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Clinical obsessions in obsessive–compulsive patients and obsession-relevant intrusive thoughts in non-clinical, depressed and anxious subjects: Where are the differences?

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Abstract

Contemporary cognitive models of obsessive–compulsive disorder (OCD) assume that clinical obsessions evolve from some modalities of intrusive thoughts (ITs) that are experienced by the vast majority of the population. These approaches also consider that the differences between "abnormal" obsessions and "normal" ITs rely on quantitative parameters rather than qualitative. The present paper examines the frequency, contents, emotional impact, consequences, cognitive appraisals and control strategies associated with clinical obsessions in a group of 31 OCD patients compared with the obsession-relevant ITs in three control groups: 22 depressed patients, 31 non-obsessive anxious patients, and 30 non-clinical community subjects. Between-group differences indicated that the ITs frequency, the unpleasantness and uncontrollability of having the IT, and the avoidance of thought triggers obtained the highest effect sizes, and they were specific to OCD patients. Moreover, two dysfunctional appraisals (worry that the thought will come true, and the importance of controlling thoughts) were specific to OCD patients. The OCD and depressed patients shared some dysfunctional appraisals about their most disturbing obsession or IT (guilt, unacceptability, likelihood thought would come true, danger, and responsibility for having the IT), whereas the non-obsessive anxious were nearer to the non-clinical participants than to the other two groups of patients. The OCD patients showed an increased use of thought control strategies, with overt neutralizing, thought suppression, and searching for reassurance being highly specific to this group.
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Introduction

As pointed out by Rachman and de Silva (1978) nearly three decades ago, "in the course of developing a cognitive theory for obsessions, it became necessary to assume that all people experience a phenomenon akin to clinical and abnormal obsessions". This assumption has been included in current obsessive–compulsive

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disorder (OCD) cognitive formulations (Clark, 2004; Rachman, 1997, 1998, 2003; Salkovskis, 1985, 1989), since they postulate that clinical obsessions evolve from a modality of intrusive thoughts, images or impulses that are also experienced by the vast majority of people (Purdon & Clark, 1999). Therefore, a clinical obsession can be understood as an extreme variant of a normal intrusive thought (It) (Clark, 2005). However, it is important to mention that just the mere experience of having an unpleasant and/or unwanted IT does not indicate a clinically significant obsession. Cognitive OCD proposals also hypothesize that the transition from normality to obsessive pathology first depends on the individuals attaching dysfunctional appraisals or misinterpretations to their ITs. Subsequently, the subject is engaged in a variety of neutralizing responses that are counter-productive.

The work of Rachman and de Silva (1978) constitutes the pioneer empirical support for the universality of ITs with typical obsessive contents. Nevertheless, this conclusion was based on a detailed comparison between non-clinical ITs and the obsessions reported by a reduced clinical OCD group of participants ($n = 8$), in the absence of statistical analyses, and the findings had been overvalued by many authors, as has been recently pointed out by Rassin and Muris (2006). Nevertheless, the fact is that subsequent to the aforementioned Rachman and de Silva study, a considerable amount of empirical research has verified that between 80% and 90% of non-clinical participants reported having intrusive thoughts, images or impulses whose contents are, in many instances, similar to those reported by OCD patients. In these studies, a variety of instruments were utilized to identify the ITs experienced by non-clinical participants: Intrusive Thoughts and Impulses Survey (Niler & Beck, 1989), Intrusive Thoughts Questionnaire (Edwards & Dickerson, 1997), Distressing Thoughts Questionnaire (Clark & de Silva, 1985), Cognitive Intrusions Questionnaire (Freeston, Ladouceur, Thibodeau, & Gagnon, 1991), and Obsessional Intrusions Inventory (Purdon & Clark, 1993, 1994a, 1994b). (e.g., Belloch, Morillo, Lucero, Cabedo, & Carrió, 2004; Clark & de Silva, 1985; Edwards & Dickerson, 1987; Freeston et al., 1991; Freeston, Ladouceur, Thibodeau, & Gagnon, 1992; Niler & Beck, 1989; Parkinson & Rachman, 1981; Purdon & Clark, 1993, 1994a, 1994b; Reynolds & Salkovskis, 1991; Salkovskis & Harrison, 1984). In fact, the aforementioned critical study by Rassin and Muris (2006) also reveals that some clinically significant obsessive contents are hardly distinguishable from their non-clinical counterparts. However, as far as we know, there are no data about the differential characteristics between normal and abnormal ITs, such as their frequency, associated unpleasantness, cognitive appraisals about their appearance or contents, or the strategies displayed to keep them under control. As a result, some of the key assumptions of current OCD cognitive formulations are only partially supported by empirical evidence.

