# Safety Behaviour Enhances the Acceptability of Exposure

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Abstract

Compulsive washing and contamination fears are among the most common symptoms of obsessive-compulsive disorder (OCD). Research suggests that exposure and response prevention (ERP) is effective for OCD. However, ERP is prone to dropouts and refusals, and a substantial proportion of clients therefore do not receive the care they need. A proposed solution involves the judicious use of safety behaviour to enhance the acceptability of exposure-based interventions. The current study aimed to test this proposed solution. Participants were 70 undergraduate students who completed two exposure exercises for contamination fear, one with safety behaviour and one without. Participants then rated the acceptability of the two exercises. Exposure with safety behaviour (ESB) was rated as significantly more acceptable than exposure and response prevention (ERP). Furthermore, subjective fear ratings were lower and behavioural approach to a series of contaminants was greater in the ESB condition. Results demonstrated the acceptability-enhancing potential of safety behaviour in exposure, and are discussed in terms of both theoretical and practical aspects of safety behaviour, exposure, and evidence-based interventions for anxiety disorders.

*Keywords*: OCD; contamination fear; anxiety

# Safety Behaviour Enhances the Acceptability of Exposure

Obsessive-compulsive disorder (OCD) is a common and often debilitating psychological disorder, affecting 1-2% of the population (Kessler et al., 2005). Among the most common symptoms of OCD are compulsive washing and contamination-related OCD (Rachman, 2004; Rachman & Hodgson, 1980; Rasmussen & Eisen, 1992). In addition to its prevalence, 30% of individuals with contamination-related OCD fail to respond to treatment or remain symptomatic following a full course of psychotherapy (e.g., Abramowitz, Franklin, Schwartz, & Furr, 2003).

Exposure and response prevention (ERP) is an evidence-based treatment for OCD (Deacon & Abramowitz, 2004; Foa et al., 2005; Meyer, 1966), which involves repeated and prolonged exposure to feared stimuli while preventing compulsive behaviour. While ERP is effective for OCD, 20-40% of treatment-seeking individuals refuse the treatment entirely or drop out prematurely (Rachman, 2004; Stanley & Turner, 1995). In fact, many OCD clients endorse fear of cognitive-behavioural therapy (CBT) as the primary reason for treatment refusal or dropout (Mancebo, Eisen, Sibrava, Dyck, & Rasmussen, 2011). In a randomized-controlled trial of ERP for OCD with and without clomipramine, Foa and colleagues (2005) reported that 14% of participants declined study participation altogether due to unwillingness to receive ERP, 22% withdrew upon randomization into the ERP condition, and an additional 22% dropped out during ERP. Thus, a substantial proportion of treatment-seeking clients do not receive effective treatment for their OCD.

How can ERP be modified to enhance its acceptability without detracting from its efficacy? Some suggest that the judicious use of safety behaviour, which involves the careful and strategic implementation of safety behaviour in the early stages of treatment, may be the answer (Parrish, Radomsky, & Dugas, 2008; Rachman, Radomsky, & Shafran, 2008; Shafran, Radomsky, Coughtrey, & Rachman, in press). Safety behaviour is defined as overt or covert

avoidance strategies carried out in feared situations to minimize perceived threat (Salkovskis, Clark, & Gelder, 1996). According to current cognitive-behavioural models of anxiety disorders, safety behaviour prevents the acquisition of threat-relevant information via a misattribution of safety in threatening situations (Salkovskis, 1991). However, empirical research on the effects of safety behaviour on treatment outcome is inconclusive. Several studies have shown that both the use (Kim, 2005; McManus, Sacadura, & Clark, 2008; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999) and availability (Powers, Smits, & Telch, 2004) of safety behaviour interferes with the efficacy of exposure-based treatments. In contrast, more recent studies have found comparable outcomes following exposure with safety behaviour (ESB) as exposure alone (Hood, Antony, Koerner, & Monson, 2010; van den Hout, Engelhard, Toffolo, & van Uijen, 2011; Milosevic & Radomsky, 2008; Rachman, Shafran, Radomsky, & Zysk, 2011; Sy, Dixon, Lickel, Nelson, & Deacon, 2011).

Given these contradictory findings, the notion that safety behaviour is always counter-therapeutic may be untenable. In fact, safety behaviours are commonly used in clinical practice when developing exposure hierarchies and when conducting exposure exercises. Therefore, it is unclear why cognitive-behavioural treatment manuals advise against the use of safety behaviour or recommend that it be eliminated as soon as possible. For example, in a recent book on exposure therapy for anxiety, the authors declare, “The optimal response prevention strategy is to instruct the patient to drop all safety strategies at once, ‘cold turkey’” (Abramowitz, Deacon, & Whiteside, 2011, p. 116). A recent ERP manual states, “Ritual prevention is an essential ingredient in the success of this evidence-based treatment...exposure without ritual prevention produces outcomes inferior to the combination of exposure and ritual prevention” (Foa, Yadin, & Lichner, 2012, p. 58). Some safety behaviours may be considered compulsions or rituals (e.g.,

using hygienic wipes after touching a contaminant; Rachman et al., 2011; van den Hout et al., 2011), yet these behaviours do not necessarily interfere with treatment outcome. Based on these recommendations, many clinicians and researchers may still believe in the solely counter-therapeutic effects of safety behaviour. Thus, it will be important to clarify the impact (and potential benefit) of safety behaviour in CBT.

