



# Thought suppression, dissociation and psychopathology

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## Abstract

The White Bear Suppression Inventory (WBSI) aims to measure the general tendency to suppress unwanted negative thoughts. The aims of the present study were: (a) to assess the psychometric properties of the WBSI in a clinical population; (b) to evaluate the association of the WBSI with dimensional and categorical measures of psychopathology; and (c) to explore the relationship of the WBSI with measures for dissociation while controlling for level of psychopathology. In a sample of 254 consecutive psychiatric outpatients the factor structure and internal consistency of the WBSI were found to be good. Moreover, WBSI scores were significantly and positively related to all of the dimensional measures for psychopathology of the Symptom Checklist-90 and did not differ between patients with a DSM-IV anxiety disorder, affective disorder or no psychiatric diagnosis. Finally, WBSI scores were unrelated to measures for proneness to dissociation (Dissociation Questionnaire and Somatic Dissociation Questionnaire) while controlling for level of psychopathology. It is concluded that: (a) thought suppression is a common phenomenon among psychiatric patients with various complaints; and (b) that dissociation is not related to thought suppression. © 1999 Elsevier Science Ltd. All rights reserved.

*Keywords:* Intrusive thoughts; Thought suppression; Dissociation; Anxiety; Depression

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## 1. Introduction

Various studies among both normal and clinical subjects indicate that intrusive thoughts occur rather frequently (Rachman & de Silva, 1978; Salkovskis & Harrison, 1984; Freeston,

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Ladouceur, Thibodeau, & Gagnon, 1991; Purdon & Clard, 1993). A common response to these unwanted intrusive thoughts is trying to suppress them. Thought suppression refers to the process of consciously trying to prevent certain thoughts from entering the stream of consciousness (Wegner, 1989). However, thought suppression may have the paradoxical effect of making these thoughts more intrusive (Wegner, Schneider, Carter, & White, 1987; Wegner & Erber, 1992). These paradoxical effects of thought suppression have been observed in various analogue (e.g. Clark, Ball, & Pape, 1991; Muris & Merckelbach, 1991; Clark, Winton, & Thynn, 1993) as well as clinical studies (e.g. Muris, Merckelbach, Horselenberg, Sijenaar, & Leeuw, 1997; Becker, Rinck, Roth, & Margraf, 1998; Harvey & Bryant, 1998). However, some studies have failed to validate these effects (e.g. Merckelbach, Muris, van den Hout, & de Jong, 1991; Muris, Merckelbach, van den Hout, & de Jong, 1992; Kelly & Kahn, 1994; Mathews & Milroy, 1994).

Thought suppression may be relevant in the etiology of emotional disorders. Especially with regard to obsessions, it has been argued that consciously trying to suppress unwanted thoughts will have the counterproductive effect of more frequent and negative thoughts resulting in a positive feedback loop of more intense obsessions and consequent thought suppression (Wegner, 1989; Salkovskis, 1989). Moreover, it has been observed that traumatized persons try to suppress thoughts about their aversive experiences (Kuyken & Brewin, 1994) and that thought suppression in traumatized persons is a risk factor for the development of post-traumatic stress disorder (McFarlane, 1988).

Recently Wegner and Zanakos (1994) proposed that there may be stable individual differences in the tendency to suppress thoughts across a variety of situations and thought topics. In order to measure this general tendency these authors developed the White Bear Suppression Inventory (WBSI) (Wegner & Zanakos, 1994). The WBSI asks subjects to indicate on a 5-point Likert-type scale the extent to which they agree with statements such as 'There are things I prefer not to think about'. Psychometric studies in college students have shown that the WBSI measures one factor and that it is a reliable instrument in terms of internal consistency and test-retest stability (Wegner & Zanakos, 1994; Muris, Merckelbach & Horselenberg, 1996). Moreover, WBSI scores correlated positively with measures of emotional vulnerability and measures of obsessional thinking and depressive and anxious affect (Wegner & Zanakos, 1994; Muris et al., 1996). In addition, the WBSI predicted signs of clinical obsession among subjects prone toward obsessional thinking and depression among individuals motivated to dislike negative thoughts (Wegner & Zanakos, 1994). Finally, WBSI scores were positively related to frequencies of intrusive thinking in thought suppression experiments (Muris et al., 1996).