On the other hand, it remains unclear to what extent all the investigated intrusive phenomena are obsession-relevant, or actually analogous to the clinical obsessions. In their revision of the empirical literature on ITs, Clark and Purdon (1995) concluded that many of the measures employed did not offer guaranties of assessing truly OCD-relevant ITs, and, hence, these measures had important construct validity problems. In the assessment of intrusive thoughts analogous to obsessions (obsession relevant intrusive thoughts, OITs) there has frequently been confusion between obsessive themes and worry-like concerns. Clark and O'Connor (2005), using interview measures of OITs, found that only 11% of the non-clinical participants spontaneously referred to OITs, while the majority of ITs referred to anxious or worrisome thought content. Some empirical studies have postulated that the egodystony/egosyntony dimension referring to the thought content is a key feature in differentiating obsessive thoughts from the more commonplace problems characteristic of worry (Langlois, Freeston, & Ladouceur, 2000a, 2000b; Turner, Beidel, & Stanley, 1992). In order to offer a valid measure of OITs, Purdon and Clark (1993, 1994b) designed the Revised Obsessional Intrusions Inventory (ROII), which has proved to be a useful instrument for adequately differentiating between OITs and worry (Purdon & Clark, 1994a, 1994b; Morillo et al., 2003).

Apart from ITs with worry-related contents, there is another variant of ITs that is typically experienced by depressed patients. The relationship between depressive mood and the experience of ITs is well documented, since Beck (1967, 1976) reported that depressed people experienced negative thoughts, whose contents were mainly centered on negative opinions about the self, the world, or the future, and he labeled them "automatic negative thoughts". From the OCD literature, depressive mood has been associated with an increased frequency, intensity and uncontrollability of intrusive thoughts (Clark, 2002; Rachman & Hodgson, 1980), as well as with a greater tendency to misinterpret the significance of the thoughts, or to endorse dysfunctional appraisals (Freeston & Ladouceur, 1993; Rachman, 2003). Moreover, current OCD cognitive models assume

that dysphoric mood is a modulating factor for OCD, as it increases the probability of experiencing obsessive intrusive thoughts, images or impulses. However, little empirical research has been devoted to highlighting the differences between these two hypothetically related, but different, modalities of ITs: depressive automatic negative thoughts and obsessive intrusive thoughts, whether in non-clinical participants or in clinically depressed and OCD patients.

The main aim of this study was to compare the features of clinical obsessions experienced by subjects with a primary OCD diagnosis with the OITs experienced by depressed patients, non-OCD anxious patients, and non-clinical community individuals. With this aim in mind, we first examined the between group differences on the general frequency and contents of the obsessions (OCD patients) and OITs (other groups). Secondly, we studied the differences between the most disturbing clinical obsession (OCD patients) and the most disturbing OIT (other three groups). To this end, the following variables were considered: emotional reaction, consequences, cognitive appraisals and thought control strategies.

Method

Participants

Four groups of participants were included in the study: 31 OCD patients (OCD), 22 depressed (DEP), 25 individuals with a non-obsessive anxiety disorder (AD) and 30 non-clinical participants (NC).

The OCD participants had a primary axis I DSM-IV (APA, 1994) diagnosis of OCD. On average, OCD patients had a severe disorder (Yale–Brown Obsessive Compulsive Scale-total mean score: 26.6; SD = 6.9), and the duration of their disorder was about 6 (SD = 5.8) years. At the time of the study, none of the OCD patients had clinically significant co-morbid depression or anxiety disorders other than OCD. Following the Anxiety Disorder Interview Schedule for DSM-IV: Lifetime version (ADIS-IV-L; Di Nardo, Brown, & Barlow, 1994), 5 OCD patients presented a past history of major depression (2 patients), panic disorder (1 patient), specific phobia (1 patient) and social phobia (1 patient).

All the patients in the DEP group had a primary axis I DSM-IV diagnosis of either a major depressive disorder ($n = 13$), a dysthimic disorder ($n = 7$), or both ($n = 2$), without any other clinically significant current co-morbid disorders. Three patients had life-time disorders of panic disorder, panic disorder with agoraphobia, and specific phobia (ADIS-IV-L criteria).

The AD group included the following diagnoses at the time of the study: panic disorder/agoraphobia ($n = 11$), generalized anxiety disorder (GAD; $n = 7$), phobia (social $n = 4$; specific, $n = 2$), and post-traumatic stress disorder ($n = 1$). Two of the GAD patients had also current co-morbid diagnosis of either social phobia or panic disorder. As for the life-time diagnosis, three GAD patients and one patient with social phobia, had a documented history of recovered major depression.

Finally, the NC group consisted of 30 non-clinical community participants that were recruited with the purpose of matching their basic socio-demographic features with those of the OCD patients.