While controversial, the judicious use of safety behaviour may enhance the acceptability of exposure therapy (Rachman et al., 2008). Treatment acceptability is the degree to which an individual perceives a treatment procedure to be fair, reasonable, appropriate, and un-intrusive for a given clinical problem (Kazdin, 1980; O'Brien & Karsh, 1991). For anxiety disorders, research suggests that CBT is more acceptable than pharmacotherapy (Deacon & Abramowitz, 2005; Hofmann et al., 1998; Huppert, Franklin, & Foa, 2003) and other psychotherapies (Becker, Darius, & Schaumberg, 2007; Ertl & McNamara, 2000). If CBT is indeed the preferred treatment for anxiety disorders, why do so many clients refuse or drop out of ERP for OCD? Clearly more work is needed to enhance the acceptability of ERP, and the judicious use of safety behaviour may be a promising solution. We are aware of two studies that investigated the acceptability of CBT with safety behaviour. Deacon, Sy, Lickel, and Nelson (2010) compared the acceptability of exposure and exposure with the judicious use of safety behaviour and found no between-group differences. However, treatment acceptability was assessed using a single-item prompt with unknown psychometric properties. In another study, Milosevic and Radomsky (in press) compared vignette-based descriptions of CBT with and without the judicious use of safety behaviour. Consistent with Rachman and colleagues' (2008) proposal, undergraduate and clinically anxious participants rated CBT with safety behaviour as more acceptable than CBT alone. However, this study was limited to vignette-based descriptions of treatment procedures.

To address the limitations of these studies, the current study assessed the acceptability of *in-vivo* exposure exercises for contamination fear using published measures of treatment acceptability. Consistent with Milosevic and Radomsky (in press), it was hypothesized that ESB would be rated as more acceptable than ERP. It was further hypothesized that anticipatory and peak subjective fear ratings would be lower and behavioural approach to a series of contaminants would be greater in the ESB condition as compared to the ERP condition.

## Method

### Participants

Participants were 81 undergraduate students who participated in exchange for course credit or entry into a draw for cash prizes. The inclusion/exclusion criteria were ability to understand, read, and communicate in English and no prior CBT. The majority of participants were female ($n$ = 59, 84%) and ranged in age from 17 to 63 years ($M$ = 23.85, $SD$ = 7.72). Forty of the participants identified English as their first language (49%). All participants completed both treatment conditions (i.e., ESB and ERP).

### Measures

**Behavioural Approach Test (BAT).** The BAT consisted of presenting participants with two contaminants during each exposure: one was moderately contaminated (i.e., dirty laundry, a dirt mixture; see Materials) and one was extremely contaminated (i.e., a dirty toilet, a dirty bedpan; see Materials). After each stimulus presentation and accompanied description (see Materials), participants were asked to approach the contaminant as closely as they were able in a stepwise fashion. If participants reported a minimal level of anxiety during approach (i.e., Subjective Units of Distress Scale ≤ 30), they were asked if they could continue. If participants reported at least a moderate level of anxiety (i.e., Subjective Units of Distress Scale > 30), they were permitted to discontinue the BAT. The BAT was coded on a 6-point hierarchy (see Table

1), which has been used in previous research on contamination-related OCD (Cougle, Wolitzy-Taylor, Lee, & Telch, 2007; Najmi, Tobin, & Amir, 2012). The number of steps completed served as the measure of behavioural approach for each contaminant.

**Contamination Rating.** Participants were asked to rate the perceived level of contamination of each contaminant after completing the BAT for that particular contaminant. They were asked, "On a scale of 0 to 100, 0 being not at all contaminated and 100 being the most you can imagine, how contaminated is the object you just touched?" The contamination rating served as the credibility check for this study.

**Endorsement and Discomfort Scale (EDS).** The EDS (Tarrier, Liversidge, & Gregg, 2006) is a 10-item questionnaire that assesses treatment acceptability on a variety of dimensions, including suitability, tolerability, and reasonableness, among others. For example, the item assessing credibility is as follows: "This treatment is a *credible* option for my type of problem." The authors reported a 2-factor solution for the EDS, the first being treatment "endorsement" and the second treatment "discomfort." Because the discomfort subscale consists of only one item, a total score is computed for the EDS. The EDS was administered following completion of each exposure condition, and demonstrated excellent internal consistency in the current sample ($\alpha$ = .92 for ESB and $\alpha$ = .93 for ERP).

