed less often and had a greater number of days between viewing episodes, but continued to view at pretreatment levels (posttreatment $M = 0.71$, $SD = 0.95$). The behavior was still occurring at somewhat reduced levels at follow-up ($M = 0.29$, $SD = 0.49$).

Participant 3. Participant 3 viewed for an average of 0.12 of an hour per day ($SD = 0.18$) throughout pretreatment. He only viewed twice in the final month of treatment for a posttreatment average of 0.04 hours ($SD = 0.12$). He was no longer viewing at 3-month follow-up.

Participant 4. Participant 4's baseline mean was 0.31 hours ($SD = 0.62$) per day. His viewing completely ceased after the first therapy session and was not seen again until follow-up, when his viewing had returned ($M = 0.36$, $SD = 0.47$).

Participant 5. Pretreatment levels of viewing were 3.09 hours a day (SD = 0.92). He showed a consistent and clinically notable reduction in viewing throughout treatment ($M = 0.14$, $SD = 0.35$), with results being maintained at follow-up ($M = 0.14$, $SD = 0.35$).

Participant 6. Pretreatment levels of viewing were 0.87 hours ($SD = 0.83$) per day. He was near zero levels of viewing after 4 therapy sessions and was no longer viewing by the end of treatment. He was viewing at a reduced level at follow-up ($M = 0.25$, $SD = 0.25$).

Overall. On average, participants viewed for 1 hour per day throughout pretreatment. Treatment resulted in an 85% reduction in viewing at posttreatment ($M = 0.15$ hours), and these results were maintained at follow-up (83% reduction, $M = 0.17$ hours).

Other Outcome Measures

Table 3 shows the specific scores for all participants on all self-report measures.

Quality of Life. The intervention was associated with a slight (8%) increase in quality of life at posttreatment (pretreatment $M = 75.0$, posttreatment $M = 81.3$.) More notable improvements were seen from posttreatment to follow-up (16.4% improvement from pretreatment, $M = 89.7$). This is likely due to the greater time necessary to make lifestyle changes.

OCD measures. Due to the similarities between OCD and viewing, the OCI was tested as an

Table 3
Pre-, post-treatment, and three month follow-up questionnaire scores

	P1			P2			P3		
	Pre	Post	FU	Pre	Post	FU	Pre	Post	FU
OCI									
Freq.	15	8	7	20	18	19	25	18	28
Dis.	12	1	0	13	15	11	21	8	13
QOL	92	94	101	72	70	79	76	76	80
PIOS	30	11	9	39	39	38	55	35	33
AAQ	31	24	18	39	34	29	42	37	36
TAF	20	12	0	32	26	25	27	16	28
M	20	12	0	31	26	25	20	16	21
L	0	0	0	1	0	0	7	0	7
TCQ	58	47	52	49	40	47	64	59	60

	P4			P5			P6		
	Pre	Post	FU	Pre	Post	FU	Pre	Post	FU
OCI									
Freq.	24	5	5	164	87	59	24	12	11
Dis.	21	1	1	151	70	19	12	7	2
QOL	86	86	91	57	82	96	67	80	91
PIOS	45	18	34	70	33	30	30	6	7
AAQ	32	23	27	49	26	30	29	26	24
TAF	35	13	21	44	31	35	32	3	9
M	30	13	18	23	23	28	28	3	9
L	5	0	3	21	8	7	4	0	0
TCQ	52	54	48	62	62	59	52	43	44

Note. OCI = Obsessive Compulsive Inventory, Freq. = Frequency subscale of OCI, Dis. = Disturbance subscale of OCI; QOL = Quality of Life Scale; PIOS = Penn Inventory of Scrupulosity; AAQ = Acceptance and Action Questionnaire; TAF = Thought Action Fusion Questionnaire, M = moral subscale, L = likelihood subscale; TCQ = Thought Control Questionnaire.

outcome measure. Additionally, due to the moral (religious or nonreligious) struggles that are associated with viewing, the PIOS was included. Total scores on the OCI improved from a mean score of 85.3 at pretreatment to 41.7 at posttreatment (51% reduction) and further reduced to 27.5 at follow-up (68% reduction). Similarly, the average score on the PIOS at the beginning of treatment was 46.3, and it reduced to 26.7 at posttreatment (a 42% reduction); these changes were maintained at follow-up, with an average score of 25.2 (a 46% reduction from pretreatment).

Process measures. The primary process measure in this study was the weekly process questionnaire that was completed at the beginning of each therapy session. Participants 1, 3, 5, 6, showed notable decreases on the process measure throughout treatment, with low scores being maintained at follow-up. These findings are notably consistent with the behavioral measure of viewing. Participant 4 showed a notable decrease throughout treatment, with a slight increase from posttreatment to follow-up. This is consistent with the reduction that was seen in viewing and the increase that was seen at follow-up. Participant 2 had no decrease in his process measure, and he had the poorest response to the treatment.