Measures

Obsessional Intrusions Inventory-Revised (ROII; Purdon & Clark, 1993, 1994b)

This is a self-report questionnaire designed to assess the presence and frequency of unwanted intrusive thoughts, images and impulses having egodystonic content, analogous to clinic obsessions, as well as the appraisals and control strategies associated with the most upsetting intrusive thought referred to by the participants. The instrument includes initial instructions offering a detailed characterization of the nature of intrusive thoughts. The instrument has two parts: The first part consists of 52 statements concerning thoughts of aggression, sex, dirt and contamination. Respondents rate each statement on a 7-point scale from 0 ("I have never had this thought") to 6 ("I have this thought frequently during the day"). A ROII total score (frequency of intrusive thoughts) is derived by adding the scale scores for the 52 items. In the second part, participants are required to select from the previous list the single most upsetting intrusive thought, or the most upsetting obsession in the case of the OCD patients, that they have experienced at least "rarely" (score = 1), and to

evaluate it, using 5-point Likert scales (From 0 = "Absolutely nothing" to 4 = "Extremely"), on ten items designed to record the emotional impact of having this thought (unpleasantness and guilt), the interference caused by the thought (uncontrollability or difficulty to remove, and avoidance or desire to avoid thought triggers), and the appraisals the subject ascribes to the thought (worry thought will come true, unacceptability, likelihood that thought will come true, importance of control, harm/danger, and responsibility). After this, participants are presented with a list of ten possible thought control strategies, and they are asked to rate (from 0 = "Never" to 4 = "Always") to what extent they use each of these strategies to deal with the most upsetting intrusive thought or obsession previously chosen. In order to allow a more reliable comparison of the most disturbing clinical obsession (in the OCD patients) with the most disturbing OIT (in the other groups under study), an individualized administration of the ROII was carried out in all cases. The Spanish version of the instrument, which has demonstrated good psychometric properties, was applied (Belloch et al., 2004).

Yale–Brown Obsessive–Compulsive Severity Scale (*Y–BOCS*; Goodman, Price, Rasmussen, Mazure, Fleishman et al., 1989; Goodman, Price, Ramussen, Mazure, Delgado Heninger et al., 1989). This is an interview specially designed to measure OCD severity. It yields 3 scores: severity of obsession, severity of compulsions, and a total score obtained by adding the obsession and compulsion subscores together (ranging from 0 to 40). The Y–BOCS items assess the frequency, interference, distress, resistance, and perceived control of both obsessions and compulsions, using a scale from 0 (none) to 4 (extreme). Inter-rater reliability for this instrument has been shown to be excellent (total Y–BOCS score = 0.98, $p < 0.001$; Goodman, Price, Rasmussen, Mazure, Fleishman et al., 1989) and it is widely considered a gold-standard for assessing the severity of OCD, both in the clinical settings and in the outcome research. This measure was only applied to the OCD group.

Padua Inventory-Washington State University Revision (*PI-WSUR*; Burns, Keortge, Formea, & Sternberg, 1996). This is a 39-item self-report that measures obsessive and compulsive symptoms. It was conceived as a purer measure of O–C symptoms than the original questionnaire developed by Sanavio (1988), since various items in the original PI assessed worry-like themes more than obsessional contents. Each item is rated on a 5-point scale according to the degree of disturbance caused by the thought or behavior (0 = "not at all" to 4 = "very much"). In addition to the total score, the PI-WSUR includes five subscales: (1) obsessive thoughts about harm to self/others; (2) obsessive impulses to harm self/others, (3) contamination obsessions and washing compulsions, (4) checking compulsions, and (5) dressing/grooming compulsions. The Spanish version of the instrument was applied (Ibáñez, Olmedo, Peñate, & González, 2002). Only the OCD group completed this questionnaire.

Maudsley Obsessive–Compulsive Inventory (*MOCI*; Hodgson & Rachman, 1977; Rachman & Hodgson, 1980). The MOCI is a self-report questionnaire designed to evaluate obsessive–compulsive symptoms. It consists of 30 true/false items in four subscales: washing, checking, slowness, and doubting. The MOCI mainly assesses overt compulsive symptoms.

Beck Depression Inventory (*BDI*; Beck, Rush, Shaw, & Emery, 1979). This is a 21-item self-reported measure of the intensity or severity of depressive symptoms, using a 4-point scale ranging from 0 (Symptom not present) to 3 (Symptom very intense). BDI total scores range between 0 and 63. The validity of the BDI with clinical and non-clinical samples is well established (Beck, Steer, & Garbin, 1988).

Automatic Thoughts Questionnaire (*ATQ*; Hollon & Kendall, 1980). This is a 30-item self-report inventory that assesses the frequency of the occurrence of different negative automatic thoughts typically associated with depressive states, using a Likert scale from 1 ("never") to 5 ("all the time"). The Spanish validated version by Banos & Belloch (1990) was applied.

