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Thought-action fusion and thought suppression in obsessive-compulsive disorder

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Abstract

To examine the significance of thought-action fusion (TAF) and thought suppression tendencies, the present study obtained pre- and post-treatment questionnaire data on these constructs in a sample of OCD patients ($n=24$) and non-OCD anxiety patients ($n=20$). Results indicate that TAF and suppression are correlated with severity of psychopathology. Yet, the associations between TAF and psychopathology are not typical for OCD, but do also occur in other anxiety disorders (e.g., panic disorder, post traumatic stress disorder, and social phobia). As well, mean scores on the TAF and thought suppression measures dropped significantly from pre- to post-treatment, indicating that TAF and thought suppression are susceptible to change during psychotherapy. © 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Obsessive-compulsive disorder; Thought-action fusion; Thought suppression; Treatment efficacy

1. Introduction

In their by now classic study, Rachman and De Silva (1978; see also Salkovskis & Harrison, 1984) noted that everyday intrusions and clinical obsessions as seen in obsessive-compulsive disorder (OCD; American Psychiatric Association, 1994) do not differ in content. Differences between both kinds of intrusions do occur, however, with respect to frequency, intensity, discomfort, and elicited resistance, with clinical obsessions being characterised more strongly by these qualities than 'normal' intrusions. To account for the similarities and differences between

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normal and abnormal intrusions, two theories have been invoked. The first emphasises the importance of the interpretation that people give to their intrusions (Rachman, 1993, 1997, 1998; Salkovskis, 1985). According to this cognitive theory, obsessional problems may arise when individuals experience an inflated sense of responsibility for their own thoughts. For example, the belief that intrusive thoughts reveal one's true nature will lead to more discomfort whenever unwanted violent and/or sexual intrusions occur. Such biased appraisals may add obsessive qualities (e.g., increased discomfort, tension, anxiety, and resistance) to intrusive thoughts. Rachman, Thordarson, Shafran and Woody (1995) articulated a refined version of this cognitive account of OCD. According to this version, two types of cognitive bias may be specifically involved in the development of obsessive-compulsive symptoms (see also Emmelkamp & Aardema, 1999). The first bias consists of the tendency to believe that merely thinking about an unpleasant situation (e.g., a car accident) increases the likelihood that this situation will actually occur. This bias is known as the likelihood or probability bias. The second bias consists of the tendency to believe that having immoral thoughts (even involuntary ones) about, for example, violence is as bad as immoral behaviour (e.g., acting violently). This bias is termed morality bias. Together, probability, and morality bias constitute the essential elements of what has been dubbed 'thought-action fusion' (TAF; Shafran, Thordarson & Rachman, 1996). In general terms, TAF refers to the tendency to overvalue the significance and consequences of intrusive thoughts.

A second theory, addressing the similarities and differences between normal and clinical intrusions focuses on the role of thought suppression in the exacerbation of intrusive thoughts. There is good reason to believe that under some conditions, cognitive avoidance strategies such as thought suppression may be counterproductive. For example, in their often cited studies, Wegner, Schneider, Carter and White (1987) showed that suppression attempts result in more rather than less intrusions. This paradoxical phenomenon is known as the 'white bear effect', because Wegner et al. used thoughts of white bears as targets. While the content of this target is, of course, neutral, its heightened frequency is, at least to some extent, reminiscent of obsessional thinking. Most importantly, such a heightened frequency may elicit discomfort. Accordingly, Wegner (1989) claims that the paradoxical effect of thought suppression may result in full blown obsessions: "An obsession can grow from nothing but the desire to suppress a thought" (p. 167).

