

Can Distressing Sexual Thoughts Be Regulated? Experiential Willingness Versus Distraction

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This study examines the effects of different techniques on the management of unwanted sexual thoughts. Participants ($N = 150$; 67 who found sexual thoughts distressing, 83 participants who did not) were randomly placed into one of three experimental conditions: experiential willingness, distraction, or no strategies for dealing with unwanted sexual thoughts. Participants answered questions assessing attitudes about their sexual thoughts and recorded sexual thought frequency for a 3-minute period pre- and post-intervention. Thought frequencies decreased for all groups post intervention for both the distressed and nondistressed samples. Acceptability of thoughts increased for the experiential willingness group, remained similar for the distraction group, and decreased for the control group. The findings indicate that distraction was more easily implemented, more commonly used, and equally effective to experiential willingness at reducing sexual thoughts in the short term. However, the short experiential willingness intervention increased acceptability of sexual thoughts, which could have an impact on longer-term results.

Keywords: acceptance; distraction; sexual thoughts; thought control

Mahatma Gandhi said that “a man is but the product of his thoughts; what he thinks, he becomes” (Gandhi & Tutu, 2007). This age-old mentality has driven, in great part, the traditional perspectives on the way human cognition is managed. Intrusive thoughts are a nearly universal human phenomenon, regardless of geographic location, race, ethnicity, or culture, and are theoretically relevant to the development and maintenance of most psychological disorders (Radomsky et al., 2014). While largely considered to be functionally similar, the content of intrusive thoughts can vary significantly and include disturbing, aggressive, violent,

blasphemous, or sexual themes. Intrusive sexual thoughts are considered to be a distinct type of intrusive thought that has received little research attention (Clark, Purdon, & Byers, 2000; Wetterneck, Siev, Adams, Slimowicz, & Smith, 2015).

Intrusive sexual thoughts include content related to inappropriate, violent, and/or morally reprehensible sexual behavior. Like other types of intrusive thoughts, sexually intrusive thoughts are highly common in the general population. For example, Byers, Purdon, and Clark (1998) found that 84% of participants in a college sample endorsed having sexually intrusive thoughts. Also like other types of intrusive thoughts, sexually intrusive thoughts are not inherently problematic; however, when interpreted as threatening they can become extremely distressing for some. For example, obsessions related to sexually intrusive thoughts can lead to significant impairment and distress in individuals with obsessive-compulsive disorder (OCD). These types of obsessions are relatively common in OCD, with studies of clinical samples reporting 13% to 21% of individuals with the disorder being affected (Grant et al., 2006; Pinto et al., 2008).

Sexually intrusive thoughts may also impact some individuals who do not meet the full criteria for obsessions, but who nevertheless still experience meaningful distress. For example, control of sexual thoughts is a common concern among many religiously minded individuals who may feel that sexual thoughts are immoral and therefore, threatening. This subclinical population that experiences distress but not significant impairment is of interest because, although sexual thoughts are a nearly ubiquitous phenomenon, it appears that individuals experience and relate to these thoughts in ways that are functionally different. For example, individuals who experience greater distress from sexually intrusive thoughts also experience greater guilt, thought action fusion, and psychological inflexibility than those with less distress (Wetterneck, Smith, Burgess, & Hart, 2011). In addition, these thoughts can influence undesired behavior in some populations, such as problematic pornography viewing (Twohig, Crosby, & Cox, 2009). Understanding how to address problematic sexual thoughts would be useful for those struggling with them whether it be in an obsessive-compulsive problem, part of unwanted overt sexual actions, or they find them distressing due to religious or moral beliefs.

The manner in which intrusive thoughts are managed is a topic of importance that has been examined in many forms. Intrusive thoughts have been categorized and theorized to be maintained through the use of multiple strategies, including, avoidance, suppression, distraction, confrontation, and acceptance (Lee & Kwon, 2003; Purdon, 2004).

Distraction, a variant of thought control, has traditionally been a popular technique to regulate or eliminate unwanted thoughts (Wenzlaff & Wegner, 2000). However, a number of studies have demonstrated that an attempt to distract oneself from intrusive thoughts actually increases the frequency of the thoughts, and the anxiety associated with them (Abramowitz, Tolin, & Street, 2001; Corcoran & Woody, 2009). In one study, 75 participants with intrusive negative thoughts were asked to identify a recent intrusive negative thought (Salkovskis & Campbell, 1994). They were then placed into one of four groups taught to utilize different distraction techniques. Of the four groups, three reported significantly higher frequencies of the thought when using the distraction strategy. Participants also experienced feeling less discomfort when they were able to think freely and were not engaged in distraction. This suggests that attempts to distract from unwanted thoughts can actually increase occurrences of the thoughts as well as increase levels of discomfort. Similar results were found in another study of 120 participants randomly assigned to suppress or not suppress blasphemous thoughts (Corcoran & Woody, 2009). Attempts at suppressing thoughts lead to no decrease in thought frequency, while not suppressing lead to a decline in thought frequency. Moreover, suppressing thoughts was associated with elevated anxiety and negative mood.

Further studies have indicated similar findings in clinical populations, such as OCD (Najmi, Riemann, & Wegner, 2009), generalized anxiety disorder (Becker, Rinck, Roth, & Margraf, 1998), and depression (Watkins & Moulds, 2009). Moreover, research has shown similar findings with addiction and impulse control related disorders, such as smoking (Erskine, Georgiou, & Kvavilashvili, 2010), drinking (Garland, Carter, Ropes, & Howard, 2012), and compulsive eating (Erskine & Georgiou, 2010).