**OCD Treatment History Questionnaire (OC-THQ).** The OC-THQ (Stobie, Taylor, Quigley, Ewing, & Salkovskis, 2007) is a 10-item questionnaire that assesses previous psychotherapy for OCD, including duration, focus, and specific techniques to verify previous CBT. For the purposes of the current study, the OC-THQ was adapted to make it more general (i.e., not exclusively for previous OCD treatment). To meet minimum criteria for previous CBT, the therapy had to be six or more sessions with at least 40 minutes per session and had to include

exposure, homework, a focus on the problem and not on childhood, and a therapist who was not silent for most of the sessions. The authors reported that the OC-THQ effectively discriminated individuals who had previously received CBT from those who had received other therapeutic interventions.

**Subjective Units of Distress Scale (SUDS)**. The SUDS (Wolpe, 1958) is a widely-used measure of subjective fear during behaviour therapy. For the current study, participants were asked to rate how fearful they felt on a scale from 0 to 100, 0 being neutral and 100 being the worst distress they can imagine. The SUDS was administered at four time points during each exposure: before approaching the two types of contaminants (i.e., moderately and extremely contaminated; the Anticipatory SUDS rating) and while touching the contaminants (i.e., after reaching the last attained step in the BAT; the Peak SUDS rating).

**Treatment Adherence Scale (TAS)**. The TAS (Milosevic & Radomsky, in press) is a 10-item questionnaire that assesses treatment adherence on a variety of dimensions, including anticipated distress, perceived intrusiveness, and likelihood of dropout. For instance, anticipated adherence is assessed as follows: "If I participated in this treatment, I would be able to adhere to its requirements." Participants are asked to rate their agreement with a number of statements about a given treatment on a 7-point Likert scale (*1 = Disagree strongly*; *7 = Agree strongly*). The authors reported good internal consistency for the TAS in both student and clinical samples, and it demonstrated good internal consistency in the current sample ($\alpha = .88$ for ESB and $\alpha = .86$ for ERP).

## Materials

**Bedpan**. A bedpan filled with dilute apple juice was used as one of the extremely contaminated objects. When presented with the bedpan, participants were told, "This is a dirty

bedpan." The apple juice was diluted to decrease the juice's smell, and one spray of all-purpose cleaner was added to eliminate any residual odor. This stimulus has been used in previous research on contamination-related OCD (Olatunji, Lohr, Sawchuck, & Tolin, 2007).

**Dirt mixture**. A mixture of potting soil, dead crickets, and cat hair was placed in a shallow plastic box and used as one of the moderately contaminated objects. When presented with the dirt mixture, participants were told, "This is a mixture of dirt, dead insects, and animal hair." This stimulus has been used in previous research on contamination-related OCD (Cougle et al., 2007).

**Dirty laundry**. A pile of dirty underwear, socks, t-shirts, and rags was placed in a laundry basket and used as one of the moderately contaminated objects. When presented with the laundry, participants were told, "This is a box of dirty laundry. It includes socks, underwear, old t-shirts, and rags. Some of these items may have been touched with bodily fluids." This stimulus has been used in previous research on contamination-related OCD (Cougle et al., 2007).

**Toilet**. A porcelain toilet was smeared with potting soil and chocolate and used as one of the extremely contaminated objects. When presented with the toilet, participants were told, "This is a dirty toilet." This stimulus has been used in previous research on contamination-related OCD (Cougle et al., 2007).

**Safety gear**. When completing the ESB condition, participants were offered a pair of latex-free gloves before they began the BAT. All participants accepted the gloves, and wore them for the duration of the exposure session. To avoid implying the absolute necessity of safety gear, the gloves were offered as follows: "Here is a pair of latex-free gloves that might be helpful to you while approaching the [name of contaminant]."

**Procedure**

Participants were told they were taking part in a study evaluating an element of two versions of an existing treatment for contamination fear. Following informed consent, participants began their first exposure, either with or without safety gear. The order in which the participants engaged in each exposure condition was counterbalanced, so that an equal number of participants first completed ESB as did ERP. The contaminants were also counterbalanced, so that an equal number of participants began with the dirty laundry as the dirt mixture and the bedpan as the toilet. Before beginning the first BAT, the experimenter presented the first object (moderately contaminated; either dirty laundry or a dirt mixture) and provided a description for it (see Materials). In the ESB condition, participants were offered a pair of latex-free rubber gloves to wear while approaching the contaminant. Participants were then asked to provide their Anticipatory SUDS rating. The BAT was then introduced as follows: "Now I will ask you to approach this contaminant in a stepwise fashion. The first step is..." (see Table 1). Participants then began the BAT and provided their Peak SUDS rating when they reached the last step they could attain. Participants then provided the contamination rating as a credibility check.

In the ESB condition, participants were told to leave their gloves on for the next BAT. The same procedure then ensued with the extremely contaminated object (dirty toilet or dirty bedpan) once the participants were provided with the object's description and indicated their Anticipatory SUDS rating. Once the participants reached the last step in the BAT they could attain, they provided their Peak SUDS and contamination ratings. Following exposure to the second object, participants completed the EDS and TAS.