Penn State Worry Questionnaire (*PSWQ*; Meyer, Miller, Metzger, & Borkovec, 1990). This 16-item self-report inventory was designed to assess the generality, excessiveness, and uncontrollability dimensions of worry. Each item is rated on a 5-point scale (1 = "not at all typical of me" to 5 = "very typical of me"). The Spanish version that was applied in this study (Sandín & Chorot, 1991) has demonstrated good psychometric properties.

State-Trait Anxiety Inventory-State (S*TAI*; Spielberger, Gorsuch, & Lushene, 1970). This is a 40-item self-reported measure of general anxiety. The first 20 items (STAI-S) assess state anxiety, or how the subject feels right now. The second 20 items (STAI-T) assess trait anxiety, or how the subject generally feels. In the present study, we only used the state version (Spanish validation: Seisdedos, 1988).

Procedure

Clinical participants were recruited during a period of approximately 30 months from people who attended three outpatient mental-health clinics included in the network of the public Spanish National Health System. These clinics were located in Valencia City and its outskirts, and they cover a population of nearly 500,000 persons. Before being included, all potential participants were individually screened with a full history and examination by an experienced psychiatrist, who decided to refer the patient to the clinical psychologist on the basis of the following criteria: (a) having a principal axis I diagnosis of OCD, a non-OCD anxiety disorder, or a depressive disorder (major depression or dystimic disorder); (b) age ranging from 18 to 65 years; (c) not having a previous or current history of alcohol/drug-related disorders; (d) an adequate level of reading ability. If the patient was considered by the psychiatrist to be a likely candidate for inclusion in our study, he then was asked to participate in a research study on the nature of emotional disorders. After giving his explicit consent, the patient was referred to one of the two Doctoral level clinical psychologists (A.B. or C.M), trained in the use of the ADIS-IV-L, who completed the examination and decided whether the patient could be included in the study. The diagnostic interview using the ADIS-IV-L was conducted in a session of 120–150 min. Information about basic demographic data (age, gender, occupation, educational level, socio-economic status), medical conditions and current/past psychological or pharmacological treatments were also recorded. In order to ensure that the groups were diagnostically distinct, only patients who presented a primary Axis I diagnosis of OCD, Depression, or a non-OCD Anxiety Disorder, without current co-morbid conditions were eligible for the study. Once the ADIS-IV-L was completed, seven patients were excluded from the study: three OCD patients (two of them having major depression and the other one with moderate symptoms of delusional disorder), three depressive patients (because they presented a severe cognitive impairment that might have kept us from properly understanding the questionnaires), and one GAD patient with current comorbid major depression. In short, we were reasonably sure that the OCD participants had no current co-morbid depression or anxiety disorders other than OCD; the DEP participants had no current co-morbid OCD or anxiety disorders, and the AD participants had no current co-morbid OCD or depressive disorder.

The patients were informed about the purpose and assessment procedure of the study, and they gave their explicit consent to participate. Participants with a history of psychotic or substance abuse disorders were not included.

The non-clinical community participants were recruited by three students from the two last courses of the Psychology studies who received partial course credit for their collaboration. They were first trained in the use of the instruments, and they were instructed not to provide additional information to the respondents. Potential participants reporting current or past history of psychological/psychiatric treatments in the initial structured interview, and those with cut-off point scores on measures of obsessive-compulsive symptoms (MOCI > 14), depression (BDI > 18) and general anxiety (STAI-S > 30), were not included in the study.

Results

Preliminary analyses: construct validity of the ROII in the OCD participants

As the ROII was being used for the first time in a clinical population, we considered that a necessary prerequisite was to obtain empirical support for its convergent and discriminant validity in the OCD group of participants.

In order to examine the convergent validity, zero-order correlations between ROII-total scores and two questionnaires of obsessive and compulsive symptoms (MOCI and PI-WSUR), and the measure of OCD severity (Y–BOCS-total score), were computed. To study discriminant validity, zero-order correlations were also carried out among the ROII-total score and depressive symptoms (BDI) and cognitions (ATQ), on the one hand, and among the ROII-total score, anxious symptoms (STAI-S), and worrisome thoughts (PSWQ), on the other. The results are shown in Table 1.