Besides the paradoxical effect of more frequent and negative thoughts, thought suppression may also have a less paradoxical, memory-undermining effect. Participants who suppressed thoughts about a filmed story were less able to retrieve the order of events, although their retrieval of the events themselves was not generally impaired (Wegner, Quillian, & Houston, 1996). However, this undermining effect of suppression on memory for chronology could not be replicated in a recent study on episodic memory by Rassin, Merckelbach, & Muris (1997).

In concordance with the hypothesis of a memory-undermining effect of suppression, in a study among college students a moderately strong and positive correlation has been found

between thought suppression (as measured by the WBSI) and dissociation (as measured by the Dissociation Experience Scale (DES) (Bernstein & Putnam, 1986)) irrespective of reported trauma (Van den Hout, Merckelbach & Pool, 1996). Recently, this association between WBSI and DES scores was replicated in another sample of college students (Muris & Merckelbach, 1997). On the basis of their results Van den Hout et al. (1996) suggest that dissociative amnesia may result from willful efforts to forget rather than from aberrations in automatic processing.

However, this conclusion may be premature. Both suppression and dissociation may be the result of a third underlying variable such as a high level of neurotic symptoms or negative life experiences (Muris & Merckelbach, 1997). It is known that level of psychopathology is positively associated with both thought suppression (Wegner & Zanakos, 1994; Muris et al., 1996) and dissociation (Van Ijzendoorn & Schuengel, 1996). Consequently, the positive relationship of thought suppression with dissociation may be spurious and dependent on the level of psychopathology. In other words: subjects with higher levels of psychopathology may be prone to dissociation (including amnesia) and may also experience high levels of intrusive thoughts which they attempt to suppress.

In summary, the aims of the present study were two-fold: (a) to examine the psychometric properties of the WBSI (factor structure, internal consistency and relationship with age and gender) in a clinical population; (b) to evaluate the association of the WBSI with dimensional and categorical measures of psychopathology (in particular anxiety and depression); and (c) to explore the relationship of the WBSI with proneness to dissociation while controlling for level of psychopathology.

## **2. Method**

### *2.1. Selection of subjects*

The sample consisted of consecutive referrals to a psychiatric outpatient clinic. Among these patients, the following groups were composed: (a) patients with psychosocial problems (V-code conditions) or no psychiatric diagnosis; (b) patients with anxiety disorder as primary diagnosis; and (c) patients with affective disorder as primary diagnosis.

### *2.2. Measures*

Subjects completed the following measures as part of the intake protocol.

#### *2.2.1. Symptom Checklist-90 (SCL-90)*

The Dutch version (Arrindell & Ettema, 1986) of the SCL-90 (Derogatis, 1998) is a valid and reliable multi-dimensional measure for a broad spectrum of psychiatric complaints. Besides a total score for general level of psychopathology, the SCL-90 yields eight subscale scores for: agoraphobia, anxiety, depression, hostility, insufficiency of thinking and acting, paranoia, sleeping problems and somatic complaints.

### 2.2.2. *White Bear Suppression Inventory (WBSI)*

The WBSI (Wegner & Zanakos, 1994) is a 15-item scale to measure stable individual differences in the tendency to suppress thoughts across a variety of situations and thought topics. Like the original version, the Dutch version is uni-factorial and is a reliable instrument in terms of internal consistency and test–retest reliability (Muris et al., 1996).

### 2.2.3. *Dissociation Questionnaire (DIS-Q)*

The DIS-Q is a 63-item self-reporting questionnaire that measures psychological dissociation. The scale consists of four empirically derived factors labeled identity confusion and fragmentation, loss of control, amnesia and absorption. The DIS-Q reliability rates are good, scores are stable over time and the DIS-Q differentiates among patients with dissociative disorders, normal subjects and psychiatric subjects with other diagnoses (Vanderlinden, Van Dyck, Vandereycken, Vertommen, & Verkes, 1993). In this study only the subscale for dissociative memory problems (i.e. amnesia) was used. An example of one of the amnesia items is: ‘It happens that I cannot remember anything about certain important events in my life, such as my final examinations or wedding-day’.

### 2.2.4. *Somatoform Dissociation Questionnaire-5 (SDQ-5)*

The SDQ-5 is a 5-item self-reporting questionnaire with sound psychometric properties that measures somatoform dissociation (Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1997). Somatoform dissociation can be described as the partial or complete loss of the normal integration of somatoform components of experience, reactions and functions. Sensitivity and specificity of the SDQ-5 in detecting cases of dissociative disorder among psychiatric patients are good. An example of one of the SDQ-5 items reads as follows: ‘It is as if my body, or a part of it, has disappeared’.