Participants then began the second exposure, with or without safety gear. The experimenter presented the first contaminant (moderately contaminated; whichever object was

not used during the first exposure) and provided a description for it. In the ESB condition, participants were offered a pair of latex-free rubber gloves to wear while approaching the contaminant. Participants then provided their Anticipatory SUDS rating and began approaching the contaminant. Once they reached the last step in the BAT they could attain, participants provided their Peak SUDS and contamination ratings.

In the ESB condition, participants were asked to leave their gloves on for the next BAT. The same procedure then ensued for the extremely contaminated object (whichever one was not used during the first exposure) once the experimenter provided a description of the object and obtained the Anticipatory SUDS rating. Once the participants reached the last step in the BAT they could attain, they provided their Peak SUDS and contamination ratings. Following exposure to the second object, participants completed the EDS and TAS.

Lastly, participants completed a questionnaire package which included a demographics questionnaire and a revised version of the OC-THQ. Finally, participants were fully debriefed.

## Results

### Inclusion/Exclusion Criteria

One participant met criteria for previous CBT and was excluded.

### Credibility Check

The toilet had the highest contamination rating ($M$ = 71.34, $SD$ = 28.80), followed by the bedpan ($M$ = 67.81, $SD$ = 31.42), the dirt mixture ($M$ = 52.74, $SD$ = 30.67), and the laundry ($M$ = 48.45, $SD$ = 28.73). The extremely contaminated objects were rated as significantly more contaminated than the moderately contaminated objects (all $t$'s > 4.47, all $p$'s < .001). Ten participants (13%) provided a contamination rating of *0 (*i.e., *not at all contaminated*) for at least one contaminant. Of these *0* contamination ratings, five (33%) were for the dirt mixture, four

(27%) were for the bedpan, three (20%) were for the laundry, and three (20%) were for the toilet. These 10 participants were excluded.

**Treatment Acceptability**

To assess the acceptability of each exposure condition, a series of one-way repeated-measures analyses of variance (ANOVAs) were conducted. There was a significant difference in EDS scores, $F(1, 69) = 7.22$, $p = .009$, $\eta^2 = .10$, such that the ESB condition was rated as more acceptable than the ERP condition. There was a significant difference in TAS scores, $F(1, 69) = 22.94$, $p < .001$, $\eta^2 = .25$, such that ESB had greater anticipated adherence scores than ERP (see Table 2).

**Subjective Fear**

To assess subjective fear in each exposure condition, a series of 2 (condition: ESB or ERP) x 2 (stimulus type: Moderately or extremely contaminated object) x 4 (time: Anticipatory or Peak SUDS for four total contaminants) repeated-measures ANOVAs were conducted. There was a significant difference in Anticipatory SUDS ratings by condition, $F(1, 69) = 20.05$, $p < .001$, partial $\eta^2 = .23$, and by stimulus type, $F(1, 69) = 43.15$, $p < .001$, partial $\eta^2 = .39$, such that Anticipatory SUDS ratings were lower in the ESB condition compared to the ERP condition for both the moderately and extremely contaminated objects (see Table 2). There was no interaction, $F(1, 69) = .12$, $p = .73$.

There was a significant difference in Peak SUDS ratings by condition, $F(1, 69) = 38.30$, $p < .001$, partial $\eta^2 = .36$, and by stimulus type, $F(1, 69) = 80.51$, $p < .001$, partial $\eta^2 = .54$, such that Peak SUDS ratings were lower in ESB than ERP for both the moderately and extremely contaminated objects (see Table 2). There was no interaction, $F(1, 69) = .83$, $p = .37$.

**Behavioural Approach**

To assess behavioural approach in each condition, a 2 (condition: ESB or ERP) by 2 (stimulus type: Moderately or extremely contaminated object) by 4 (time: Behavioural approach for four total contaminants) repeated-measures ANOVA was conducted. There was a significant difference in behavioural approach by condition, $F(1, 69) = 28.49$, $p < .001$, partial $\eta^2 = .29$, and by stimulus type, $F(1, 69) = 27.84$, $p < .001$, partial $\eta^2 = .29$, such that the number of BAT steps completed was greater in the ESB condition compared to the ERP condition for both the moderately and extremely contaminated objects (see Table 2). There was also an interaction between condition and stimulus type, $F(1, 69) = 4.90$, $p = .03$, partial $\eta^2 = .07$, such that the effect of condition was greater for the extremely contaminated objects than for the moderately contaminated objects (see Figure 1).

