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INTRUSIVE THOUGHTS, RESPONSIBILITY ATTITUDES, THOUGHT-ACTION FUSION, AND CHRONIC THOUGHT SUPPRESSION IN RELATION TO OBSESSIVE-COMPULSIVE SYMPTOMS

Jakob Smári and Hólmsteinn Eidur Hólmsteinsson

University of Iceland, Reykjavik, Iceland

Abstract. Relationships between obsessive-compulsive symptoms and several cognitive constructs that are theoretically related to such symptoms were investigated among university students. A total of 211 subjects filled in a measure of the frequency of intrusive thoughts based on Clark and de Silva (1985), Salkovskis' Responsibility Attitudes Scale (RAS) (Salkovskis et al., 2000), the Thought-Action Fusion Scale (TAF) (Shafran, Thordarson, & Rachman, 1996), Wegner and Zanakos' (1994) White Bear Suppression Inventory (WBSI), and the Maudsley Obsessive-Compulsive Inventory (MOCI) (Hodgson & Rachman, 1977). The main hypothesis addressed was that in accordance with Salkovskis' model (1996) responsibility and thought suppression serve as mediators between intrusive thoughts and obsessive-compulsive symptoms as measured with the MOCI. The results were consistent with the model.

Keywords: Responsibility, chronic thought suppression, obsessive-compulsive symptoms.

Introduction

Cognitive conceptions of obsessive-compulsive symptoms have gained momentum in recent years (Rachman, 1997, 1998). Among these Salkovskis' (1996) model has perhaps been the most influential. The model is based on the idea that intrusive thoughts are more or less ubiquitous in daily life. Thus such thoughts are not limited to people suffering from obsessive-compulsive disorder. According to the model the appraisal of intrusive thoughts is pivotal in determining whether they lead or not to strategies that in turn maintain obsessive-compulsive symptoms.

Salkovskis (1996) emphasised responsibility appraisal in his cognitive behavioural model of obsessive-compulsive disorder. This means that intrusive thoughts are interpreted as having implications for taking action to prevent harm and that the neglect of taking action would in turn imply blame. Consequently, corrective or preventative action ensues. If responsibility appraisal is not involved negative affect may follow the occurrence of intrusive thoughts but without the subsequent use of remedial strategies. It is, however, the use

Reprint requests to Jakob Smári, Faculty of Social Science, University of Iceland, 101 Reykjavik, Iceland. E-mail: jakobsm@rhi.hi.is

of such strategies that according to the model increases the frequency and salience of intrusive thoughts.

Among the counterproductive strategies used in response to responsibility appraisals is thought suppression. Contrary to intent, thought suppression may instantaneously or subsequently render the suppressed thought more frequent (Wegner, Schneider, Carter, & White, 1987; Wegner, 1994). Thought suppression has been implicated as a possible factor in maintaining intrusive thoughts in obsessive-compulsive disorder (see Purdon, 1999, for a review). Also, chronic thought suppression has been defined and measured as a trait and found to be related to obsessive symptoms (Wegner & Zanakos, 1994).

There has been some confusion with regard to how responsibility should be conceptualized and measured. Recent clarifications promise to resolve these issues (Obsessive-Compulsive Cognitions Working Group, 1997). In Salkovskis et al. (2000) two different measures of responsibility were investigated: a measure of responsibility attitudes and beliefs and a measure of appraisal of responsibility for particular cognitive intrusions. Responsibility attitudes reflect stable beliefs or schemas whereas responsibility appraisals are specific operations largely determined by responsibility attitudes. Both measures were found to distinguish between obsessive-compulsive patients and controls and to correlate with obsessive-compulsive symptomatology measured with self-report. A French translation of Salkovskis' Responsibility Attitudes Scale (RAS) was similarly found to distinguish between obsessive-compulsive patients and controls (Bouvard, Havard, Ladouceur, & Cottraux, 1997). Several other studies have addressed different aspects of responsibility in relation to obsessive-compulsive symptoms and obsessive-compulsive disorder. Support for the general notion that responsibility is important in obsessive-compulsive symptomatology has been found in several correlational and experimental studies (Freeston, Ladouceur, Thibodeau, & Gagnon, 1992; Ladouceur et al., 1995; Lapotka & Rachman, 1995; Shafran, 1997). Recently, Salkovskis and his colleagues have advanced hypotheses concerning the origin of responsibility attitudes (Salkovskis, Shafran, Rachman, & Freeston, 1999).