Results showed significant correlations between ROII-total score and OCD measures (MOCI, PI-WSUR), whereas low and non-significant correlations were observed with depressive and anxious symptoms (BDI, STAI-S), as well as with automatic negative and worrisome thoughts (ATQ, PSWQ). In order to further test

Table 1
Zero order and partial correlations among ROII scores and questionnaire measures in 31 OCD patients

ROII scores	MOCI	PI-WSUR	Y–BOCS	BDI	ATQ	STAI-S	PSWQ
ROII-total score	0.54***	0.57***	0.33	0.28	0.26	0.12	0.28
Controlling BDI	0.51**	0.74**	0.26				
Controlling STAI & PSWQ	0.49**	0.59*	0.31				
Controlling BDI, STAI, PSWQ and ATQ	0.46*	0.76*	0.21				

ROII: Obsessional Intrusions Inventory-Revised; MOCI: Maudsley Obsessive Compulsive Inventory; PI-WSUR: Padua Inventory-Washington State University Revision; Y–BOCS: Yale–Brown Obsessive–Compulsive Severity Scale; BDI: Beck Depression Inventory; ATQ: Automatic Thoughts Questionnaire; PSWQ: Penn State Worry Questionnaire.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Table 2
Demographic information and questionnaire measures for study groups ($N = 108$)

	OCD ($n = 31$)	DEP ($n = 22$)	AD ($n = 25$)	NC ($n = 30$)	χ^2 or F
Age	32.4 (10.0)$_b$	44.8 (10.7)$_a$	32.0 (9.2)$_b$	31.5 (9.6)$_b$	10.38***
Female	66%	83%	60%	67%	3.11
Marital status					
Single/divorced	50%	35%	60%	47%	
Married	47%	56%	40%	37%	11.08
Economic level					
Low	21%	34%	16%	7%	
Medium	66%	53%	72%	43%	
High	13%	13%	8%	17%	7.86
Studies					
Primary	31%	52%	16%	27%	
Medium	35%	31%	40%	40%	
High	34%	17%	40%	33%	7.91
MOCI	14.16 (6.26)$_a$	11.64 (4.18)$_{ab}$	9.59 (4.20)$_b$	5.60 (3.44)$_c$	17.52***
BDI	15.81 (11.58)$_b$	31.05 (8.45)$_a$	15.32 (9.07)$_b$	5.43 (3.99)$_c$	38.40***
ATQ	62.94 (28.17)$_b$	90.17 (21.01)$_a$	53.00 (14.48)$_{bc}$	42.67 (13.80)$_c$	24.74***
STAI-S	28.10 (14.37)$_b$	40.67 (12.28)$_a$	25.09 (13.20)$_b$	14.63 (8.47)$_c$	19.12***
PSWQ	62.35 (12.68)$_a$	59.15 (10.83)$_a$	60.48 (9.56)$_a$	45.20 (11.23)$_b$	13.97***

Note: OCD: obsessive compulsive group; DEP: depressed group; AD: non-obsessive anxious group; NC: non-clinical group. Data are expressed as mean (SD). Subscripts a, b and c represent post hoc comparisons (Tukey HSD).
***$p < 0.001$.

the association of the ROII with OCD measures (MOCI and PI-WSUR), partial correlations among these measures were also calculated, first controlling for depression measures, second controlling for anxiety–worry measures, and, finally, controlling for all depression and anxiety measures. Results are also displayed in Table 1. In all the analyses, the association between ROII and OCD measures remained significant. Nevertheless, the ROII-total score was not correlated with the severity of OCD: Y–BOCS, total: $r = 0.33$; $p = 0.10$; Y–BOCS-obsession subscale: $r = 0.22$; $p = 0.26$; and Y–BOCS-compulsion subscale: $r = 0.37$; $p = 0.06$).

Participants' information: socio-demographic features and between-group differences in symptoms and cognition measures

Demographic data for the four groups and scores on questionnaire measures are summarized in Table 2.

Prior to examining the between-group differences on ROII measures, we carried out two sets of analyses. First, we examined whether the four groups were comparable on their socio-demographic status. And second, we verified the expected correspondence among groups and questionnaire measures.

In order to analyze the existence of group differences on the socio-demographic features, unifactorial ANOVAs (age) and non-parametric tests (χ^2: gender, marital status, economic level, educational level) were computed. There were no significant between-group differences, except for the age of participants. Post hoc analyses showed that participants in the DEP group were older than the participants in the other groups.

Several unifactorial ANOVAs were then computed to analyze group differences on symptoms and cognition measures (see Table 2). These analyses were not performed on PI-WSUR scores because this measure was only available for the OCD patients. All the F values obtained were significant, and post hoc comparisons (Tukey's HSD) indicated that the three clinical groups of participants scored higher than the NC on all the symptom and cognition measures. Regarding the MOCI, post hoc analyses also revealed that both the OCD and DEP groups scored higher than the NC, but there were no significant differences between obsessive and depressive patients, or between depressed and non-obsessive anxious patients. The DEP patients obtained the highest scores on measures of depressive symptoms (BDI) and intrusions (ATQ), as well as on the STAI-S. In contrast, the NC group obtained the lowest scores, with the OCD and AD groups falling in between on these instruments. Finally, no significant differences among the three clinical groups were obtained on the PSWQ.

OITs: general frequency and contents

The group differences on several variables from the ROII-1st part are displayed in Table 3.