## Discussion

It has been proposed that safety behaviour may enhance the acceptability of exposure therapy (Parrish et al., 2008; Rachman et al., 2008; Shafran et al., in press). The current study tested this proposal by comparing the acceptability of exposure exercises with safety behaviour (ESB) and exposure exercises alone (ERP) for contamination fear. It was predicted that ESB would be rated as more acceptable than ERP. This hypothesis was supported, as the acceptability and anticipated adherence ratings were greater in the ESB condition as compared to the ERP condition. It was further hypothesized that subjective fear ratings would be lower in ESB as compared to ERP. This hypothesis was also supported, as both Anticipatory and Peak SUDS ratings were significantly lower in ESB for both the moderately and extremely contaminated objects. Finally, we predicted that behavioural approach would be greater in ESB compared to ERP. This hypothesis was supported, as participants completed significantly more steps in the BATs during ESB than during ERP. There was also an interaction between condition and

stimulus type (i.e., moderately or extremely contaminated object), such that the effect of condition was greater for the extremely contaminated objects. This is a noteworthy finding, as it suggests that safety behaviour may facilitate exposure to highly distressing situations or objects. If exposure is facilitated in such a way, the treatment may be perceived as less threatening and thus, as more acceptable. Consistent with Rachman and colleagues (2008), it appears that safety behaviour may help overcome obstacles in CBT (e.g., particularly challenging exposures).

Taken together, these findings support the notion that safety behaviour enhances the acceptability of exposure. In addition to self-reported acceptability and anticipated adherence, participants in this study reported lower levels of anxiety and approached the contaminants more closely in the safety behaviour condition. In other words, safety behaviour was associated with lower distress and greater engagement in treatment procedures. Given that close interaction with the feared stimulus is sometimes necessary for disconfirmation of threat-relevant beliefs to occur, it is encouraging that safety behaviour may actually facilitate behavioural approach during exposure. These results are consistent with previous research reporting closer approach to feared stimuli during exposure sessions with safety gear (Milosevic & Radomsky, 2008, in press), as well as recent evidence demonstrating substantial reductions in fear and avoidance following ESB (van den Hout et al., 2011; Rachman et al., 2011). Although treatment outcome was not a focus of the current study, overall it appears that safety behaviour is not *always* counter-therapeutic and may facilitate approach behaviour during exposure.

In fact, the judicious use of safety behaviour may be beneficial. Judicious use has been defined as, “the careful use of safety behaviour, with an emphasis on the early stages of treatment” (Rachman et al., 2008, p. 169). In practice, this might consist of introducing safety behaviour in the first few exposure sessions until the client feels comfortable to eliminate it, or

implementing safety aids for especially difficult exposures. As mentioned previously, the results of this study indicate that safety gear may be particularly helpful during exposure to highly distressing situations or objects. While the results of this study suggest that safety behaviour enhances the acceptability of single-session exposures, the impact of the gradual fading of safety behaviour was not specifically tested and cannot be addressed here. Further, there is a difference between assessing acceptability following a few exposure exercises and following participation in a full course of CBT, where additional variables relevant to treatment acceptability (e.g., dropout rate) could be included. However, it should be noted that participants in this study endorsed greater anticipated adherence to ESB as compared to ERP, so it is plausible that safety behaviour may help reduce treatment attrition.

While the results are promising, the current study is not without limitations. This study used a non-clinical sample of undergraduate students, limiting the generalizeability of the results to treatment-seeking clinical populations with contamination-related OCD or other anxiety problems. However, the results are not irrelevant to contamination-fearful samples, as participants in this study reported at least moderate fear during the exposure exercises (see Table 2 for SUDS ratings). Future research should aim to replicate and extend these findings in clinical samples. Second, we did not provide a theoretical rationale for exposure, which is routinely provided in clinical practice before initiating exposure sessions. Given that the purpose of a treatment rationale is to promote engagement with the treatment, we felt that it may bias participants' perceptions of the exposure exercises. Nevertheless, we cannot assume that our treatment procedures were analogous to ERP in the absence of a treatment rationale. Future research should investigate the acceptability of safety behaviour in a full course of CBT to maximize ecological validity. Thirdly, the use of covert safety behaviour was not systematically

controlled in this study, so it is possible that participants engaged in these behaviours during the exposure exercises. However, the use of a within-participants repeated-measures design may have controlled for individual differences such as covert safety behaviour. Future research should investigate the impact of covert safety behaviour on treatment acceptability, subjective fear, and behavioural approach. Finally, participants used only one safety aid in the ESB condition rather than choosing their own safety gear as previous investigations have done (e.g., Milosevic & Radomsky, 2008). Given that safety behaviour is highly idiosyncratic (Salkovskis et al., 1996), it is possible that some participants did not find the gloves particularly helpful during exposure. Future research should offer participants a selection of safety gear from which to choose to maximize the perceived helpfulness of safety behaviour. Despite these limitations, the current study provides a preliminary foundation for the acceptability-enhancing potential of safety behaviour in exposure.

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References

Abramowitz, J. S., Deacon, B. J., & Whiteside, S. P. H. (2011). *Exposure therapy for anxiety: Principles and practice.* New York: Guilford Press.