A recent construct related to inflated responsibility is thought-action fusion (Shafran et al., 1996). Thought-action fusion implies a tendency to consider thoughts and actions as morally equivalent, as well as the belief that a thought about an event may render it more probable. Thought-action fusion has been found to be related to obsessive-compulsive symptomatology (Rachman, Thordarson, Shafran, & Woody, 1995). It seems reasonable that thought-action fusion may serve a similar role as responsibility attitudes in that context.

It seems important to investigate Salkovskis' model of obsessive-compulsive symptoms as a whole, that is, the hypothesized links between intrusive thoughts and obsessive-compulsive symptoms. Thus in the present study we address the question of whether responsibility attitudes and chronic thought suppression mediate between intrusive thoughts and obsessive-compulsive symptoms. It is assumed here that responsibility attitudes are related to responsibility appraisals of particular intrusive thoughts and that chronic thought suppression in turn is related to the use of suppression strategies following such appraisals. It should be emphasized that thought suppression is of course only one of several possible strategies that mediate between responsibility and obsessive-compulsive symptoms. The supposed relationships between intrusive thoughts, responsibility appraisal (responsibility attitudes), thought suppression (chronic thought suppression) and obsessive-compulsive symptoms are described in Figure 1.

We hypothesized that a substantial part of the relationship between intrusive thoughts and

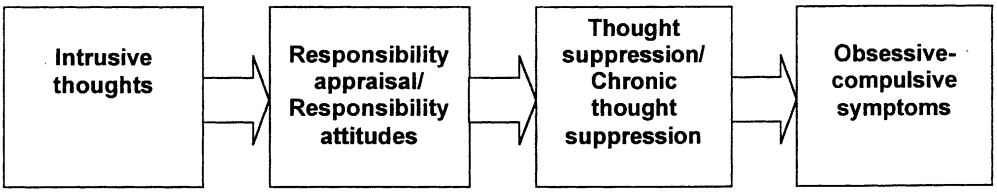

Figure 1. Presumed relationships between intrusive thoughts, responsibility appraisal (responsibility attitudes), thought suppression (chronic thought suppression) and obsessive-compulsive symptoms

obsessive compulsive symptoms is mediated by responsibility attitudes and chronic thought suppression. First, responsibility attitudes were expected to mediate between intrusive thoughts and chronic thought suppression. Second, chronic thought suppression was expected to mediate between responsibility attitudes and obsessive-compulsive symptoms. Finally, responsibility attitudes and chronic thought suppression were expected to mediate between intrusive thoughts and obsessive-compulsive symptoms. Further, we hypothesized that intrusive thoughts, responsibility attitudes as well as chronic thought suppression contribute independently to obsessive-compulsive symptoms. This means that these constructs, even thought interdependent, are not redundant with regard to their influence on obsessive-compulsive symptoms. Further, we explored whether thought-action fusion played a similar role as responsibility attitudes measured with RAS in the intrusive thoughts-obsessive-compulsive symptoms relationship.

Method

Subjects

A total of 211 undergraduate students of social science served as subjects. Of these, 137 were female and 74 were males. The average age was 25.6 years (*SD* = 7.6).

Measures

Responsibility Attitudes Scale (RAS) (Salkovskis et al., 2000). This is a scale of 26 items designed to assess general beliefs about responsibility. The items are rated on a 7-point scale with regard to how much the subject agrees with the item most of the time. The items included: ‘‘I often feel responsible for things that go wrong’’, ‘‘I am often close to causing harm’’. An Icelandic translation of the scale was used. The RAS was back-translated into English to ensure accuracy. The alpha coefficient in the present study was .87.

Thought-Action Fusion Scale (TAF) (Shafran et al., 1996). This is a scale of 19 items. These items are rated on a 5-point scale between 0 = disagree strongly and 4 = agree strongly. There are three subscales in the TAF: morality, increased likelihood for others, increased likelihood for self. An Icelandic translation of the scale was used in the present study. The TAF was back-translated into English to ensure accuracy. The alpha coefficient was .89. A principal component analysis of the data of the present study yielded two factors

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based on the scree test. All the morality items loaded on the first factor and the likelihood items on the second factor. In this study only the total score was used.

White Bear Suppression Inventory (Wegner & Zanakos, 1994). This is a 15-item inventory constructed to measure chronic tendencies to suppress intrusive thoughts. Each item is rated on a 5-point scale (between 1 = totally disagree and 5 = totally agree). This inventory has been translated into Icelandic and back-translated. The alpha coefficient in the present study was .88.