There is some evidence to suggest that both TAF (e.g., Rassin, Merckelbach, Muris & Spaan, 1999) and thought suppression (see Purdon, 1999) are implicated in obsessive-compulsive symptomatology. Some authors have even speculated that TAF and thought suppression may interact in the development of obsessional problems and there are some preliminary results that support this position (Rachman, 1998; Rassin, Muris, Schmidt & Merckelbach, 2000). However, a number of questions remain to be answered. For example, there is some dispute about the question of whether thought suppression is a causal antecedent of OCD-related symptoms or rather a consequence or part of such symptoms (see Rassin, Merckelbach & Muris, 2000). Furthermore, it is relevant to determine to what extent TAF and suppression tendencies are susceptible to change due to therapeutic intervention. Rachman (1997) emphasises that in the treatment of OCD, changing misinterpretations of intrusions is an important goal: "It follows from the theory that the most direct and satisfactory treatment of obsessions is to assist patients in the modification of the putatively causal catastrophic misinterpretations of the significance of their intrusive thoughts. Bluntly, if these misinterpretations are 'corrected', the obsession should cease" (p. 799). As to thought suppression, it should be noted that Wegner and Zanakos (1994) tend to think of this

mental control strategy as a stable, trait-like coping style. In their words: “self-reports of thought suppression are reliable over time and thus fulfill an important criterion for recognition as a trait” (p. 624). By this view, thought suppression tendencies should be resistant to change.

In the present study, the significance of TAF and thought suppression was examined by administering self-report instruments to OCD-patients prior to and after therapy. If TAF and thought suppression tendencies act as important determinants of obsessional problems, one would expect that pre-treatment scores on questionnaires tapping these phenomena predict symptom severity and, perhaps, treatment efficacy. Also, if TAF and thought suppression are trait-like phenomena, one would anticipate that pre- and post-treatment scores on these questionnaires remain fairly constant.

2. Method

2.1. Patients

Forty-four patients (32 women) participated in the study. Mean age was 32.8 years ($SD=9.2$; range: 18–58). Two groups of patients were formed. The first consisted of 24 patients (16 women) who met DSM-IV criteria for OCD (American Psychiatric Association, 1994). The second group consisted of 20 patients (16 women) who suffered from other anxiety disorders, such as panic disorder ($n=7$), post traumatic stress disorder ($n=4$), and social phobia ($n=4$). None of them had a comorbid diagnosis of OCD. There were no group differences with respect to age ($t[42]=1.4$, $p=0.17$) or gender ($\chi^2=0.98$, $p=0.32$). All participants received treatment at the Overwaal Clinic, Nijmegen, The Netherlands. This is an inpatient facility specialised in the treatment of anxiety disorders.

2.2. Procedure and measures

Patients completed a number of questionnaires (see below) on two occasions: during admission to the clinic (before treatment) and at the end of their treatment. Treatment consisted of cognitive-behavioural interventions, the precise nature of which depended on the type of symptoms (e.g., exposure and response prevention in the case of OCD, cognitive therapy in the case of panic disorder). Mean treatment duration was 5.9 months ($SD=2.1$; range: 2–10 months). Before and after treatment, patients filled in the TAF-scale (Shafran et al., 1996), the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), the Maudsley Obsessional-Compulsive Inventory (MOCI; Hodgson & Rachman, 1977), and the Symptoms Checklist (SCL-90; Derogatis, 1977).

The TAF-scale (pre-treatment Cronbach's $\alpha=0.91$; $N=44$) contains 19 items addressing the morality bias (12 items, e.g., “Having a blasphemous thought is almost as sinful to me as a blasphemous action”, $\alpha=0.92$), the probability-for-self bias (three items, e.g., “If I think of myself falling ill, this increases the risk that I will fall ill”, $\alpha=0.74$), and the probability-for-others bias (four items, e.g., “If I think of a relative/friend being in a car accident, this increases the risk that he/she will have a car accident”, $\alpha=0.91$). All items are answered on a 5-point scale (0=*disagree strongly*; 4=*agree strongly*). Total scores range from 0 to 76, with higher scores indicating stronger TAF.

The WBSI ($\alpha=0.85$) is a 15-items self-report instrument that addresses the habitual tendency to suppress unwanted thoughts. A typical WBSI-item is “I always try to put problems out of mind”. Items are answered on a 5-point scale (1=*strongly disagree*; 5=*strongly agree*). Total scores (range: 15–75) are obtained by summing across items. Higher scores indicate stronger tendencies to suppress unwanted thoughts.