Subjects were diagnosed according to DSM-IV criteria (American Psychiatric Association, 1994) using an unstructured clinical interview by one of the residents supervised by a senior psychiatrist. In order to monitor diagnostic accuracy the supervising psychiatrist interviewed about half of the patients. The final clinical diagnosis was decided upon during a staff meeting at which the psychiatric evaluation and treatment program of all new referrals to the outpatient clinical are discussed. Of the five axes, only data pertaining to axis 1 will be reported. Informed consent was obtained from all subjects.

## 3. Results

### 3.1. *Characteristics of the total sample*

The sample consisted of 254 consecutive patients: 86 (33.9%) male and 168 (66.1%) female patients. Their mean age was 35.7 (S.D. = 12.7). Thirty patients received no psychiatric diagnosis and 28 a V-code; 55 patients presented with an affective disorder (major depressive disorder ( $N=44$ ) and dysthymic disorder ( $N=11$ )); and 40 with an anxiety disorder (mainly panic disorder ( $N=8$ ), social phobia ( $N=10$ ) and posttraumatic stress-disorder ( $N=9$ )).

### 3.2. Psychometric properties of the WBSI

A principal components analysis revealed 3 factors with eigenvalues greater than 1.0. Using the screen test a 1-factor solution was arrived at accounting for 47.8% of the variance (eigenvalues of the three factors were 7.2, 1.2 and 1.0). Most of the 15 WBSI items loaded highly on the first factor (range of loadings 0.44–0.81). Only item 8 showed a less pronounced loading of 0.24. The internal consistency of the WBSI (Cronbach's alpha) was excellent ( $\alpha = 0.91$ ). The mean WBSI score (and standard deviation) in the total sample was 51.2 (S.D. = 14.2). The correlation of WBSI with age was small although significant ( $r = -0.14$ ,  $p < 0.05$ ). Moreover, females ( $M = 52.5$  (S.D. = 14.3)) obtained somewhat higher WBSI scores than males ( $M = 48.6$  (S.D. = 13.9)) ( $t(252) = 2.08$ ,  $p < 0.05$ ).

### 3.3. Association with measures of psychopathology and dissociation

Table 1 shows Pearson product-moment correlation coefficients between WBSI and the other self-report measures. As can be inferred from the left column of this table, WBSI was significantly associated with psychopathology (SCL-90) and to a lesser extent with dissociative amnesia (DIS-Q) and somatoform dissociation (SDQ-5). In a subsequent hierarchic multiple regression analysis with WBSI as the dependent variable, age and gender as predictors were forced into the equation in the first step and the SCL-90 subscales and the DIS-Q and SDQ-5 scales were entered stepwise in the second step. Age and gender accounted for 3% of the variance in WBSI scores ( $F(2,151) = 3.99$ ,  $p < 0.05$ ), while depression accounted for an

Table 1

Correlations of (corrected) WBSI with SCL-90, DIS-Q and SDQ-5 and partial correlations between (corrected) WBSI and these measures while holding SCL-90 or DIS-Q and SDQ-5 constant<sup>a</sup>

	WBSI ( $r$ )	WBSI (partial $r$ )	WBSI-C ( $r$ )	WBSI-C (partial $r$ )
<i>SCL-90</i>				
Total score	0.59**	0.54**	0.44**	0.37**
Agoraphobia	0.36**	0.31**	0.29**	0.23**
Anxiety	0.40**	0.34**	0.34**	0.28**
Depression	0.57**	0.53**	0.41**	0.35**
Hostility	0.39**	0.31**	0.29**	0.21**
Insufficiency	0.40**	0.29**	0.31**	0.18*
Paranoia	0.47**	0.40**	0.33**	0.26**
Sleeping problems	0.33**	0.27**	0.24**	0.19*
Somatic complaints	0.38**	0.31**	0.32**	0.26**
<i>DIS-Q</i>				
Amnesia	0.30**	0.03	0.28**	0.10
<i>SDQ-5</i>				
	0.17*	-0.03	0.16**	0.02

<sup>a</sup>  $n = 254$ ; \* $P < 0.01$ ; \*\* $P < 0.001$ ; WBSI, White Bear Suppression Inventory; WBSI-C, corrected White Bear Suppression Inventory; SCL-90, Symptom Checklist-90; DIS-Q, Dissociation Questionnaire; SDQ-5, Somatic Dissociation Questionnaire-5.

additional 30% of the variance in the second step ( $F(1,252)=112.45$ ,  $p < 0.001$ ). The DIS-Q only accounted for a further 1% of the variance ( $F(1,251)=5.62$ ,  $p < 0.05$ ).