This is not to say that suppression and distraction are universally problematic. Other research has suggested that these strategies might be beneficial in some contexts (see Purdon, 2004). For example, Johnstone and Page (2004) found participants with spider phobias who engaged in distracting conversation during *in vivo* exposures showed greater reductions in subjective fear and greater increases in self-efficacy, perceived control, and behavioral performance than those who engaged in exposure-relevant conversation. A recent study found evidence that distraction is deleterious and helps maintain obsessive thinking only when used to avoid the negative affect elicited by a stimulus, but not when used to avoid the actual content of the stimulus (Dethier & Philippot, 2017). Other studies have found no effect, or even short-term beneficial effects, of suppression strategy use (Clark, Ball, & Pape, 1991; Purdon, 2004; Rassin, 2001).

The paradoxical nature of these findings lends support for alternative mindfulness- and experiential willingness-based strategies for dealing with distressing cognitions. These techniques foster a detached, nonjudgmental stance toward internal events (e.g., thoughts, emotions, sensations) without attempts to alter or remove them. A recent meta-analysis of treatment components used in acceptance and commitment therapy (ACT) found a medium effect size for overall outcomes and a large effect size for target outcomes across three studies that employed only the acceptance component of ACT, which is functionally similar to the experiential willingness-based strategy employed in the current study (Levin, Lillis, & Hayes, 2012). In addition, a few studies have demonstrated that experiential willingness-based techniques help to reduce distress traditionally linked with intrusive thoughts as well as decrease accompanying problematic behavior. In these cases, pornography viewing that had become distressing and problematic was associated with intrusive sexual thoughts. One study examined the effects of problematic internet pornography viewing behavior on 84 college-age males (Twohig et al., 2009). Participants filled out online surveys assessing time spent viewing pornography, negative outcomes related to sexual practices, and items related to sexual compulsivity. Results indicated that the manner in which participants interacted with urges to view pornography (i.e., acceptance, suppression, distraction) mediated whether the pornography viewing was problematic or not. Attempts to control sexual urges were associated with problematic pornography viewing. Research examining experiential avoidance, a construct that can be summarized as the converse of experiential willingness, has demonstrated that problematic pornography use is associated with significantly higher levels of experiential avoidance (Wetterneck, Burgess, Short, Smith, & Cervantes, 2012). Additionally, experiential avoidance has been shown to moderate the relationship between pornography viewing and anxiety and problems related to viewing (Levin, Lillis, & Hayes, 2012).

Experiential willingness-based techniques have been effectively utilized to help with problematic pornography viewing. Two treatment studies (one single subject design and one randomized trial) have examined the use of ACT, which heavily employs experiential willingness-based strategies, to reduce problematic pornography viewing (Crosby & Twohig, 2016; Twohig & Crosby, 2010). The ACT techniques in these studies largely encourage experiential willingness-based strategies as a method to successfully change one's relationship with unwanted sexual thoughts, leading to decreased pornography viewing. These studies provide evidence for the utility of experiential willingness as a strategy for dealing with unwanted sexual thoughts.

It appears that, in many instances, distraction is an ineffectual, and potentially harmful, method for coping with unwanted sexual thoughts. Furthermore, the growing body of literature suggests that mindfulness- and experiential willingness-based interventions may serve as a more functional alternative. This study examines a distraction-based intervention versus an experiential willingness-based intervention in dealing with unwanted or intrusive sexual thoughts. The interventions are provided in a single session with the intention of gaining understanding of whether a brief intervention can meaningfully change the manner in which thought control strategies are utilized in the short term. Testing single components of full treatment packages can provide useful data that can inform psychological theory and refine treatment interventions. Studies have examined many individual components of cognitive behavior therapy, such as thought challenging, relaxation, self-control desensitization, and interpersonal skills training (Borkovec, Newman, Pincus, & Lytle, 2002; Longmore & Worrell, 2007; Waters, Donaldson, & Zimmer-Gembeck, 2008). Moreover, component studies have identified the utility of individual ACT process and have shown that ACT is more impactful when presented experientially rather than didactically (Levin, Hildebrandt, Lillis, & Hayes, 2012). In a similar manner, the current study aims to examine the types of strategies employed to cope with intrusive sexual thoughts, whether alternative strategies can be successfully taught and utilized using a brief intervention, and whether differences exist between the types of strategies.

Because individuals who experience distress due to their sexual thoughts might be functionally different than those who do not, these comparisons are made using two groups of participants based on the level of reported distress experienced from sexual thoughts. It was predicted that those who do not experience distress from their sexual thoughts will naturally employ different strategies for coping with their thoughts and differentially respond to the intervention compared to those who do experience distress.