The MOCI ($\alpha=0.83$) consists of 30 *yes/no* items (e.g., “I spend a lot of time every day checking things over and over again”) that describe various obsessive-compulsive symptoms, namely checking ($\alpha=0.84$), cleaning ($\alpha=0.69$), slowness ($\alpha=0.60$), and doubting ($\alpha=0.50$). Every endorsed item yields one point. Higher total scores (range: 0–30) reflect the presence of more obsessive-compulsive symptoms.

The SCL-90 ($\alpha=0.96$) is a widely used self-report index of general psychopathology. It measures a broad range of psychopathological symptoms such as anxiety, depression, obsessional problems, and sleep disturbances. Items are answered on a 5-point scale (1=*not at all*; 5=*a lot*). Total scores range from 90 to 450 with higher scores indicating more self-reported psychopathology.

3. Results

Mean scores on self-reports for patients with OCD and patients with other anxiety disorders are summarised in Table 1. A 2 (groups) \times 2 (time: pre-treatment vs post-treatment) multivariate analysis of variance (MANOVA) with repeated measures on the last factor revealed a main effect of time. That is, scores on all measures dropped significantly from pre- to post-treatment: $F(4,38)=13.4$, $p<0.001$. Furthermore, there was a main effect of group: $F(4,38)=3.0$, $p=0.03$. This

Table 1

Mean pre- and post-treatment scores (and standard deviations) on questionnaires for OCD patients ($n=24$) and patients suffering from other anxiety disorders ($n=20$)^a

	OCD		Other anxiety disorders	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
TAF-scale	31.5 (15.0)	25.4 (14.6)	30.7 (14.1)	19.9 (16.3)
Morality	21.5 (10.5)	18.9 (11.3)	20.3 (10.6)	13.5 (11.1)
Probability-self	5.0 (3.1)	3.6 (3.2)	5.6 (2.9)	3.3 (3.2)
Probability-others	4.9 (5.0)	2.9 (3.9)	4.9 (4.4)	3.2 (4.3)
WBSI	57.7 (11.0)	53.9 (12.4)	60.0 (8.6)	51.4 (12.4)
MOCI	14.0 (5.8)	9.0 (5.1)	9.3 (4.6)	6.0 (4.0)
Checking	5.2 (3.0)	3.2 (2.6)	3.7 (2.2)	2.1 (2.1)
Cleaning	3.1 (2.5)	1.8 (2.0)	1.3 (1.2)	1.3 (1.0)
Slowness	3.5 (1.6)	1.9 (1.7)	2.7 (1.6)	1.5 (1.5)
Doubting	4.4 (1.6)	3.5 (1.9)	3.5 (1.8)	2.3 (1.6)
SCL-90	229.5 (62.3)	157.5 (43.6)	233.8 (48.8)	166.4 (48.3)

^a TAF-scale=Thought-action fusion scale; WBSI=White bear suppression inventory; MOCI=Maudsley obsessional-compulsive inventory; SCL-90=Symptoms checklist.

Table 2

Pre-treatment correlations between questionnaires for OCD patients ($n=24$)^a

	WBSI	MOCI	Checking	Cleaning	Slowness	Doubting	SCL-90
TAF-scale	0.15	0.36	0.40	0.25	0.19	0.11	0.45*
Morality	−0.05	0.25	0.30	0.13	0.16	0.06	0.43*
Probability-self	0.38	0.42	0.27	0.52*	0.35	0.16	0.22
Probability-others	0.32	0.28	0.40	0.18	0.01	0.09	0.31
WBSI		0.61**	0.65**	0.35	0.45*	0.53**	0.55**
MOCI			0.87**	0.70**	0.72**	0.76**	0.61**

^a TAF-scale=Thought-action fusion scale; WBSI=White bear suppression inventory; MOCI=Maudsley obsessional-compulsive inventory; SCL-90=Symptoms checklist. * $p<0.05$; ** $p<0.01$.

effect was carried by a group difference in MOCI-scores ($p<0.01$). The group \times interaction failed to attain significance: $F(4,38)=2.2$, $p=0.09$.