Maudsley Obsessive-Compulsive Inventory (MOCI) (Hodgson & Rachman, 1977). This classic measure of obsessive-compulsive symptoms contains 30 items that are rated on two response options (agree or disagree). Originally four different factors were described: checking compulsions (7 items), washing compulsions/contamination (11 items), obsessional slowness/repetition (7 items) and doubting/conscientiousness (7 items). The Icelandic version of this inventory has shown similar alpha coefficients to previous studies in student populations among students and evidence of convergent validity (Smári, Bjarnason, Thorleifsson, Sturludóttir, & Hafsteinsdóttir, 1994). The alpha coefficient in the present study was .72.

Intrusive Thoughts. This is a scale of distressing thoughts adapted from Clark and de Silva (1985). The Distressing Thoughts Questionnaire developed by Clark and de Silva consists of six anxious thoughts and image statements and six depressive thoughts and image statements. These statements are rated on a number of cognitive parameters. In the present adaptation of the questionnaire the six depressing and the six anxious thoughts described by Clark and de Silva (1985) were rated on a 5-point scale with regard to frequency of occurrence (between 0 = never and 4 = constantly). The alpha coefficient in the present study was .80.

Procedure

The five scales were given to the subjects in a counterbalanced order with the exception that the Intrusive Thoughts scale was always presented first.

Statistical analyses

Correlation coefficients were calculated between all the principal variables. The role of responsibility and chronic thought suppression as mediators between intrusive thoughts and obsessive compulsive symptoms was tested with a series of regression analyses according to the suggestions of Baron and Kenny (1986) and Wilson and Chambless (1999). Then a hierarchical multiple regression analysis was conducted with the MOCI scores as the dependent variable. Intrusive thoughts were entered on step 1, Responsibility (or TAF) on step 2, and the WBSI scores on step 3. Thought-action fusion (TAF) was taken into consideration for exploratory purposes.

Results

Means and standard deviations were calculated for all the principal variables (results are shown in Table 1). Correlations were calculated between responsibility attitudes (RAS),

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Table 1. Means and standard deviations of principal variables. Also data from selected studies

	This study (students)		Salkovskis et al. (2000) (non-clinical)		Salkovskis et al. (2000) (obsessionals)		Shafran et al. (1996) (students)		Shafran et al. (1996) (obsessionals)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Age	25.6	7.6	38.4	16.8	34.5	10.6	20		40	
Intrusive thoughts	26.9	5.6								
RAS	3.8	.62	3.5	1.01	4.7	1.01				
TAF	19.8	11.7					24		29	
WBSI	44.4	10.8								
MOCI	6.4	3.8	3.6	3.3	14.2	6.1	8.6	5.3	16.4	5.4

thought-action fusion (TAF), chronic thought suppression (WSBI) and the scores on the MOCI. The results are shown in Table 2.

The roles of responsibility and thought suppression as mediators between intrusive thoughts and obsessive-compulsive symptoms were investigated. As mentioned by Wilson and Chambless (1999) (based on Baron & Kenny, 1986), the minimal requirements for demonstrating mediation are: 1) that the mediators are correlated with the variables between which they are supposed to mediate, that these variables are themselves correlated; and 2) that the relationship between the independent variables and the dependent variable is weakened or eliminated when the model controls for potential mediators. For the first requirement it is evident that there are at least moderate correlations between all the relevant variables (see Table 2). To address the second requirement a series of regression analyses was conducted. In the first the role of responsibility as a mediator between intrusive thoughts and chronic thought suppression was investigated. The beta coefficient for intrusive thoughts dropped from .53 ($t = 9.09$, $p < .001$) to .44 ($t = 7.23$, $p < .001$) with responsibility in the equation. Second, the role of chronic thought suppression as a mediator between responsibility and obsessive-compulsive symptoms was addressed. The beta coefficient for responsibility dropped from .40 ($t = 6.3$, $p < .001$) to .29 ($t = 4.3$, $p < .001$) with chronic thought suppression in the equation. Finally the role of responsibility and chronic thought suppression as mediators between intrusive thoughts and obsessive-compulsive symptoms was investigated. The beta coefficient for intrusive thoughts now dropped from .39 ($t = 6.07$, $p < .001$) to .20 ($t = 2.70$, $p < .01$). It should be mentioned that controlling for TAF instead

Table 2. Correlations between intrusive thoughts, responsibility (RAS), thought-action fusion (TAF), chronic thought suppression (WBSI) and obsessionality (MOCI)

	2	3	4	5
1) Intrusive thoughts	.37	.27	.52	.38
2) RAS		.47	.41	.40
3) TAF			.29	.37
4) WBSI				.40
5) MOCI				

For all correlations $p < .001$

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Table 3. Hierarchical regression analysis on MOCI scores. A) Intrusive thoughts entered on step 1, RAS entered on step 2 and WBSI entered on step 3. B) Intrusive thoughts entered on step 1, TAF entered on step 2 and WBSI entered on step 3

A)

	Beta	*p*	*Partial*	*Part*
Step 3				
Intrusive thoughts	.20	.01	.19	.16
RAS	.25	.001	.25	.23
WBSI	.19	.02	.17	.15

Rsquare = .27, Rsq. ch. step 1 = .15 ($p < .001$); Rsq. ch. step 2 = .08 ($p < .001$); Rsq. ch. step 3 = .02 ($p < .05$).

