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The Role of Thought Suppression in the Development of Obsessions

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Abstract. A literature search yielded no studies investigating Wegner's (1989) proposal that repeated suppression attempts and rebound opportunities (indulgence cycles) lead to an escalation of intrusions, providing a mechanism whereby an unwanted intrusive thought may develop into a clinical obsession. It was predicted, based on Wegner's (1994) ironic process theory of mental control, that individuals high in trait obsessionality would exhibit an increase in thought frequency as a function of indulgence cycle and that those low in trait obsessionality would display a corresponding decrease in thought frequency. Participants ($N = 40$) were asked to suppress and then express a personally relevant obsessive intrusive thought through two indulgence cycles. There was no significant escalation in thoughts across indulgence cycles for the high obsessionality group, but the low obsessionality group were significantly more successful at suppression. The results confirm previous research suggesting that trait obsessionality has an impact upon the effectiveness of thought suppression.

Keywords: Thought suppression, indulgence cycles, obsessions.

Introduction

Wegner, Schneider, Carter and White's (1987) seminal finding, that attempts to suppress a thought can result in a paradoxical resurgence of that thought post-suppression (the rebound effect), has led to a proliferation of thought suppression research. Cognitive theories of obsessive-compulsive disorder (OCD) have highlighted the role of negative unwanted intrusive thoughts in the development of clinical obsessions (e.g. Purdon and Clark, 1993). It is argued that thought suppression may be used in an attempt to neutralize these thoughts and alleviate the associated anxiety (Salkovskis, 1996). In this study we investigated the role of trait obsessionality in moderating the relationship between successive attempts at thought suppression and subsequent intrusions.

Research investigating thought suppression in relation to OCD has produced equivocal findings and few studies have utilized clinical samples. In relation to obsessive intrusive

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thoughts, Salkovskis and Campbell (1994) found an enhancement (i.e. an increase in thoughts during suppression) and rebound effect in participants who were instructed to suppress their thoughts but not in those who were instructed to monitor their thoughts. Trinder and Salkovskis (1994) asked individuals to suppress, monitor or think about a thought over 4 days. The results indicated that the suppress group had a higher incidence of thoughts than the other groups. Conversely, Purdon and Clark (1996) did not find an enhancement or rebound effect following suppression. Studies investigating obsessionality in analogue samples that have also used naturally occurring intrusive thoughts have generally failed to find significant enhancement or rebound effects. However, Smari, Birgisdottir and Brynjolfsdottir (1995) found individuals high in trait obsessionality (i.e. a persistent tendency towards obsessive thoughts and behaviours not severe enough to meet clinical criteria) tend to experience more thoughts under suppression than low obsessionality individuals. Rutledge (1998) replicated this finding, although only for women. In two of the few studies using clinical samples and investigating personally relevant intrusive thoughts, Janeck and Calamari (1999) found no suppression related increase in individuals with OCD or non-clinical participants whilst Tolin, Abramowitz, Przeworski and Foa (2002) found an OCD group did exhibit a paradoxical effect of thought suppression whereas non-anxious and anxious controls did not.

Interpretation of the mixed findings produced by thought suppression research has been complicated by difficulties with the selection of an appropriate control condition and of the thought to be suppressed (see Wenzlaff and Wegner, 2000). For example, in the Rutledge (1998) study participants were asked to think about their intrusive thought prior to and following suppression. However, individuals with OCD are unlikely to voluntarily engage in rumination about their distressing intrusive thoughts (Merckelbach, Muris, van den Hout and de Jong, 1991). Thought suppression research also varies in the type of thought selected for investigation with studies employing, for example, obsessive intrusive thoughts, personally intrusive thoughts and neutral thoughts. This variability leads to difficulties when attempting to draw comparisons between findings. Further, Smari (2001) highlights that even if obsessive intrusive thoughts are examined, there are problems regarding whether they are defined according to their contents or their appraisals. It seems that in order to overcome these issues research must attempt to reflect both the cognitive content and processes underlying obsessions in OCD.