To examine their specificity, Pearson product-moment correlations were computed between pre-treatment TAF and thought suppression, on the one hand, and pre-treatment psychopathology, on the other hand. This was done for OCD and non-OCD patients, separately. The results are shown in Tables 2 and 3. As can be seen, TAF and its components were found to correlate with some of the obsessional and general psychopathology measures (i.e., MOCI and SCL-90, respectively) in both groups of patients. In contrast, thought suppression (i.e., WBSI) was found to correlate with obsessional and general psychopathology in OCD patients but not in patients with other disorders.

To investigate whether TAF and thought suppression underwent changes during therapy, correlations between pre- and post-treatment scores were calculated. As can be seen in Table 4, TAF and thought suppression possessed some temporal stability in OCD patients. In patients suffering from other disorders, such stability was less evident. Even after the influence of MOCI and SCL-90 was partialled out, total TAF-scale, morality, probability-self, probability-others, and WBSI scores of OCD patients remained significantly correlated over time (partial $r_s=0.83$, 0.86, 0.83, 0.78, and 0.53, respectively).

To examine the impact of TAF and thought suppression tendencies on treatment efficacy, pre-treatment TAF-scale and WBSI scores were correlated with pre- to post-treatment changes in MOCI and

Table 3

Pre-treatment correlations between questionnaires for patients suffering from other anxiety disorders ($n=20$)^a

	WBSI	MOCI	Checking	Cleaning	Slowness	Doubting	SCL-90
TAF-scale	0.22	0.48*	0.61**	0.24	0.28	0.13	0.43
Morality	0.19	0.42	0.52*	0.25	0.28	0.13	0.45*
Probability-self	0.05	0.08	0.22	0.01	−0.24	0.06	0.01
Probability-others	0.20	0.47*	0.58**	0.15	0.54*	0.05	0.30
WBSI		0.15	0.19	−0.08	0.07	0.20	0.31
MOCI			0.89**	0.61**	0.70**	0.70**	0.08

^a TAF-scale=Thought-action fusion scale; WBSI=White bear suppression inventory; MOCI=Maudsley obsessional-compulsive inventory; SCL-90=Symptoms checklist. * $p<0.05$; ** $p<0.01$.

Table 4

Correlations between pre- and post-treatment measurements for OCD patients ($n=24$) and patients suffering from other anxiety disorders ($n=20$)^a

	OCD	Other anxiety disorders
TAF-scale	0.62**	0.40
Morality	0.65**	0.53*
Probability-self	0.74**	0.07
Probability-others	0.69**	0.56*
WBSI	0.52**	0.43
MOCI	0.43	0.43
Checking	0.52*	0.41
Cleaning	0.63**	0.49*
Slowness	0.18	0.71*
Doubting	0.49*	0.14
SCL-90	0.31	0.20

^a TAF-scale=Thought-action fusion scale; WBSI=White bear suppression inventory; MOCI=Maudsley obsessional-compulsive inventory; SCL-90=Symptoms checklist. * $p<0.05$; ** $p<0.01$.

SCL-90 scores (corrected for pre-treatment MOCI and SCL-90 scores). Neither TAF-scale (including subscales) nor WBSI scores correlated with changes in MOCI or SCL-90. This was true for OCD patients (highest correlation=0.23, ns) as well as non-OCD patients (highest correlation=-0.30, ns).