Abramowitz, J. S., Franklin, M. E., Schwartz, S. A., & Furr, J. M. (2003). Symptom presentation and outcome of cognitive-behavioral therapy for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology, 71,* 1049-1057. doi:10.1023/A:1025454627242

Becker, C. B., Darius, E. & Schaumberg, K. (2007). An analog study of patient preferences for exposure versus alternative treatments for posttraumatic stress disorder. *Behaviour Research and Therapy, 45,* 2861-2873. doi:10.1016/j.brat.2007.05.006

Cougle, J. R., Wolitzky-Taylor, K. B., Lee, H., & Telch, M. J. (2007). Mechanisms of change in ERP treatment of compulsive hand washing: Does primary threat make a difference? *Behaviour Research and Therapy, 45,* 1449-1459. doi:10.1016/j.brat.2006.12.001

Deacon, B. J., & Abramowitz, J. S. (2004). Cognitive and behavioral treatments for anxiety disorders: A review of meta-analytic findings. *Journal of Clinical Psychology, 60,* 429-441. doi:10.1002/jclp.10255

Deacon, B. J., & Abramowitz, J. S. (2005). Patients' perceptions of pharmacological and cognitive-behavioral treatments for anxiety disorders. *Behaviour Therapy, 36,* 139-145. doi:10.1016/S0005-7894(05)80062-0

Deacon, B. J., Sy, J. T., Lickel, J. J., & Nelson, E. A. (2010). Does the judicious use of safety behaviours improve the efficacy and acceptability of exposure therapy for claustrophobic fear? *Journal of Behavior Therapy and Experimental Psychiatry, 41,* 71-80. doi:10.1016/j.jbtep.2009.10.004

Ertl, M. A., & McNamara, J. R. (2000). Predicting potential client treatment preferences.

*Psychotherapy: Theory, Research, Practice, Training*, *37*, 219-227. doi:10.1037/h0087793

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., et al. (2005). Randomized, placebo-controlled trial of exposure and response prevention, clomipramine, and their combination in the treatment of obsessive-compulsive disorder. *The American Journal of Psychiatry*, *162*, 151-161. doi:10.1176/appi.ajp.162.1.151

Foa, E. B., Yadin, E., & Lichner, T. K. (2012). *Exposure and response (ritual) prevention for obsessive-compulsive disorder: Therapist guide* (2nd ed.). New York: Oxford University Press.

Hofmann, S. G., Barlow, D. H., Papp, L. A., Detweiler, M. F., Ray, S. E., Shear, M. K., et al. (1998). Pretreatment attrition in a comparative outcome study on panic disorder. *American Journal of Psychiatry*, *155*, 43-47. Retrieved from [http://0-web.ebscohost.com.mercury.concordia.ca/ehost/detail?vid=7&hid=107&sid=425439c6-c264-4119-8738fa9886ce6a4d%40sessionmgr110&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=psyh&AN=1997-38496-006]

Hood, H. K., Antony, M. M., Koerner, N., & Monson, C. M. (2010). Effects of safety behaviours on fear reduction during exposure. *Behaviour Research and Therapy*, *48*, 1161-1169. doi:10.1016/j.brat.2010.08.006

Huppert, J., Franklin, M., & Foa, E. B. (2003). Study refusal and exclusion from a randomized treatment study of generalized social phobia. *Journal of Anxiety Disorders*, *17*, 683-693. doi:10.1016/S0887-6185(02)00238-4

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005).

Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 593-602. doi:10.1001/archpsyc.62.6.593

Kazdin, A. E. (1980). Acceptability of alternative treatments for deviant child behavior. *Journal of Applied Behaviour Analysis, 13*, 259-273. doi:10.1901/jaba.1980.13-259

Kim, E. J. (2005). The effect of decreased safety behaviors on anxiety and negative thoughts in social phobics. *Anxiety Disorders, 19*, 69-86. doi:10.1016/j.janxdis.2003.11.002

Mancebo, M. C., Eisen, J. L., Sibrava, N., Dyck, I. R., & Rasmussen, S. A. (2011). Patient utilization of cognitive-behavioral therapy for obsessive compulsive disorder. *Behavior Therapy, 42*, 399-412. doi:10.1016/j.beth.2010.10.002

McManus, F., Sacadura, C., & Clark, D. M. (2008). Why social anxiety persists: An experimental investigation of the role of safety behaviors as a maintaining factor. *Journal of Behavior Therapy and Experimental Psychiatry, 39*, 147-161. doi:10.1016/j.jbtep.2006.12.002

Meyer, V. (1966). Modification of expectations in cases with obsessional rituals. *Behaviour Research and Therapy, 4*, 273-280. doi:10.1016/0005-7967(66)90023-4

Milosevic, I., & Radomsky, A. S. (2008). Safety behaviour does not necessarily interfere with exposure therapy. *Behaviour Research and Therapy, 46*, 1111-1118. doi:10.1016/j.brat.2008.05.011

Milosevic, I., & Radomsky, A. S. (in press). Keep your eye on the target: Safety behavior reduces targeted threat beliefs following a behavioral experiment. *Cognitive Therapy and Research*.