METHOD

Participants

Participants consisted of 150 undergraduate students recruited through flyers and announcements in undergraduate psychology classes. As incentive, class credit was awarded if allowed by the faculty member. A total of 223 students logged into the website, with 200 agreeing to the informed consent. Of the 200 participants, 49 did not complete the full procedure and were not included in the analysis. One participant was removed from the analysis for outlying data leaving a total of 150 participants in the analysis. The removed participant had an extremely high number of sexual thoughts post intervention. The participant was placed into the distraction group and experienced 102 unwanted sexual thoughts post-intervention while the mean for the rest of the group was 1.6. Demographics for participants from each of the three groups were very similar. The mean age for the experiential willingness, distraction, and control groups was 20.7, 19.9, and 21.0, respectively; percent female was 72.4%, 57.8%, and 59.6%; and percent White was 89.7%, 95.6%, and 89.4%. Additionally, 91.3% of participants reported a religious affiliation while 83.3% reported Latter-Day Saint (LDS) as their religious affiliation. Participants were classified into one of two groups: "moderate/high distress" ($n = 67$) and "no/low distress" ($n = 83$) based on their response to a screening question that asked to rate the level of distress caused by their sexual thoughts on a scale of 1 to 5 (1 = not at all distressing, 5 = extremely distressing). Participants who rated their distress as a three (moderately distressing) or above were placed in the moderate/high distress group while those who rated their distress as a two (a little distressing) or below were placed in the no/low distress group.

Materials

LimeSurvey Version 1.90 + Build 9642. LimeSurvey is an open-source web application used to develop, publish, and collect responses to online and offline surveys. All data collection was completed through the use of the LimeSurvey software.

Self-Report Questions. Questions were developed specifically for this study to examine participants' relationship with sexual thoughts. Items included: (a) Is it acceptable for you to have these thoughts?; (b) How similar is having a sexual thought to acting on it?; and (c) How much do unwanted sexual thoughts bother you? Items were rated on a 0 to 100 scale (0 = not at all; 100 = very much).

Procedures

Data were collected online with the use of survey software over the course of 4–5 months. The recruitment materials provided a link to an Internet address where the entire study was completed. Participants were made aware that their participation was completely anonymous and that the entire study was to be completed online from a computer at a location and time of their choosing to ensure personal comfort and confidentiality. After consenting to participate, participants completed an assessment battery that included demographic information and questions that assessed distress levels associated with sexual thoughts, the daily frequency of those thoughts, and their relationship with these thoughts.

The procedure followed conventional approaches for measuring thought frequency that involve recording each time a previously identified thought occurs (Koster, Soetens, Braet, & De Raedt, 2008; Wegner, Schneider, Carter, & White, 1987). Participants were first asked to think of a particular intrusive, unwanted sexual thought that they had experienced in the past or on a regular basis. The sexual thought was defined as an intrusive, unwanted thought that was sexual in nature and inconsistent or incongruent with their values or morals. Once the participant had chosen a thought, they were instructed to indicate so by clicking “yes” and then “next” to continue (those persons who did not feel that the instruction was applicable were instructed to click “no”). The following screen instructed participants to think about whatever they would like for a 3-minute period. During the 3-minute period, participants were instructed to record each occurrence of the chosen sexual thought as it occurred by pressing the number “1” key for each occurrence of the sexual thought. These button presses were tallied, resulting in a thought frequency score for each 3-minute trial.

Following this procedure, participants were randomly placed into one of three experimental conditions: (a) experiential willingness-based strategies; (b) distraction-based strategies; and (c) a no-instruction control condition. Participants in the experiential willingness-based and distraction-based strategy conditions were automatically directed to a page that provided information on how to respond to unwanted sexual thoughts. The information was presented through text and audio in a PowerPoint presentation, formatted as a video clip which changed slides automatically as the text from each slide was read aloud. Each video presentation was 4–5 minutes in length. The text from each intervention is provided in the Appendix. Those in the no-instruction control condition simply watched a presentation about the university during the intervention phase. After completing the intervention portion of the study, participants were again asked to wait for 3 minutes while recording the occurrence of unwanted sexual thoughts as previously described while utilizing the strategies they learned from the presentation.

Participants were then asked to complete the self-report questions again. After completing the questionnaire, a question assessing what strategies, if any, participants utilized was asked: “When you were asked to practice the new strategy for responding to unwanted sexual thoughts

for 3 minutes (the second time), what did you do?" Response options included: "some acceptance," "a lot of acceptance," "some distraction," "a lot of distraction," "nothing," or "other."

RESULTS

Analytic Strategy

To determine whether random assignment was effective at creating similar characteristics among the three groups (experiential willingness, distraction, and the no-instruction control group), analysis of variance (ANOVA) and a χ^2 test was conducted to detect any differences in gender, age, race, marital status, years post high school education, and religion. No group differences were found for any of the variables for the first assessment point ($ps > .05$). The effects of the intervention will be presented for those in the moderate/high distress group and then be presented for the no/low distress group.

Primary Analyses

To determine changes from pre- to post-intervention, and ascertain differences between the experiential willingness, distraction, and control groups, a 3(group) \times 2(time) mixed ANOVA was performed. Tukey post hoc tests were conducted where significant differences were observed. The following results summarize data comprised from the moderate/high distress group. Means and standard deviations for all outcome measures are included in Table 1.

Thought Frequency. No significant interaction between the group and time on sexual thought frequency was found, $F(2, 64) = 1.25, p = .29$, partial $\eta^2 = .04$. Additionally, there was no significant main effect for group, $F(2, 64) = .56, p = .58$, partial $\eta^2 = .02$. However, there was a significant main effect for time, $F(2, 64) = 32.94, p < .001$, partial $\eta^2 = .34$. Across all groups, sexual thought frequency significantly reduced from pre- to post-intervention ($p < .001$).