Significant between-groups differences were initially found on ROII-total score, and post-hoc comparisons (Tukey HSD) indicated that the OCD group reported scored on ROII higher than the other three groups. However, as this result could be due either to a higher variety of OITs in OCD patients, or to a higher frequency of these OITs, we decided to further explore these possibilities. To this end, the same analyses were carried out, but taking into account the number of OITs experienced by each group at least rarely (*frequency* $\geqslant 1$). No significant differences among the four groups were observed. Next, the average frequency of OITs reported (*ROII-total score divided by the number of items with a frequency* $\geqslant 1$) was computed. The main effect of group was significant, and post hoc Tukey HSD tests revealed that the OCD group obtained the highest score and the non-clinical participants the lowest. From these results, we can assume that the higher score of the OCD patients on the ROII is not attributable to the presence of a greater variety of different OITs, but to the higher recurrence of their experienced OITs.

In order to explore the OIT contents more typically endorsed by the OCD participants, unifactorial ANOVAs were carried out for each of the 52 ROII items. We found significant differences on 22 items, and the post hoc tests revealed that there were eight OITs significantly more frequent in the OCD patients than in the rest of the groups: two of them consisted of hetero-aggressive thoughts and/or impulses (items 3 and 12), three were on doubts about having left something on at home (items 22, 23 and 24), and three were thoughts concerning contamination by touching neutral objects (items 46, 47 and 48). The results also revealed two OITs that were significantly more frequent in the DEP group than in the other groups: items 2 and 8, both on self-aggressive thoughts and impulses.

Table 3
Between-group differences on ROII-first part data

ROII data	OCD ($n = 31$)	DEP ($n = 22$)	AD ($n = 25$)	NC ($n = 30$)	$F_{(3,107)}$
ROII-total score	49.23(30.11)$_a$	33.64 (17.91)$_b$	33.44 (19.87)$_b$	20.13 (15.17)$_b$	8.97***
ITs experienced (N)	17.80 (10.77)	15.00 (7.27)	17.92 (10.54)	12.83 (8.87)	1.87
ITs frequency	2.96 (0.94)$_a$	2.23 (0.76)$_b$	1.88 (0.57)$_{bc}$	1.55 (0.53)$_c$	20.74***

Note: OCD: obsessive compulsive group; DEP: depressed group; AD: non-obsessive anxious group; NC: non-clinical group. Data are expressed as mean (SD). Subscripts a, b and c represent post hoc comparisons (Tukey HSD).
***$p < 0.001$.

The most disturbing obsession or OIT: frequency, emotional impact and cognitive appraisals

Comparative analyses of the most disturbing obsession or OIT for each group were conducted. The OCD participants selected 18 different OITs as their main obsession, whereas the DEP, AD and NC selected 13, 15 and 17 OITs, respectively. In 77.5% of the OCD cases, the most disturbing obsession was adequately reflected by the ROII items, whereas this was not true for seven patients. In these cases, the main obsession was added, as if it was an additional ROII item ("item number 53"), and it was then submitted to a further exam. These idiosyncratic obsessions were the following: (1) doubts about the adequacy of social performing, (2) egodystonic and senseless thoughts about having "negative energy", (3) thoughts about family members having a fatal accident, (4) thoughts about the furniture not being displayed in the right way, (5) thoughts about contaminating other people by self-contact with some toxic substance, (6) doubts about the presence of pieces of a broken glass on the floor and, (7) senseless thoughts concerning the non-reality of their own experiences and memories.

It is important to note that we were comparing obsessions with the most disturbing OIT in all groups. These are personally relevant thoughts, actually experienced by subjects, and rated as being the most upsetting OIT from all their experienced intrusions. As our interest was not only in the existence of significant between-group differences, but also in the degree to which each variable was able to differentiate between clinical obsessions and OITs, we computed the effect sizes (η^2) of the obtained differences.

Several unifactorial ANOVAs were carried out to examine the between-group differences on the frequency of the most disturbing OIT/obsession, as well as on the ROII-second part scores. The analyses were performed for each of the ten items on this part of the ROII. As Table 4 shows, the Fs were significant in all the comparisons, at least at $p < 0.01$. Post hoc Tukey's tests indicated the following results.

As expected, the main obsession in the OCD group was more frequent or recurrent than the most upsetting OIT in the other groups. The DEP and the AD scored significantly higher than the NC participants.