Milosevic, I., & Radomsky, A. S. (in press). Incorporating the judicious use of safety behaviour

into exposure-based treatments for anxiety disorders: A study of treatment acceptability. *Journal of Cognitive Psychotherapy*.

Najmi, S., Tobin, A. C., & Amir, N. (2012). Psychometric properties of a behavioral test of contamination-related obsessive-compulsive symptoms. *Cognitive Therapy and Research*, *36*, 228-233. doi:10.1007/s10608-010-9332-0

O'Brien, S., & Karsh, K. (1991). Treatment acceptability: Consumer, therapist and society. In A. Repp & N. Singh (Eds.), *Perspectives on the use of nonaversive and aversive interventions for persons with developmental disabilities* (pp. 503-516). Sycamore, US: Sycamore Publishing Company.

Olatunji, B. O., Lohr, J. M., Sawchuk, C. N., & Tolin, D. F. (2007). Multimodal assessment of disgust in contamination-related obsessive-compulsive disorder. *Behaviour Research and Therapy*, *45*, 263-276. doi:10.1016/j.brat.2006.03.004

Parrish, C. L., Radomsky, A. S., & Dugas, M. J. (2008). Anxiety-control strategies: Is there room for neutralization in successful exposure treatment? *Clinical Psychology Review*, *28*, 1400-1412. doi:10.1016/j.cpr.2008.07.007

Powers, M. B., Smits, J. A., & Telch, M. J. (2004). Disentangling the effects of safety-behavior utilization and safety-behavior availability during exposure-based treatment: A placebo-controlled trial. *Journal of Consulting and Clinical Psychology*, *72*, 448-454. doi:10.1037/0022-006X.72.3.448

Rachman, S. (2004). Fear of contamination. *Behaviour Research and Therapy*, *42*, 1227-1255. doi:10.1016/j.brat.2003.10.009

Rachman, S., & Hodgson, R. (1980). *Obsessions and compulsions*. Englewood Cliffs, NJ: Prentice Hall.

Rachman, S., Radomsky, A. S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy, 46*, 163-173. doi:10.1016/j.brat.2007.11.008

Rachman, S., Shafran, R., Radomsky, A. S., & Zysk, E. (2011). Reducing contamination by exposure plus safety behaviour. *Journal of Behaviour Therapy and Experimental Psychiatry, 42*, 397-404. doi:10.1016/j.jbtep.2011.02.010

Rasmussen, S., & Eisen, J. (1992). The epidemiology and clinical features of OCD. *Psychiatric Clinics of N. America, 15*, 743-758. Retrieved from [http://web.ebscohost.com/ehost/detail?vid=11&hid=111&sid=3b4a2743-51ef-432c-a63c6a7ae00c7460%40sessionmgr104&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=psyh&AN=1993-25868-001]

Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic: A cognitive account. *Behavioural Psychotherapy, 19*, 6-19. doi:10.1017/S0141347300011472

Salkovskis, P. M., Clark, D. M., & Gelder, M. G. (1996). Cognitive-behaviour links in the persistence of panic. *Behaviour Research and Therapy, 34*, 453-458. doi:10.1016/0005-7967(95)00083-6

Salkovskis, P. M., Clark, D., Hackmann, A., Wells, A., & Gelder, M. (1999). An experimental investigation of the role of safety-seeking behaviours in the maintenance of panic disorder with agoraphobia. *Behaviour Research and Therapy, 37*, 559-574. doi:10.1016/S0005-7967(98)00153-3

Shafran, R., Radomsky, A. S., Coughtrey, A. E., & Rachman, S. (in press). Advances in the cognitive behavioural treatment of obsessive compulsive disorder. *Cognitive Behaviour Therapy*.

Stanley, M. A., & Turner, S. M. (1995). Current status of pharmacological and behavioral treatment of obsessive-compulsive disorder. *Behavior Therapy, 26*, 163-186. doi:10.1016/S0005-7894(05)80089-9

Stobie, B., Tracey, T., Quigley, A., Ewing, S., & Salkovskis, P. M. (2007). "Contents may vary": A pilot study of treatment histories of OCD patients. *Behavioural and Cognitive Psychotherapy, 35*, 273-282. doi:10.1017/S135246580700358X

Sy, J. T., Dixon, L. J., Lickel, J. J., Nelson, E. A., & Deacon, B. J. (2011). Failure to replicate the deleterious effects of safety behaviors in exposure therapy. *Behaviour Research and Therapy*, *49*, 305-314. doi:10.1016/j.brat.2011.02.005

Tarrier, N., Liversidge, T., & Gregg, L. (2006). The acceptability and preference for the psychological treatment of PTSD. *Behaviour Research and Therapy*, *44*, 1643-1656. doi:10.1016/j.brat.2005.11.012

van den Hout, M. A., Engelhard, I. M., Toffolo, M. B. J., & van Uijen, S. L. (2011). Exposure plus response prevention versus exposure plus safety behaviours in reducing feelings of contamination, fear, danger, and disgust. An extended replication of Rachman, Shafran, Radomsky, & Zysk (2011). *Journal of Behavior Therapy and Experimental Psychiatry*, *42*, 364-370. doi:10.1016/j.jbtep.2011.02.009

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.