Self-Report Questions. A 3(group) \times 2(time) mixed ANOVA was used to assess the change in process question scores from pre- to post-intervention across groups. Post hoc comparisons using the Tukey's honest significant difference test were conducted where significant differences were observed. Statistical significances for each of the following self-report questions are presented.

1. Question 1: Is it acceptable for you to have these thoughts?

A significant interaction between the group and time on this item was found, $F(2, 64) = 6.82, p < .01$, partial $\eta^2 = .18$. However, no main effect was found for group, $F(2, 64) = 1.98, p = .15$, partial $\eta^2 = .06$ or time, $F(1, 64) = .35, p = .56$, partial $\eta^2 = .01$. There was no significant difference between groups in responses to this item at pre-intervention ($p = .28$); however, a significant difference was found at post-intervention between the experiential willingness group and both the distraction and control groups ($p = .03$). There was a significant effect of time on this item for the experiential willingness group $F(2, 64) = 5.74, p = .02$, partial $\eta^2 = .19$, but not the distraction or control groups. This shows that those in the experiential willingness condition found their thoughts to be more acceptable following the intervention while little change was seen in the distraction group and thoughts became *less* acceptable in the control group.

2. Question 2: How similar is having a sexual thought to acting on it?

No significant interaction between the group and time on this item was found, $F(2, 64) = 1.70, p = .19$, partial $\eta^2 = .05$. Additionally, there was no significant main effect for group, $F(2, 64) = .14, p = .87$, partial $\eta^2 < .01$. However, there was a significant main effect for time, $F(2, 64) = 6.62, p = .01$, partial $\eta^2 = .09$. Across all groups, this item significantly increased from pre- to post-intervention ($p = .01$).

TABLE 1. DESCRIPTIVE STATISTICS AND BETWEEN GROUP COMPARISONS AT PRE- AND POST-INTERVENTION FOR MODERATE/HIGH DISTRESS SAMPLE

Measure	Experiential	Distraction	Control	Main Effect of	Main Effect of	Time × Condition
	Willingness			Time	Group	Interaction
	<i>M</i> (<i>SD</i>) (<i>n</i> = 26)	<i>M</i> (<i>SD</i>) (<i>n</i> = 21)	<i>M</i> (<i>SD</i>) (<i>n</i> = 20)	<i>F</i> (2, 64) (η^2)	<i>F</i> (2, 64) (η^2)	<i>F</i> (2, 64) (η^2)
Thought frequency				32.94*** (.34)	.58 (.02)	1.25 (.04)
Pre-intervention	4.50 (4.95)	6.48 (7.20)	5.70 (5.44)			
Post-intervention	2.08 (2.19)	2.14 (2.52)	3.10 (3.68)			
Is it acceptable for you to have these thoughts?				.35 (.01)	1.98 (.06)	6.82*** (.18)
Pre-intervention	25.19 (28.23)	13.57 (16.91)	24.80 (33.48)			
Post-intervention	34.00 (32.18)	16.71 (16.05)	16.30 (24.87)			
How similar is having a sexual thought to acting on it?				6.62*** (.09)	.14 (<.01)	1.70 (.05)
Pre-intervention	38.00 (31.55)	38.52 (29.20)	37.40 (34.00)			
Post-intervention	38.77 (33.67)	44.67 (29.30)	48.55 (35.60)			
How much do unwanted sexual thoughts bother you?				6.52*** (.09)	2.94 (.08)	.12 (<.01)
Pre-intervention	70.50 (28.94)	84.05 (14.91)	67.35 (31.89)			
Post-intervention	62.85 (30.83)	79.29 (19.96)	60.20 (34.39)			

Note. Thought frequency is the total number of specific sexual thoughts experienced during a 3-minute period recorded by pressing a button each time the thought occurred. The remaining questions are rated on a 100-point scale (0 = not at all; 100 = very much).

*** $p < .001$.

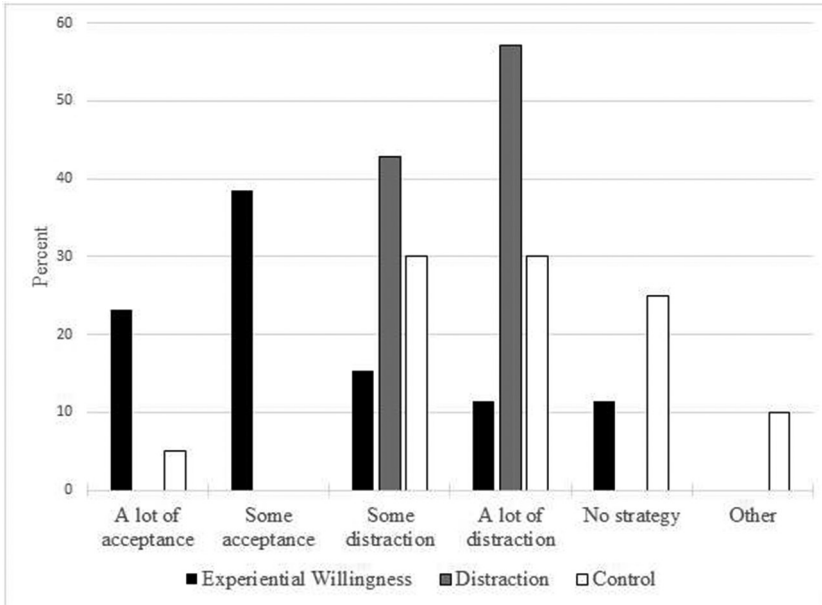


FIGURE 1. Participants' response to question assessing what technique they used following intervention by group for moderate/high distress sample.