All participants also completed the AAQ as it is the most commonly used ACT process measure, and the TAF and TCQ because they arguably assess processes that are targeted in ACT for viewing. A 24% reduction was seen on the AAQ from pretreatment ($M=37.0$) to posttreatment ($M=28.0$), with additional decreases seen at follow-up (26% reduction from pretreatment, $M=27.3$). Elevated pretreatment scores were observed on the moral subscale of the TAF with scores above the clinical cutoff ($M=25.3$). Scores on the moral subscales dropped 39% at posttreatment ($M=15.5$) and 34% at follow-up ($M=16.8$). The likelihood subscale was below the clinical cutoff at pretreatment ($M=6.3$), and dropped 78% at posttreatment ($M=1.3$), and stayed lower at follow-up ($M=2.8$) with a 55% decrease from pretreatment. Finally, there was a modest (8%) reduction on the TCQ from pretreatment ($M=56.2$) to posttreatment ($M=51.8$), with this change being maintained at follow-up (8% reduction from pretreatment, $M=51.6$).

Discussion

Six adult males who were viewing Internet pornography at problematic rates (as determined by the participants) and experienced their viewing was limiting quality of life participated in a treatment outcome study. The effect of eight individual 1.5-hour sessions of ACT for viewing was assessed in a multiple baseline across participants design. Self-monitoring of viewing showed that five of the six participants had notable reductions in their viewing as a result of treatment and that four of the five maintained reductions at follow-up. Improvements were seen on a measure of quality of life, with greater improvements occurring between posttreatment and follow-up. Similarly, large reductions were seen from pre- to posttreatment and follow-up on measures of OCD and scrupulosity.

Weekly completion of a series of questions that are consistent with ACT for viewing was conducted to help track changes in ACT-consistent psychological processes. The reductions seen on this measure were consistent with changes in viewing: when large reductions were seen in viewing, large reductions were seen on the process measure (Participants 1, 3, 5, 6); when limited change in viewing was seen the process measure did not decrease (Participant 2); and when an increase was seen from posttreatment to follow-up the process measure concurrently increased (Participant 4). Thus, even though there was one nonresponder and one whose viewing increased from posttreatment to follow-up, the consistency of the process measures strengthens the support for suspected processes underlying the intervention. Additionally, reductions were seen on ACT-consistent measures (AAQ, TAF, TCQ), with the largest being on moral TAF.

There are a number of clinical, theoretical, and experimental issues addressed and/or raised by this investigation. A fair amount of research has taken place on how to best categorize viewing. The approach taken in this investigation side-stepped this issue and conceptualized viewing as problematic based on overall quality of life. Form or frequency of the behavior was considered less of an issue. Consistent with this flexible definition, there were a variety of presentations of the same behavior (viewing pictures or videos). Additionally, there may have been multiple functions to viewing. Participants 1, 2, 3, and 4 reported masturbating 100% of the time they viewed. Participants 5 and 6 masturbated on 92% and 72% of the days that they viewed. Thus it is unclear if viewing functions to evoke arousal or if there is an additional reinforcing aspect to viewing itself. Finally, some participants aimed for abstinence from viewing whereas others reported seeking reduction in viewing. Participants 5 and 6 were still viewing at posttreatment but at substantially lower levels than pretreatment. Both of these participants began treatment with the explicit goal of greatly limiting their viewing, but not necessarily ceasing it. This

was not the same situation for the other participants.

Thus, parameters or guidelines need to be created to help professionals decide when treatment is called for. The authors take the stance that it is a "problem" when it is a "problem" to the client. Thus, amount and time will not provide a clinical cutoff. Second, it is unclear what the best treatment procedures are for this behavior. The findings from this study suggest that a treatment that focuses on acceptance of urges to view and following one's values is helpful. Even though behavior therapy or contingency management procedures were not used in this study, they may be of use to help reduce viewing. There are a number of other psychosocial interventions that may be useful including MI, CBT, 12-step, or emotion-focused therapy. Future research will need to systematically examine these interventions.

There are a number of limitations in the present investigation that can be addressed in future studies. First, there are a number of issues that decrease the generalizability of this study. The sample used in this investigation was small and drawn from one city in the U.S. A larger, more diverse sample would have increased the generalizability of these findings. Similarly, because there are not diagnostic criteria for this disorder, a variety of presentations of the same issue were treated in this study. The participants were all Caucasian males, and although viewing is more common in males, it is in no way restricted to Caucasian males. Finally, a sample size of six is low and also affects the generalizability of these findings.

Second, MBL studies can control for a variety of factors, including external events that correlated with the treatment that may have caused the effects and the effects of participating in the study (assessments, monitoring), but it cannot control for the nonspecific effects of the treatment or the treatment process. This is one limitation to a MBL design. Third, certain useful experimental controls were not utilized in this investigation. All data were self-report, which are easily influenced by social demands (imposed by the therapist and by the participant himself). There were no integrity checks on the data to assure their accuracy. Finally, the main process measure used in this study is only face valid and has unknown psychometric properties. Brief measures that can track session-by-session changes in psychological processes are needed.

Randomized controlled trials of this, and other, psychosocial interventions are also needed. These trials should use accepted diagnostic criteria for viewing, use a diverse sample and provide ample participant characteristic data, use integrity checks for data collection, and use a plausible control group that will control for the demand characteristics of the study. Additionally, this study highlights some useful research procedures such as self-monitoring throughout, weekly process measures, multiple outcome measures, and treatment integrity scoring that can be used in future studies. Overall, this study presents promising preliminary results on ACT as the first behavioral intervention tested for the problem of Internet pornography viewing and is a notable step forward in a problem that is likely a growing clinical concern.

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