Moreover, in order to evaluate whether WBSI scores and dissociation measurements share unique sources of variance (independent of level of psychopathology), partial correlations were calculated. After partialling out the influence of level of psychopathology, the positive correlations of WBSI with measures of dissociation completely disappeared. On the other hand, partialling out the influence of dissociation did only marginally attenuate the correlations between WBSI and level of psychopathology (see second column of Table 1).

### 3.4. Differences in WBSI scores between groups

Table 2 displays demographic data and SCL-90, WBSI, DIS-Q and SDQ-5 scores in the group of affective and anxiety disorder patients and controls. In comparison to both other groups anxiety disorder patients were significantly younger ( $F(2,150)=3.57$ ,  $p < 0.05$ ) and showed a significantly higher proportion of females (Chi-square(2)=9.78,  $p < 0.01$ ). A multivariate analysis of covariance was performed on SCL-90, WBSI, DIS-Q and SDQ-5 scores with diagnosis (anxiety disorder, affective disorder and controls) and gender as the grouping variables and age as a covariate. Using Wilks' criterion, a significant multivariate main effect for gender was found ( $F(4,143)=3.00$ ,  $p=0.02$ ). The main effect for diagnosis ( $F(8,286)=0.97$ ,  $p=0.46$ ) and the interaction effect of gender  $\times$  diagnosis ( $F(8,286)=0.58$ ,  $p=0.79$ ) were not significant.

### 3.5. Analyses with corrected WBSI version

Only five items of the WBSI (i.e. 'I always try to put problems out of mind'; 'Sometimes I stay busy just to keep thoughts from intruding on my mind'; 'There are things that I try not to think about'; 'I often do things to distract myself from my thoughts'; and 'I often have thoughts that I try to avoid') explicitly refer to deliberate thought suppression per se. The

Table 2

Summary of variables in anxiety disorder, affective disorder and control patients (standard deviations are given between parentheses)<sup>a</sup>

	Anxiety disorder ( $n=40$ )	Affective disorder ( $n=55$ )	Controls ( $n=58$ )
Age (yr)	32.5 (10.3) <sup>a,b</sup>	38.2 (11.5) <sup>a</sup>	39.3 (15.6) <sup>b</sup>
Gender (% females)	85.0 <sup>a,b</sup>	61.8 <sup>a</sup>	55.2 <sup>b</sup>
WBSI	52.5 (13.1)	53.8 (12.8)	49.4 (13.6)
WBSI-C	17.0 (4.9)	17.2 (4.7)	16.1 (4.9)
SCL-90 (total score)	204.5 (56.1)	211.5 (60.4)	191.0 (59.5)
DIS-Q (amnesia subscale)	1.45 (0.34)	1.63 (0.56)	1.61 (0.43)
SDQ-5	6.00 (1.55)	6.23 (2.35)	5.71 (1.26)

<sup>a</sup> Values with the same superscript are different ( $P < 0.05$ ); WBSI, White Bear Suppression Inventory; WBSI-C, corrected White Bear Suppression Inventory; SCL-90, Symptom Checklist-90; DIS-Q, Dissociation Questionnaire; SDQ-5, Somatic Dissociation Questionnaire-5.

other WBSI items primarily reflect a general tendency to experience negative unwanted thoughts (e.g. ‘There are thoughts that keep jumping into my head’). Consequently, it can be argued that the WBSI primarily taps intrusive thinking instead of suppression per se. Therefore, all analyses were repeated with a WBSI version in which only the five willful intrusion items were retained (i.e. a corrected WBSI version). Generally, the main findings with this corrected WBSI version were into the same direction as those obtained with the original WBSI, although the effects were somewhat less pronounced. Cronbach’s alpha of the corrected WBSI version was 0.81. Moreover, correlations of corrected WBSI with SCL-90 scores remained positive and significant (see third column of Table 1). Also, by calculating correlations while partialling out the influence of level of psychopathology, the positive association of corrected WBSI scores with measurements of dissociation almost completely disappeared (see fourth column of Table 1). Finally, analysis of variance revealed no main effect of diagnosis with respect to corrected WBSI scores (see Table 2).