3. Question 3: How much do unwanted sexual thoughts bother you?

No significant interaction between the group and time on this item was found, $F(2, 64) = .12, p = .89$, partial $\eta^2 < .01$. Additionally, there was no significant main effect for group, $F(2, 64) = 2.94, p = .06$, partial $\eta^2 = .08$. However, there was a significant main effect for time $F(2, 64) = 6.52, p = .01$, partial $\eta^2 = .09$. Across all groups, this item significantly reduced from pre- to post-intervention ($p = .01$).

Ability to Implement the Condition

Responses from the question assessing what techniques were used for the moderate/high distress sample are displayed in Figure 1. Of participants in the experiential willingness group, only 61.6% reported using an acceptance-based (i.e., experiential willingness) strategy, while 26.9% of the group reported using a distraction-based strategy and 11.5% used no strategy. Conversely, all participants who received the distraction-based intervention reported using distraction-based strategies. Moreover, 60% of participants in the control group reported using distraction-based strategies, while only 5% reported using acceptance-based strategies. The most notable finding is that participants found it difficult to implement experiential willingness, and they naturally implemented distraction. Thus, distraction might be a more natural approach to addressing distressing thoughts.

To determine whether this relatively poor adherence to conditions affected results, analyses were rerun assigning participants to the conditions they reported actually using. This resulted in very similar findings to the original analyses. The only differences being no simple main effects found for the acceptability of thoughts item and no significant main effect for time for the "How similar is having a sexual thought to acting on it?" item. Results from these additional analyses are not conclusive. The brief nature of the intervention likely did lead to some misunderstanding of acceptance- and distraction-based strategies. Moreover, participants may have, at least in part, implemented the strategy that they were taught and simply described it as something else.

Therefore, while the responses to this item are of interest, they require tempered interpretation and further examination in future studies.

Results From No/Low Distress Sample

Only one significant result was found across all items from the remaining 83 participants who rated their sexual thoughts as only a little distressing or less. A main effect for time was found on the thought frequency measure, $F(2, 80) = 18.35, p < .01$, partial $\eta^2 = .19$. Across all groups, sexual thought frequency significantly reduced from pre- to post-intervention ($p < .001$). Data from the ANOVA and means and standard deviations from pre- to post-intervention are presented in Table 2.

Ability to Implement the Condition in No/Low Distress Sample

Responses to the question assessing what techniques were used for the no/low distress sample are displayed in Figure 2. In a similar pattern to the moderate/high distress sample, only 25% of the no/low distress participants in the experiential willingness group reported using an acceptance-based (i.e., experiential willingness) strategy, while 53.1% and 21.9% reported using a distraction-based strategy or no strategy, respectively. Unlike the moderate/high distress sample, only 62.5% of the distraction group in the no/low distress sample reported using a distraction-based strategy. The remaining, 12.5%, 16.7%, and 8.3%, of the group reported using an acceptance-based strategy, no strategy, or “other,” respectively.

Meaningful Differences Between Moderate/High Distress and No/Low Distress Groups

Of note, at pre- and post-intervention across all groups, the moderate/high distress and no/low distress samples were different from one another in meaningful ways. The no/low distress sample indicated significantly higher levels of acceptability of unwanted sexual thoughts compared to the moderate/high distress sample at pre-intervention, $t(148) = 3.08, p = .002$, Cohen's $d = .51$ and post-intervention, $t(148) = 2.99, p = .003, d = .49$. The no/low distress sample also reported significant differences compared to the moderate/high distress sample that having unwanted sexual thoughts were less similar to acting on the thought at post-intervention, $t(148) = 2.37, p = .019, d = .39$, but not at pre-intervention, $t(148) = 1.18, p = .240, d = .20$. Moreover, the no/low distress sample reported 46.7% fewer distressing sexual thoughts and found their thoughts to be significantly less bothersome than the moderate/high distress sample at pre-intervention, $t(148) = 7.27, p < .001, d = 1.20$ and post-intervention, $t(148) = 5.94, p < .001, d = .98$.

DISCUSSION

In this exploratory study, the effects of a distraction and experiential willingness interventions on sexual attitudes were examined. To summarize the results, all three conditions, regardless of whether sexual thoughts are experienced as distressing or not, were able to reduce the frequency of their sexual thoughts. Questions assessing what techniques were used show that the distraction and control condition largely use distraction techniques, indicating that this is done without training. Experiential willingness was more difficult to implement and many in that condition could or would not do so and used distraction. Nevertheless, those in the experiential willingness condition still found it easier to allow the sexual thoughts to occur, even though all conditions indicated that the study made the thought feel more important. These between condition findings were supported by the comparisons between moderate/high distress and no/low distress groups.