As for the two items on the emotional consequences of having the OIT or the main obsession, the OCD group scored significantly higher than the other groups on the unpleasantness caused by the intrusion. As for the guilt rating, no differences were observed between OCD and DEP patients. The clinical obsessions were also associated with the highest levels of the two interference items, uncontrollability and

Table 4
Group differences on measures of the most upsetting obsession (OCD patients) or OIT (other groups)

ROII-2 scores	OCD ($n = 31$)	DEP ($n = 22$)	AD ($n = 25$)	NC ($n = 30$)	$F_{(3,107)}$	Partial η^2
Frequency	5.32 (0.70)$_a$	2.68 (1.39)$_b$	2.56 (1.50)$_b$	1.93 (0.94)$_c$	52.15***	0.60
Emotional consequences						
Unpleasantness	3.48 (0.63)$_a$	2.45 (0.86)$_b$	1.92 (1.08)$_b$	1.83 (1.15)$_b$	19.18***	0.36
Guilt	2.32 (1.33)$_a$	1.64 (1.26)$_{ab}$	1.08 (1.12)$_b$	1.33 (1.24)$_b$	5.41**	0.1460
Interference						
Uncontrollability	2.83 (0.79)$_a$	1.41 (1.10)$_b$	0.78 (1.01)$_{bc}$	0.57 (0.77)$_c$	37.24***	0.52
Avoidance triggers	2.90 (1.19)$_a$	1.41 (1.53)$_b$	0.76 (0.88)$_{bc}$	0.50 (0.97)$_c$	26.22***	0.4360
Valorative appraisals						
Worry come true	3.57 (0.77)$_a$	2.09 (1.27)$_b$	1.32 (1.22)$_b$	1.43 (1.25)$_b$	24.17***	0.41
Unacceptability	2.71 (1.04)$_a$	1.95 (1.13)$_{ab}$	1.08 (1.22)$_{bc}$	1.50 (1.22)$_c$	10.41***	0.23
Likelihood come true	1.70 (1.37)$_a$	1.36 (0.79)$_{ab}$	0.88 (0.78)$_b$	0.73 (0.74)$_b$	5.99**	0.15
Importance of control	3.26 (0.73)$_a$	2.18 (1.01)$_b$	1.48 (1.42)$_{bc}$	1.13 (1.33)$_c$	19.99***	0.37
Harm/danger	1.87 (1.28)$_a$	1.45 (1.01)$_{ab}$	0.64 (0.99)$_b$	0.77 (1.19)$_b$	7.35***	0.17
Responsibility	2.61 (1.36)$_a$	1.95 (1.17)$_a$	1.08 (1.12)$_b$	0.93 (1.14)$_b$	12.39***	0.26

Note: OCD: obsessive compulsive group; DEP: depressed group; AD: non-obsessive anxious group; NC: non-clinical group. Data are expressed as mean (SD). Subscripts a, b and epresent post hoc comparisons (Tukey HSD).
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

avoidance, and a continuum emerged with the depressed falling in between the OCD patients and the other two groups.

In relation to the variables measuring dysfunctional cognitive appraisals of the obsession/OIT, post hoc Tukey's analyses revealed that the OCD group scored higher than the NC and AD on all these variables (see Table 4). However, there were no differences between the obsessive and depressive patients on four appraisal dimensions: unacceptability, likelihood thought will come true, harm/danger, and responsibility associated with the thought.

With regard to the ability of the studied variables to differentiate between OCD patients and the other groups, the frequency was shown to have the highest effect size, which was extremely high (Cohen, 1977). Very large effect sizes were also obtained for the two items measuring interference (uncontrollability and desire to avoid thought triggers) and for the unpleasantness. Finally, as for the items on dysfunctional cognitive appraisals, the highest effect sizes were for *worry thought will come true* and *importance of control*. Nevertheless, responsibility and unacceptability had moderate effect sizes.

The most disturbing obsession/IT: thought control strategies used to deal with

First, significant group differences were found in the number of the strategies used to deal with the most upsetting obsession/OIT (only strategies with frequency ratings ≥2 = "*Sometimes*" were computed). Post hoc tests showed that the OCD group employed a higher number of different thought control strategies than the other groups (see Table 5).

As seen in Table 5, significant group differences were also obtained on the frequency of use of the following six thought control strategies: overt neutralizing, reasoning with self, seeking reassurance, suppression, saying a prayer, and reassuring myself. Post hoc Tukey HSD tests indicated that the OCD group scored higher than the other groups on all these strategies, with the only exception of the praying strategy, where OCD patients differed from NC, but not from anxious and depressed groups. The effect size values were low, except for overt neutralizing. It is interesting to note that in the two distraction strategies (overt and covert), the NC group scored higher than the OCD patients, but no significant differences were obtained. Finally, no significant group differences were found on covert neutralizing, nor on the "do nothing" item.