#### **4. Discussion**

Firstly, the psychometric properties of the WBSI as assessed in a clinical population were satisfactory to good: factor analysis clearly revealed a 1-factor solution and internal consistency of the scale was high. These results are consistent with those reported in previous studies among college students (Wegner & Zanakos, 1994; Muris et al., 1996). As in the study of Wegner and Zanakos (1994) women exhibited significantly higher thought suppression scores than men. Moreover, WBSI scores were significantly and negatively associated with age. However, the relationship of WBSI scores with gender and age, although significant, were small and bear no direct clinical relevance. In sum, the WBSI seems to be a psychometrically sound instrument in terms of factor structure and internal consistency in both normal and clinical samples.

Secondly, WBSI scores were found to be significantly and positively related to severity of psychopathology. As in previous studies (Wegner & Zanakos, 1994; Muris et al., 1996), WBSI scores did not show a specific relationship with measurements for obsession, but were significantly associated with all the scales of the SCL-90 (in particular the scales for depression, paranoia and anxiety). Also, in contrasting patients with an anxiety disorder and an affective disorder with control patients no significant between-group differences on the WBSI emerged. Moreover, using a corrected WBSI version only including deliberate thought suppression items and excluding items reflecting intrusive thinking, a similar pattern of results was obtained.

It may be objected, that the WBSI does not only measure the tendency to deliberately suppress unwanted negative thoughts, but also the tendency to experience intrusive thoughts one would prefer not to have. In other words: the WBSI may also be assessing the cognitive side effects of having emotional problems (including a V-code condition or no psychiatric disorder at all). It has been found that deliberate thought suppression in obsessive–compulsive disorder and post-traumatic stress disorder plays a role in the escalation and persistence of the disorder (McFarlane, 1988; Salkovskis, 1989). On the other hand, unwanted negative thoughts in disorders such as major depressive disorder, dysthymic disorder, social phobia or panic

disorder may not give rise to the same degree of active resistance. However, in the present study using a shortened version of the WBSI with only deliberate thought suppression items a similar pattern of results as with the complete WBSI was found. Possibly, thought suppression is a more common phenomenon among psychiatric patients with diverse complaints than normally assumed. Future studies using multiple measures for thought suppression and intrusive thinking seem warranted in order to assess the generality of thought suppression across various diagnostic categories.

Thirdly, consistent with the results of previous studies in normal samples (Van den Hout et al., 1996; Muris & Merckelbach, 1997) a significant although less pronounced positive association of the WBSI with dissociation was found. However, this relationship was marginalized after controlling for level of psychopathology. These results question the position that dissociative memory impairment can be accounted for by a strategic process as deliberate thought suppression as assessed with the WBSI. More likely, psychopathology is associated with both dissociative tendencies and a tendency to suppress negative, unwanted thoughts, while dissociative amnesia seems to be independent of the deliberate suppression of these thoughts.

In this context it is relevant to refer to the experimental research domain of directed forgetting, which is related to that of thought suppression (Koustaal & Schacter, 1997). Active efforts to forget information may result in a reduced recall (Bjork, 1989). This effect may be due to differences in the encoding of to-be-remembered and to-be-forgotten items as well as inhibitions in the retrieval of to-be-forgotten items (Koustaal & Schacter, 1997). Interestingly, in a recent study Elzinga, Beurs, Sergeant, Van Dyck, and Phaf (in press) observed an enhanced explicit and implicit memory performance with respect to possible trauma words (such as sex words) in dissociative patients in comparison to normal controls. It seems unlikely that memory problems as assessed with dissociation questionnaires can be adequately explained by processes such as thought suppression or intentional forgetting. Alternative cognitive-psychological models such as the parallel distributed processing model of memory (Chemtob, Roitblat, Hamada, Carlson, & Twentyman, 1988), the autobiographical memory model with its emphasis on overgeneralized coding and retrieval cycles (Williams, 1994; Williams, Watts, MacLeod, & Mathews, 1997) or the construction hypothesis model of memory (Mandler, 1985) may be more suitable to explain the mechanisms underlying memory impairments as reported by subjects with a high dissociative tendency.

In conclusion, the WBSI is a reliable self-report instrument which seems to tap individual differences with respect to one underlying dimension in both normal and clinical samples. Further studies into the construct validity of the WBSI are needed in order to establish to what extent this measure for deliberate suppression of negative thoughts also measures the tendency to experience negative intrusive thoughts in general. Moreover, the positive association of dissociative tendencies with deliberate suppression of unwanted thoughts seems to be primarily due to the level of psychopathology.

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