TABLE 2. DESCRIPTIVE STATISTICS AND BETWEEN GROUP COMPARISONS AT PRE- AND POST-INTERVENTION FOR NO/LOW DISTRESS SAMPLE

Measure	Experiential Willingness	Distraction	Control	Main Effect of Time	Main Effect of Group	Time x Condition Interaction
	<i>M (SD)</i> (<i>n</i> = 32)	<i>M (SD)</i> (<i>n</i> = 24)	<i>M (SD)</i> (<i>n</i> = 27)			
Thought Frequency				18.35*** (.19)	.03 (<.01)	1.02 (.03)
Pre-Intervention	2.94 (3.31)	3.33 (6.27)	2.48 (3.23)			
Post-Intervention	1.34 (1.79)	1.13 (1.90)	1.59 (2.29)			
Is it acceptable for you to have these thoughts?				.46 (.01)	1.54 (.04)	.27 (.01)
Pre-Intervention	30.53 (30.74)	37.21 (34.39)	46.52 (40.83)			
Post-Intervention	31.34 (29.88)	41.04 (37.76)	46.37 (39.23)			
How similar is having a sexual thought to acting on it?				.03 (<.01)	.02 (<.01)	.72 (.02)
Pre-Intervention	33.81 (29.21)	29.50 (34.73)	32.04 (29.93)			
Post-Intervention	31.00 (31.19)	32.04 (30.16)	31.37 (29.19)			
How much do unwanted sexual thoughts bother you?				.26 (<.01)	1.45 (.04)	1.54 (.04)
Pre-Intervention	38.38 (31.65)	44.29 (37.60)	27.96 (32.80)			
Post-intervention	41.69 (34.65)	38.00 (34.92)	27.52 (30.53)			

Note. Thought frequency is the total number of specific sexual thoughts experienced during a 3-minute period recorded by pressing a button each time the thought occurred. The remaining questions are rated on a 100-point scale (0 = not at all; 100 = very much).

*** $p < .001$.

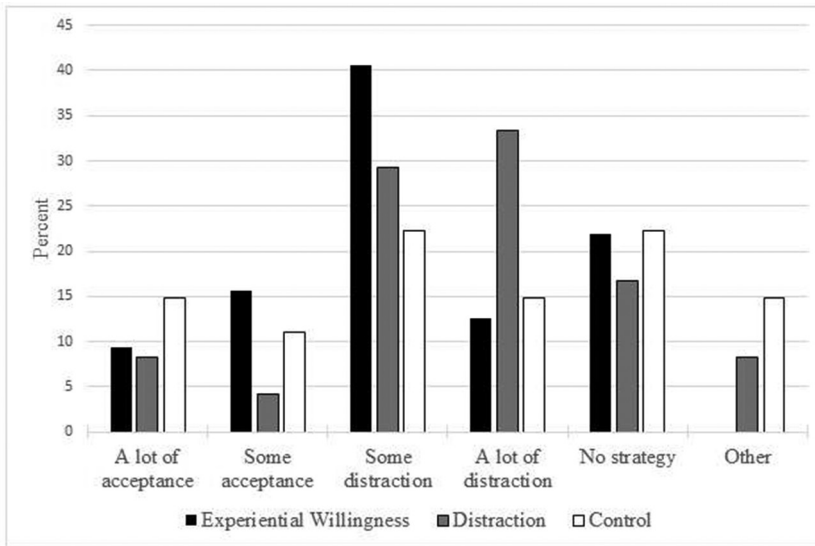


FIGURE 2. Participants' response to question assessing what technique they used following intervention by group for no/low distress sample.

The no/low distress group was more accepting of unwanted sexual thoughts, and that having unwanted sexual thoughts were less similar to acting on the thought, found them less bothersome, playing an unclear role in them having fewer distressing sexual thoughts. These findings tell us something about distressing sexual thoughts and ways to respond to them.

Among the 83 participants who did not rate their sexual thoughts as distressing, the frequency of unwanted sexual thoughts significantly reduced from pre- to post-intervention in all three conditions. No other significant findings were found for this sample. As would be expected, comparing differences between the two samples prior to the intervention indicates that the moderate/high distress sample experienced more severe attitudes in regards to their sexual thoughts compared to the no/low distress sample.

The differences found between the no/low distress and moderate/high distress samples show associations between acceptability of thoughts, thought action fusion, thought frequency, and how bothersome thoughts were perceived. While the exploratory, correlational nature of this finding does not allow for causal inferences, these associations are of note and provide paths for future research to explore. It is possible that those in the no/low distress sample are less attached and more accepting of their unwanted sexual thoughts, leading to less effort being exerted to distract or suppress them, which in turn leads to less concern about the thoughts and reduced thought frequency.

The findings from the question assessing what techniques were used are of particular interest and may be informative to the ways we help people with their unwanted sexual thoughts. Regardless of level of sample or intervention group, participants largely reported using distraction-based strategies when responding to unwanted sexual thoughts. It appears that distraction is a more natural or common technique for dealing with unwanted sexual thoughts and that people might have difficulty abandoning this strategy even when instructed to do so. The findings indicate that, as a short-term strategy, distraction appears to work as equally well as experiential willingness-based strategies at reducing unwanted sexual thoughts. Because of this, individuals might fail to see potential long-term disadvantages of distraction or may end up spending considerable energy continually engaging in this strategy.

The responses to the question assessing what techniques were used demonstrate that participants had difficulty using experiential willingness-based strategies following the experiential willingness intervention, with only 61.6% and 25% of participants in these groups reporting that they used an acceptance strategy. However, despite the brief nature of the intervention, it appears that a significant number of the participants were able to successfully use experiential willingness-based strategies. It appears that while experiential willingness-based strategies are often not natural or apparent, they are relatively easy to teach and even a brief intervention can have a significant impact on behavior.