In the present study, we employ an experimental design that incorporates naturally occurring obsessive intrusive thoughts and a more realistic thought suppression paradigm. In line with Wegner et al. (1987), we argue that in real life suppression attempts would occur repeatedly, such that a negative unwanted intrusion might escalate into a clinical obsession. Wegner (1989) describes the operation of this process as a positive feedback system of "indulgence cycles". The first suppression-expression cycle (i.e. the first indulgence cycle) results in a rebound effect, increasing thought frequency and prompting further suppression. However, further suppression will be harder due to the increased frequency of thoughts. A second rebound effect will then occur, further increasing thought frequency and perpetuating suppression. A positive feedback loop of suppression-expression (i.e. indulgence) cycles is thus created.

An extensive literature search indicated that there had been no previous work to investigate Wegner's (1989) claim that thought suppression may play a role in the development of obsessions through the escalation of indulgence cycles. Therefore, this study investigated whether there was an escalation in the rebound effect from a first indulgence cycle to a second indulgence cycle. If an increase in thought frequency is found in the second indulgence cycle relative to the first indulgence cycle, then this will suggest that thought suppression techniques

that may be employed in neutralization will contribute to an exacerbation of the obsession. Based on the previous work by Rutledge (1998) and Smari et al. (1995), we hypothesized that this escalation in thought frequency would only be observed for high obsessionality individuals. Theoretically, the dysfunctional metacognitive beliefs held by high obsessionality individuals about their intrusive thoughts should lead to anxiety (Salkovskis, 1996). This will impose a cognitive load, which has been shown to lead to failures in suppression (Macrae, Bodenhausen, Milne and Ford, 1997). Conversely, low obsessionality individuals will not experience as much anxiety in relation to their intrusive thoughts and so will achieve successful suppression. In line with the findings of Rutledge (1998), the impact of gender on thought frequency across the indulgence cycles will also be examined.

Method

Participants

The participants were volunteer undergraduate students recruited from University College London ($N = 40$, male $n = 20$, female $n = 20$, mean age $= 22.05$, $SD = 2.71$). All participants had experienced an obsessive intrusive thought in the past 2 weeks. If participants had more than one type of obsessive intrusive thought in the past 2 weeks, they selected the thought that had occurred most frequently.

Measures

Revised Obsessive Intrusions Inventory (ROII: Purdon and Clark, 1993, 1994a, b). The ROII is a self-report inventory designed to assess the frequency of and cognitive/emotional response to intrusive thoughts, impulses and images that are exclusively obsession-like in nature. The section of the questionnaire used in this study consisted of 52 statements concerning unacceptable thoughts of aggression, sex, accidents, dirt and contamination. Each statement was rated on a 7-point scale ranging from 0 ("I have never had this thought") to 6 ("I have this thought frequently during the day").

Maudsley Obsessional-Compulsive Inventory (MOCI: Rachman and Hodgson, 1980). The MOCI is a measure of trait obsessionality and does not include diagnostic criteria for obsessive disorders. It consists of 30 statements that are rated as either "true" or "false". A total score for obsessionality and four sub-scales (checking, washing, slowness-repetition and doubting-conscientious) can be derived.

Procedure

Informed consent was obtained for all participants. Participants were then asked to sit in a small, featureless room facing a blank wall and asked to complete the ROII. Once participants had identified an obsessive intrusive thought they were informed that this would be their "target thought" and that during the experimental session they would be required to record the occurrence of their target thought using a counter. They were told that they should hold the counter in their dominant hand and that every time the target thought occurred they should record it by pressing the counter. The thought suppression instructions were adapted from the instructions used by Salkovskis and Campbell (1994) and were designed to ensure that the

target thought was mentioned an equal number of times in each condition (i.e. when referring to "your target thought" or "the thought"). For the Baseline condition the participants were presented with the following written instructions:

> Please record occurrences of your target thought. In this part of the experiment you can think about absolutely anything including your target thought. Do not suppress any thoughts. If the target thought occurs, record it.