Table 1

*Behavioural Approach Test (BAT)*

| Step | Behaviour |
|---|---|
| 1 | Approach and smell from within 3 ft. |
| 2 | Touch with sheet of tissue |
| 3 | Touch with right index finger |
| 4 | Touch with right hand |
| 5 | Touch with both hands |
| 6 | Touch with both hands, then rub hands together |

*Note*. Adapted from "Mechanisms of Change in ERP Treatment of Compulsive Hand Washing: Does Primary Threat Make a Difference?" by J. R. Cougle, K. B. Wolitzky-Taylor, H. Lee, and M. J. Telch, 2007, *Behaviour Research and Therapy*, *45*, p. 1452.

Table 2

*Means and Standard Deviations of Dependent Measures*

| | Condition | |
|---|---|---|
| | Exposure with safety behaviour (ESB) | Exposure with response prevention (ERP) |
| Acceptability* | 57.27 (17.65) | 51.30 (19.78) |
| Anticipated adherence** | 48.97 (11.70) | 43.80 (11.63) |
| Subjective fear (Moderately) | | |
| Anticipatory SUDS* | 19.03 (22.59) | 28.84 (27.40) |
| Peak SUDS** | 19.51 (25.02) | 36.87 (30.69) |
| Subjective fear (Extremely) | | |
| Anticipatory SUDS** | 34.76 (29.40) | 45.79 (31.25) |
| Peak SUDS** | 42.59 (31.47) | 55.66 (30.13) |
| Behavioural approach | | |
| Moderately* | 5.91 (.41) | 5.39 (1.34) |
| Extremely** | 5.43 (1.34) | 4.46 (1.93) |

*Note*. $N = 70$. Moderately = Moderately contaminated object. Extremely = Extremely contaminated object. SUDS = Subjective Units of Distress Scale. Adjacent means are significantly different from each other.
*$p < .01$. **$p < .001$.

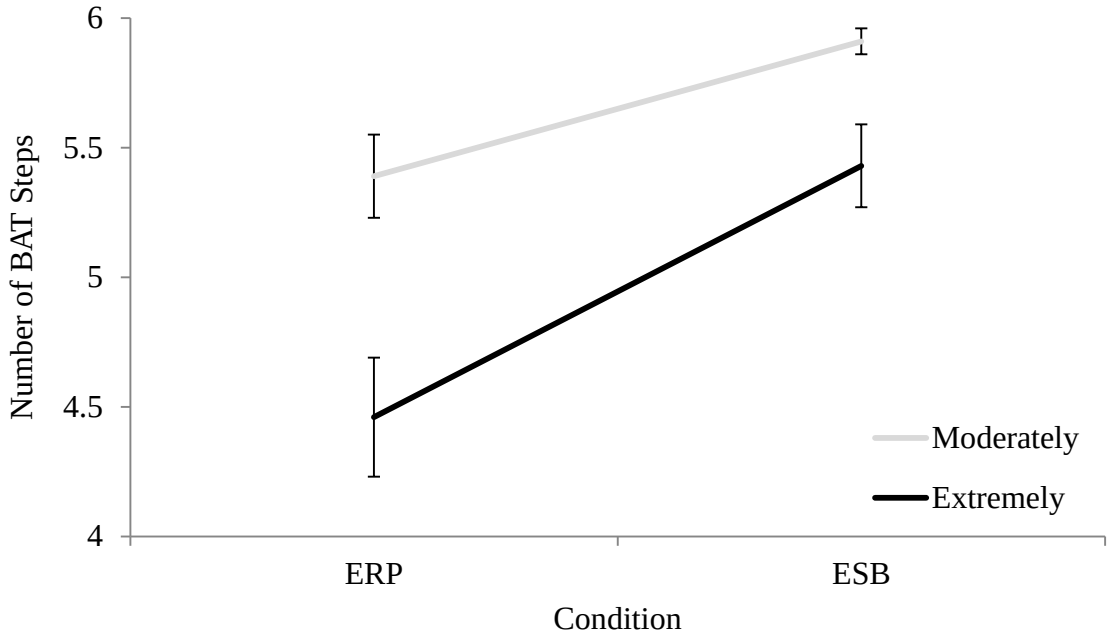


*Figure 1.* Mean number of BAT steps completed. *N* = 70. BAT = Behavioural approach test. ERP = Exposure and response prevention. ESB = Exposure with safety behaviour. Moderately = Moderately contaminated object. Extremely = Extremely contaminated object. Error bars represent standard errors.