Experiential willingness-based strategies have been shown to be effective for dealing with multiple types of problematic thinking including obsessions (Najmi et al., 2009), intrusive thoughts (Marcks & Woods, 2005), negative thoughts about pain (Elander, Robinson, Mitchell, & Morris, 2009), negative body image (Pearson, Follette, & Hayes, 2012), and worry (Roemer, Orsillo, & Salters-Pedneault, 2008). In addition, experiential willingness-based strategies offer a method for dealing with unwanted thoughts that is inherently less effortful than distraction or suppression techniques. This might allow for energy and focus being redirected from attempts to distract from thoughts to other, more meaningful activities and behavior. Because of this, experiential willingness also has the potential to have longer lasting effects on overall quality of life and well-being compared to more effortful, short-term strategies.

This exploratory study has some limitations. The brief intervention likely lacked the power to significantly change strategies for dealing with complex internal experiences. Future research would benefit from a longer, more robust intervention, possibly over multiple sessions. Another limitation of this study was the small and homogeneous sample. The majority of participants were White, LDS, first or second year undergraduate students. Because of this, the current findings lack generalizability. Larger, more diverse samples are needed. Additionally, while a consistent working definition of an intrusive sexual thought was provided to each participant, the online nature of the study did not allow for the researchers to ensure that the thought identified by participants fit the intended definition of the study. Future research would benefit from participants discussing their intrusive thought with a trained researcher to increase reliability and validity of this dependent variable. Finally, distress was dichotomously categorized, which assumed that all individuals who experienced at least some distress from their intrusive thoughts related to these thoughts in a functionally similar manner. Moreover, this decision required a subjective decision on the part of the researchers and may have dulled some of the variability found in the data. This was done in order to broadly examine thought regulation strategies in individuals who likely differentially relate to sexual thoughts. Research that examines whether one's level of distress differentiates regulation strategies is needed.

In summary, this exploratory study has shown that experiential willingness- and distraction-based strategies for dealing with unwanted sexual thoughts have similar results at reducing thought frequency and how bothersome the thoughts are. The findings also demonstrate that a brief experiential willingness-based intervention can lead to significant changes in how acceptable unwanted sexual thoughts are compared to the distraction-based or control interventions. Finally, the findings demonstrate the natural tendency for individuals to utilize distraction-based strategies and the difficulty or unwillingness to utilize experiential willingness-based strategies when dealing with unwanted sexual thoughts. Unwanted internal events are an important factor in much psychopathology. Thus, strategies for effectively dealing with these internal events and quality interventions for teaching these strategies are needed. This exploratory study indicates some potential areas for further research that might help in the development of more functional, long-term strategies for dealing with unwanted internal events.

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APPENDIX. TEXT FROM EACH INTERVENTION PRESENTATION

Experiential Willingness

Perhaps if you understand how the mind works a little better, you might be better able to work with your mind instead of against it all the time. This might be particularly helpful with unwanted sexual thoughts. To do this, think about your experience with unwanted sexual thoughts. Do you have control of whether or not they show up? Or, do they just automatically come into your mind? Maybe they are triggered by something you see or maybe they just show up, but it seems like you don't have a lot of control over whether or not they show up. I know you can decide what to do with them once they are there, but it seems like you don't get to pick what shows up—it is automatic. If they are so automatic, what should you do when they show up? Let's try an experiment to figure this out. I am going to tell you three numbers, and I want you to remember them. Are you ready? The numbers are 1, 2, and 3. Do you have them in your mind? Okay, now I want you to forget them. Just get them out of your mind. I'll give you a moment to do it. [pause] How did it go? Perhaps you noticed that the more you try to get something out of your mind, the more you end up thinking about it. Even if you try to distract yourself, the distraction is connected to the thought you are trying to get out of your mind. Compare this idea to your personal experience. Do unwanted sexual thoughts seem to occur more often when you are trying to get rid of them? What are the numbers again? So, if unwanted thoughts show up automatically and it seems like the more you try to get rid of them, the more they bother you, what else can you do? Perhaps you can change your response to them when they show up. First, it is important to acknowledge that they will show up. You don't get to pick what shows up, but you do get to pick how you will respond. What are the numbers? Did you pick for them to show up or were they just triggered? Can you see how these numbers might become a real problem in your life if you worked really hard not to think about them? We have learned that the more you try to get rid of them, the more they stick around, so maybe the alternative is to not fight with them—the same way you might not respond to a bully or a child screaming for candy in a grocery store. Not fighting against them doesn't mean just surrendering and getting caught up in them or fantasizing about them; it means acknowledging the thoughts as thoughts—nothing more, nothing less. The thought might linger for a while or it might slip away, but it seems like a better alternative to fighting the thought because that seems to guarantee the thought will stick around and be the center of you attention. You probably have all sorts of random thoughts that come and go with little concern and you just keep doing whatever it is you are doing at the time. Can you take the same approach with sexual thoughts? Allowing thoughts to occur could be compared to working on your homework while someone is throwing ping pong balls at you. The balls don't really hurt, they are so light and small, but if you get too caught up in trying not to get hit, you won't get any homework done. Why not just let them hit you and just focus on your work? It seems like you do more damage when you try to fight them off. Maybe your battle with unwanted sexual thoughts has been similar. These suggestions may be a little challenging, different, or even counterintuitive, but they might be worth a try as you deal with unwanted sexual thoughts.