The experimenter then left the room for 3 minutes. On their return they recorded the frequency of the target thought occurrence from the counter and then re-set it. The participant was then presented with the Suppression condition instructions:

> Please record occurrences of your target thought. In this part of the experiment it is very important that you try as hard as you can to suppress your target thought; but be sure to record the thought if it occurs. It is important that you continue in the same way for the full 3 minutes. If the target thought occurs, record it.

The experimenter then left the room again for 3 minutes, returned, and recorded the target thought frequency. The participant was then presented with the Free expression condition instructions:

> Please record occurrences of your target thought. In this part of the experiment you can think about absolutely anything including your target thought. Do not suppress any thoughts. If the target thought occurs, record it.

The participant was then left alone again for 3 minutes until the experimenter returned and recorded the target thought frequency. The procedure for the Suppression and Free expression conditions (together making up the first indulgence cycle) was then repeated in order to obtain the data for the second indulgence cycle. Finally, the participant was asked to complete the MOCI.

Results

A median split was performed on the basis of the MOCI scores (range = 0–23, mean = 7.7, $SD = 5.88$) in order to obtain high and low obsessionality groups. Participants with a score less than or equal to 6 were assigned to the low obsessionality group ($n = 23$) and participants with a score greater than 6 were assigned to the high obsessionality group ($n = 17$). The means for the high and low obsessionality groups are comparable with means previously reported in the literature (e.g. Sternberger and Burns, 1990).

Table 1 illustrates the mean thought frequencies and standard deviations for the high and low obsessionality groups as a function of stage of indulgence cycle (i.e. baseline, suppression 1, free expression 1, suppression 2 and free expression 2). The baseline thought occurrences are relatively homogenous for the two groups. However, they begin to diverge as stage of cycle progresses and by the second expression period a discrepancy in thought frequency between the two groups is apparent.

The means for the high obsessionality group demonstrate a similar incidence of thoughts in the baseline and suppression 1 conditions. There is an increase in thoughts in the first expression condition, indicative of a suppression-induced rebound effect. There is a decrease from the

Table 1. Thought frequencies for high and low obsessionality groups as a function of stage of indulgence cycle

Condition (stage)	Obsessionality group	Mean	Standard deviation
Baseline	High	5.24	3.99
	Low	5.52	3.81
Suppression 1	High	5.29	3.00
	Low	4.04	4.08
Expression 1	High	5.88	4.04
	Low	3.17	3.19
Suppression 2	High	5.41	4.27
	Low	3.74	4.03
Expression 2	High	7.12	5.23
	Low	3.78	3.94

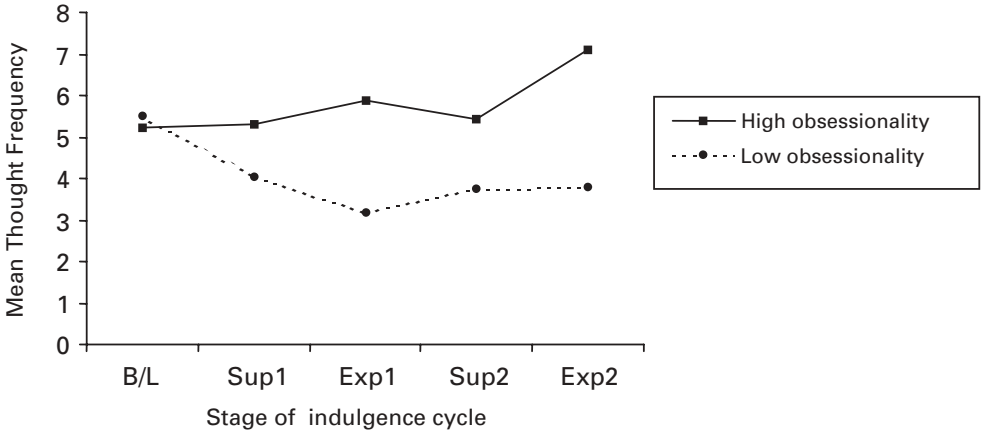

Figure 1. Thought frequency for high and low obsessionality groups as a function of stage of indulgence cycle

first expression to the second suppression period, suggesting that suppression is occurring. Thought frequency increases in the second expression condition, indicating a further rebound effect. This second rebound effect is greater in magnitude than the first rebound effect.