B)

	Beta	*p*	*Partial*	*Part*
Step 3				
Intrusive thoughts	.21	.01	.20	.17
TAF	.25	.001	.26	.23
WBSI	.21	.02	.20	.17

Rsquare = .27, Rsq. ch. step 1 = .15 ($p < .001$); Rsq. ch. step 2 = .07 ($p < .001$); Rsq. ch. step 3 = .03 ($p < .01$).

of RAS led to highly similar results. On the whole there is thus evidence for the mediating role of responsibility and thought suppression, even though a substantial part of the variance is still not accounted for.

The independent contributions of the cognitive variables to obsessive-compulsive symptoms were then investigated in a hierarchical regression analysis. The independent variables were entered in the order in which they are supposed to operate according to Salkovskis' model. First we entered intrusive thoughts, on the second step RAS scores (or TAF scores), and finally the WBSI scores (see Table 3). An analysis of the residuals indicated that assumptions were not violated. Each supposed link in the model added significantly to the prediction of obsessive-compulsive symptoms.

Finally, it might be suggested that WBSI reflects partly obsessive thoughts and might thus be confounded with obsessive-compulsive symptomatology. Thus we followed Wegner and Zanakos (1994) and reanalyzed the data using a reduced version of the WBSI free of items possibly referring to obsessive thoughts. The results with the reduced version were essentially the same and the correlation between the full and the reduced versions was .94.

Discussion

The relationships between the cognitive measures and MOCI scores in this study were similar to what has been found in previous studies. Also, mean scores on the measures were similar to what has been found earlier with student or non-clinical populations. The results of the study were also consistent with Salkovskis' model of the role of responsibility and thought suppression in maintaining obsessive-compulsive symptoms. Controlling for the

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variables supposedly mediating between intrusive thoughts and obsessive-compulsive symptoms led to reductions in the relationship between intrusive thoughts and obsessive-compulsive symptoms. There was, however, still a significant correlation between intrusive thoughts and obsessive-compulsive symptoms. This may be due to the fact, for example, that idiosyncratic responsibility appraisals are not accounted for by the RAS measure. Interestingly, thought-action fusion measured by TAF yielded highly similar results to those obtained with the RAS. This is not surprising as both measures might be expected to be highly related to responsibility appraisals. Also, strategies other than thought suppression may mediate some of the relationship between intrusive thoughts and obsessive-compulsive symptoms. Furthermore, the hierarchical regression analyses yielded evidence for an independent role for each link in the theoretical model over and above the others.

There are of course several cautionary remarks to be made. First, the study is cross-sectional. Theoretically, however, the temporal relationships assumed are in the following order: intrusive thoughts, responsibility appraisal, thought suppression and obsessive-compulsive symptoms. Even if the data are consistent with the model there is no direct support for the order of influences assumed in Salkovskis' model. Thus future studies should, of course, take that order into account. We have here emphasized the role of thought suppression. However, the effects of thought suppression have been somewhat unstable in experimental studies. For example, a recent study failed to find an increase in the frequency of obsessive thoughts in obsessive-compulsive subjects using thought suppression (Jancek & Calamari, 1999). How thought suppression influences thought frequency may be more complicated than previously assumed. Thus Purdon (1999) points out that thought suppression may affect thought frequency through its influence on how intrusions are appraised. This would still be compatible with a prominent role of thought suppression in obsessive-compulsive symptoms even though the mechanism would be different from what is generally assumed. Further, RAS is a measure of responsibility attitudes and does not directly refer to particular responsibility appraisals that are probably often quite idiosyncratic. Here the Responsibility Interpretations Questionnaire (RIQ) and similar measures (Rhéaume, Ladouceur, Freeston, & Latarte, 1994; Salkovskis et al., 2000) may be useful to target such idiosyncratic appraisals more directly. Future research should test the model more extensively in clinical populations, but also make more direct attempts at experimental validation.

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