Distraction

One strategy that may be useful when dealing with unwanted sexual thoughts is distraction. Any time an unwanted thought shows up, just think of something else to get rid of the thought. The distraction could be something random and different every time. Or you could think of the same thing each time as a distraction, such as a special experience in your life, your favorite song or movie, or a good book. You could even just try to think about the task at hand. Whatever

you choose, it should be a distraction from the sexual thought to keep you from thinking about it. Each time an unwanted sexual thought occurs, just think of a distraction. As you notice an unwanted sexual thought showing up, you can immediately move to distract yourself. Having thought of some good distracters beforehand can make this process faster and more effective. It's almost like you have a toolbox full of distracters ready to use immediately when an unwanted sexual thought shows up. The distracters that you choose could be aimed at creating a more positive or hopeful mood. Thinking of special experiences, funny movies, or people that you care about are good examples of trying to create a more positive mood. The distracters that you choose could also just be random thoughts that distract you from thinking about the unwanted sexual thought. Thoughts about a movie or a song or just the task at hand are good examples of this. The distraction should keep you from thinking about the sexual thought. Even before the unwanted sexual thought is fully formed, you can move to distract yourself. This is like being on your guard, ready to utilize your distraction skills at any sign of an unwanted sexual thoughts. The distraction should keep you from thinking about the sexual thought. You may have used distraction techniques before with other unwanted thoughts or even with your unwanted sexual thoughts. Understanding and practicing this technique will help you be more effective at getting rid of your unwanted sexual thoughts. So to review, any time an unwanted thought shows up, just think of something else to get rid of the thought. Whatever you choose, it should be a distraction from the sexual thought to keep you from thinking about it. Each time an unwanted sexual thought occurs, just think of a distraction. As you notice an unwanted sexual thought showing up, you can immediately move to distract yourself. Having thought of some good distracters beforehand can make this process faster and more effective. The distraction should keep you from thinking about the sexual thought. These suggestions may be a little challenging and they may take some practice, but they might be worth a try as you deal with unwanted sexual thoughts.

Control

Since its founding in 1888, Utah State University (USU) has evolved from a small, agricultural college to one that is nationally and internationally recognized for its intellectual and technological leadership in land, water, space, and life enhancement. As Utah's land-grant and space-grant institution, the university is led by President Stan L. Albrecht and has more than 850 faculty who provide education for more than 25,000 undergraduate and graduate students, including 10,000 in its distance education sites located throughout the state of Utah. Located in the city of Logan in northern Utah's Cache Valley, Utah State is 80 miles northeast of Salt Lake City and is within a day's driving distance of six national parks. The surrounding area, including ski resorts, lakes, rivers, and mountains, makes Utah State one of the finest recreational environments in the nation. With seven colleges, and a new Caine College of the Arts beginning in July, the university offers more than 170 majors and 130 research-related classes. Utah State is also known for its strength in academics. It counts 11 Goldwater Scholars and a Rhodes Scholar among its graduates in the past 10 years. As a top-50 research institution, USU professors bring in millions of dollars of research funding each year. But its top research professors aren't hiding in labs and offices inaccessible to students. In addition to their research efforts, they teach and inspire students every day. And they do it well. USU now has nine Carnegie Professors of the Year—more than any other school in the state. University research in animal cloning led to *Popular Science* magazine naming USU one of the top 10 "smartest schools" in the nation for geeks. In addition, USU has been ranked in the top 2% of prestigious graduate schools of education in the United States for the past decade. It is also ranked in the Top 500 of the World's Best Universities. In the arts, USU also excels. It is the only higher education institution in the state with a professional string quartet in residence. The quartet performs at USU's Performance Hall, a world-class structure where the technical marvels of its cutting-edge acoustics are unmatched. The university's Nora Eccles Harrison Museum of

Art houses one of the largest permanent art collections in the Intermountain West that includes a large collection of Native American Artwork. USU is the state's second largest public research university. It attracted more than \$138 million in research revenue last year. These research dollars, along with stellar faculty mentors, have inspired more than 1,000 students to pursue their own research projects every year. USU is only one of two universities in the state to receive USTAR (Utah Science Technology and Research) funding; USU is committed to recruiting high-caliber faculty who work with students on leading research projects. USU is recognized for its student engagement. USU, the oldest residential campus in Utah, has more than 200 student clubs and organizations, including the Special Olympics and Best Buddies programs, which are some of the largest in the country. For many, it isn't even about getting credit, but about making a difference. There's a reason the USU chapter of AmeriCorps is the largest in the state and one of the largest in the West. Student engagement in academic activities is extensive. USU is strongly committed to promoting opportunities for students to work with scholars engaged in research. USU holds the world record for sending the most student experiments into space. Around the globe, USU students study abroad in one of more than 140 partner institutions. USU is also well known for its statewide reach. With distance classes that date back before 1900, it's not surprising that USU's distance education program has grown to offer nearly 50 degrees, including the state's only distance-delivered doctoral degree. Today, USU has three regional campuses and nearly 40 education centers. Additionally, USU is the state's only land-grant institution, providing Extension units in all of Utah's 29 counties.