The low obsessionality group exhibit a decrease in thought frequency across the baseline, first suppression and first expression conditions. There is a slight increase between the first expression and second suppression condition. There is then a negligible increase in thought frequency from the second suppression to the second expression condition.

Profile analysis (Harris, 1975) is a statistical procedure analogous to repeated measures ANOVA. It is an appropriate way to conceptualize the analysis if it involves comparing two profiles of data. It was therefore used to determine whether the thought frequency profiles of the obsessionality groups differed according to stage of indulgence cycle (see Figure 1). Three tests are conducted in profile analysis (the parallelism test, the flatness test and the levels test). They will each be explained in turn together with their results.

First, the parallelism test assesses whether the groups have parallel profiles. This test examined whether stage of indulgence cycle led to the same changes in thought frequency in the high and low obsessionality groups, regardless of whether the actual occurrence of thoughts was the same (i.e. whether changes in thought frequency were parallel in the high and low obsessionality groups). The Mauchly test was significant ($W_{(9)} = 0.38$, $p < .001$), indicating violation of the assumption of sphericity, so the profiles were assessed using the Huynh-Feldt corrected degrees of freedom. The results indicated that the profiles deviated significantly from parallelism ($F_{(2.99,113.53)} = 2.96$, $p < .05$). This demonstrates that the impact of stage of indulgence cycle on thought frequency is dependent on an individual's trait obsessionality. Deviation from parallelism was evaluated using independent samples *t*-tests. No significant differences were found between the obsessionality groups at baseline or the first or second suppression periods ($t_{(38)} = 0.23$, $p > .05$, $t_{(38)} = -1.06$, $p > .05$, $t_{(38)} = -1.27$, $p > .05$ respectively). However, the high obsessionality group had a significantly higher incidence of thoughts relative to the low obsessionality group at the first and second expression periods ($t_{(38)} = -2.37$, $p < .01$ and $t_{(38)} = -2.30$, $p < 0.01$ respectively).

The second test in profile analysis is the flatness test. This examines whether the conditions (i.e. stage of indulgence cycle) elicit the same response (i.e. thought frequency) regardless of group (i.e. obsessionality). The test is only applicable to profiles that are parallel. Therefore the flatness test was not applicable, as the parallelism test indicated the profiles were not parallel so that stage of indulgence cycle impacted upon thought frequency differently depending on obsessionality.

Finally, the levels test evaluates whether there is a significant difference between the groups overall (i.e. when performance is averaged across the conditions). In this analysis, the levels tests therefore examined whether there was a significant difference in thought frequency between the high and low obsessionality groups overall, regardless of stage of indulgence cycle. The levels test was not significant. Therefore, the high obsessionality group did not have a greater incidence of thoughts overall relative to the low obsessionality group.

The main research hypothesis was that the high obsessionality group would exhibit a significant increase in thought frequency as a function of stage of indulgence cycle due to suppression related rebound effects. To examine this, paired samples *t*-tests were performed between the baseline condition and the first and second expression conditions. Neither the difference between baseline and the first expression condition or baseline and the second expression condition reached significance ($t_{(16)} = -0.84$, $p > .05$ and $t_{(16)} = -1.37$, $p > .05$ respectively).

To examine the impact of gender on thought frequency, independent samples *t*-tests were conducted between male and females for each stage of indulgence cycle. No significant differences were found in thought frequency at baseline ($t_{(38)} = 1.27$, $p > .05$), the first expression period ($t_{(38)} = -0.21$, $p > 0.05$), the first suppression period ($t_{(38)} = 0.73$, $p > .05$), the second suppression period ($t_{(38)} = -0.56$, $p > .05$) and the second expression period ($t_{(38)} = 0.00$, $p > .05$).