4. Discussion

The results of the present study can be summarised as follows. First, no indications were found to suggest that TAF is specifically tied to OCD. Not only did OCD and non-OCD patients have similar pre- and post-treatment scores on the TAF-scale, there were also significant correlations between pre-treatment TAF and psychopathology in the non-OCD patient group. As to thought suppression, OCD and non-OCD patients did not differ in their pre-treatment scores on the WBSI, but in this case, significant associations between pre-treatment thought suppression scores and psychopathology were only evident for the OCD group. Taken together, these findings suggest that thought suppression and, especially TAF are not, or only to a moderate degree, specifically linked to OCD. In other words, TAF and thought suppression seem to possess a broad relevance. In this particular respect, their position seems to be similar to that of attentional bias, which is also a phenomenon that occurs in a wide variety of anxiety disorders, though its ramifications might be greater in some conditions than in others (e.g., Williams, Watts, MacLeod & Mathews, 1997). Indeed, thought suppression has been documented in such diverse conditions as PTSD, Generalised Anxiety Disorder, and phobia (see, for reviews, Purdon, 1999; Rassin et al., 2000). Much the same may be true for TAF. For example, Shafran, Teachman, Kerry and Rachman (1999) argued that a TAF-like bias ('thought-shape fusion') may be related to maladaptive dieting habits that occur in eating disorders.

The absence of correlations between TAF and thought suppression is somewhat surprising. In theory, the increased discomfort caused by TAF might be a strong reason to engage in cognitive

avoidance strategies such as thought suppression. In the words of Rachman (1998): “an inflated increase in the significance attached to an unwanted intrusive thought, such as obsession, will lead to more vigorous and intense attempts to suppress such thoughts” (p. 393). However, results suggest that the participants in the current study tended to react with other coping strategies to TAF (e.g., checking and cleaning; see also Shafran et al., 1996).

Second, correlational analyses indicated that TAF and thought suppression exhibit some kind of temporal stability in OCD, but hardly or not in other anxiety disorders. Thus, while TAF and thought suppression occur in a variety of conditions, their tenacity might be greater in OCD than in other anxiety disorders. Clearly, this point warrants further study. Third, despite the significant longitudinal correlations of TAF and thought suppression, mean scores on all measures dropped significantly after treatment. This suggests that TAF and thought suppression are accessible to and can be modified by therapeutic interventions. Of course, in the absence of adequate control groups, the present data can not address the issue of whether some therapies are more effective in this respect than others. Furthermore, little or nothing is known about the natural course of TAF and thought suppression tendencies in OCD. Future studies should look at this important topic.

The fourth finding revolves around the hypothesis that strong pre-treatment TAF and thought suppression tendencies might hinder treatment efficacy. Thus, higher scores on the TAF-scale and WBSI at therapy outset were expected to be related to smaller reductions in MOCI and SCL-90 scores. Results indicate, however, that this was not the case. That is, TAF-scale and WBSI scores were not found to be correlated with reduction in self-reported psychopathology. Thus, the pathology maintaining potential that is ascribed to TAF and suppression is not borne out by the data. In fact, our results can be more readily accommodated by the view that TAF and thought suppression are features of pathological anxiety. That is not to say that TAF and thought suppression may not intensify the development of obsessional problems, but rather that the current data do not support the notion that TAF and thought suppression play a maintaining role in OCD. An interesting alternative angle¹ is that the therapeutic intervention decreased TAF and thought suppression tendencies, which in turn resulted in attenuation of psychopathology. The finding that pre- to post-treatment changes in TAF and thought suppression correlated significantly with changes in self-reported psychopathology (after the influence of pre-treatment scores was partialled out, correlations ranged between 0.46 and 0.55, $p < 0.01$) may be considered to indirectly support the idea that changes in pathology were mediated by therapy-induced changes in TAF and thought suppression.

Three limitations of the present study deserve some comment. First, our study relied on inpatients. It may well be the case that a higher degree of specificity and stability of TAF and thought suppression would be found if outpatients were examined. Second, our study did not include follow-up measures. Meanwhile, it is possible that the role of TAF and thought suppression in maintaining psychopathology becomes only evident when follow-up data are collected in the months after treatment. Third, our study did not include a normal control group and TAF and thought suppression were measured at a point in time when psychopathology had already developed.

To sum up, then, our results suggest that TAF and thought suppression (1) are not exclusively linked to OCD, and (2) are susceptible to change.

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