Discussion

The results indicate that the main hypothesis was not supported and that high obsessionality individuals did not experience a significant increase in thought frequency as a function of indulgence cycle. However, the low obsessionality group demonstrated a significantly different pattern of responding, with suppression resulting in a decrease in thought frequency. This group

difference is consistent with evidence reported by Smari et al. (1995). Rutledge (1998) found obsessionality led to increases in thought frequency only for females; however, there were no gender differences in thought frequency in this study. The results indicated that the differences were more apparent during the expression (or rebound) periods, whereas in the previous studies differences have been found during the suppression (or enhancement) period.

The primary finding may be explained by evidence suggesting that naturally occurring thoughts may be more amenable to suppression in the laboratory than experimentally provided thoughts (e.g. Kelly and Kahn, 1994). It seems that because naturally intrusive thoughts occur in real life, individuals have the opportunity to practise suppressing them and may become relatively effective at doing so. Individuals high in trait obsessionality would hold beliefs regarding the importance of controlling intrusive thoughts and so are likely to be practised at doing this. However, it appears that the possible benefits of practice demonstrated by the high obsessionality group may not persist if they were required, in a more realistic way, to attempt to suppress a thought for a longer period of time. Alternatively, it may be that the experimental setting ameliorated beliefs about controlling the thought, reducing subsequent anxiety and cognitive load. It seems that in order to fully reflect the processes involved in OCD, studies conducted in real-life settings would be beneficial. In addition, there was a trend towards an increase in thought occurrence across indulgence cycles, suggesting that including more cycles may well result in further, statistically significant, escalation in thought frequency.

Wegner's (1994) ironic process theory may be used to account for the difference found in thought frequency between the two groups. He proposes that when attempting suppression, an operating system (effortful and consciously guided) searches for mental contents congruous with the desired state whilst a monitoring system (unconscious and autonomous) searches for and alerts the operating system of failures to achieve the state. The two systems interact to produce mental control, with the monitoring system initiating the operating system when failures are detected. It is claimed that the anxiety experienced by individuals high in obsessionality would serve to interfere with the suppression process. Anxiety imposes a cognitive load that limits the operating process as it requires cognitive capacity to perform efficiently. This leads to more intrusions of the thought. Conversely, the low obsessionality group would have experienced less anxiety in relation to their intrusive thoughts. This would allow the operating system to perform more effectively.

Whilst the data are consistent with Wegner's theory of suppression, they do not directly confirm this. Participants may have continued to suppress even when given "do not suppress" instructions. The inclusion of manipulation checks would have examined whether participants were actually attempting suppression more during suppression compared to expression conditions. Conversely, it is conceivable that the results may have been obtained by repeated opportunities for expression. Measuring thought frequency for two cycles of an expression-expression control group would clarify this.

It is of note that the decrease in thought frequency observed for the low obsessionality group appears inconsistent with several studies that have demonstrated paradoxical effects of suppression (e.g. Lavy and van den Hout, 1990). However, as mentioned earlier, findings in this area have been inconsistent and it appears that a number of factors impact on the effectiveness of suppression, such as individual differences (Rutledge, Hancock and Rutledge, 1996) and type of thought (Kelly and Kahn, 1994). In addition, because of the repeated measures design participants had been primed for the thought prior to baseline. This may have led to an elevated occurrence of thoughts in low obsessionality group that then declined during the course of the experiment.

In conclusion, more research is clearly needed before the role of thought suppression in the development of obsessions can be elucidated. Future work should aim to reflect the processes involved in OCD. This could involve consideration of metacognitive beliefs and affect, both of which have been shown to be central to the development of OCD. The area also has implications for intervention, since cognitive therapy for OCD has tended to focus on addressing metacognitive beliefs and appraisals of intrusive thoughts whilst behaviour therapy has addressed the neutralizing behaviours (Van Oppen and Arntz, 1994). The present study suggests that it may be fruitful to investigate why suppression leads to different outcomes in individuals high and low on trait obsessionality.

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