Discussion

The present study was designed to compare the main characteristics of clinical obsessions experienced by OCD patients with the non-clinical OITs experienced, by non-clinical community participants, and other

Table 5
Group differences in the strategies to deal with the most upsetting obsession (OCD patients) or intrusive thought (other groups)

Control strategies	OCD ($n = 31$)	DEP ($n = 22$)	AD ($n = 25$)	NC ($n = 30$)	$F_{(3,107)}$	Partial η^2
N of strategies	5.94 (2.29)$_a$	4.56 (2.35)$_b$	4.48 (2.26)$_b$	4.63 (2.09)$_b$	2.86*	0.08
Covert distraction	1.58 (1.36)	1.27 (1.49)	1.80 (1.58)	2.03 (1.19)	1.37	0.04
Overt neutralizing	3.16 (0.97)$_a$	1.00 (1.23)$_b$	1.40 (1.38)$_b$	1.10 (1.24)$_b$	20.64***	0.37
Overt distraction	1.77 (1.45)	1.41 (1.22)	1.80 (1.38)	2.00 (1.20)	0.85	0.02
Covert neutralizing	1.94 (1.57)	1.50 (1.47)	1.20 (1.15)	1.30 (1.24)	1.65	0.05
Reason with self	2.97 (1.28)$_a$	1.86 (1.28)$_b$	2.12 (1.24)$_{ab}$	2.30 (1.15)$_{ab}$	4.03**	0.10
Seek reassurance	2.29 (1.53)$_a$	1.23 (1.38)$_b$	1.16 (1.55)$_b$	0.80 (1.21)$_b$	6.17***	0.15
Suppression	2.58 (1.29)$_a$	1.45 (1.44)$_b$	1.48 (1.33)$_b$	1.30 (1.32)$_b$	5.83***	0.14
Do nothing	0.71 (0.94)	1.32 (1.04)	1.32 (1.38)	0.97 (1.38)	1.67	0.05
Say a prayer	0.90 (1.33)$_a$	1.09 (1.31)$_{ab}$	0.44 (1.12)$_{ab}$	0.27 (0.64)$_b$	3.13*	0.08
Reassure myself	2.58 (1.43)$_a$	1.64 (1.18)$_b$	1.64 (1.38)$_b$	1.70 (1.34)$_b$	3.44*	0.09

Note: OCD: obsessive compulsive group; DEP: depressed group; AD: non-obsessive anxious group; NC: non-clinical group. Data are expressed as mean (SD). Subscripts a, b and represent post hoc comparisons (Tukey HSD).
*$p<0.05$.
**$p<0.01$.
***$p<0.001$.

people with mental disorders. Scant empirical evidences exist about the differences between obsessions and OITs in non-clinical people and in other psychopathological conditions different from OCD. With this purpose in mind, a measure of ROII was simultaneously administered to a clinical OCD group, a matched non-clinical control group, and two clinical control groups (non-OCD anxious and depressed patients).

To that end, we used a questionnaire specifically designed to evaluate the contents and frequency of OITs. As far as we know, the ROII has mainly been applied in non-clinical samples: undergraduate or college students (Lee & Kwon, 2003; Lee, Lee, Kim, & Telch, 2005; Lee & Telch, 2005; Purdon & Clark, 1994a, b), community participants (Belloch et al., 2004), and subclinical people with OCD (Morillo et al., 2003), and the data concerning its clinical validity are scarce (Lee, Kwon, Kwon, & Telch, 2005). For this reason, we first tested the construct validity of the ROII using the clinical OCD group as referent. The questionnaire showed high significant associations with OCD symptoms (MOCI, PI-WSUR), but not with depressive or anxious symptoms, or with depressive and worrisome typical cognitions (ATQ, PSWQ, respectively). Moreover, the association between ROII and OCD symptoms remained significant after controlling for depression and anxiety. So, the conclusion can be drawn that the ROII possesses adequate construct validity, and, therefore, it seems to be a useful instrument for assessing OCD-relevant intrusions. However, the ROII total score was not related to the OCD severity, as measured by the Y–BOCS. This result is not surprising bearing in mind that the ROII was constructed to assess the normal intrusive thoughts analogous to obsessions. From this perspective, the usefullness of the instrument in clinical practice for OCD relies on its ability to map the variety and the recurrence of the OITs displayed by a particular patient. However, as the ROII does not assess the severity of the disorder, it must be kept in mind that some OCD patients could refer to few but very upsetting obsessive themes, whereas others might display a large array of obsessional complaints. The former would probably obtain low scores in the ROII.

The four groups of participants were comparable on their socio-demographic data, except for the higher age of the depressive group. In the between groups analyses on the questionnaire measures, the three clinical groups differed from the normal controls with the exception of the ATQ, on which non-clinical people scored the same as the anxious patients. We also observed the expected correspondence among group and symptom measures for the DEP group, which obtained the highest scores on the BDI and ATQ. The higher score of depressed patients on the ATQ, and the absence of differences on this questionnaire observed between anxious patients and non-clinical participants, indicates that the cognitive intrusions assessed by the ATQ are highly specific to depression. It is interesting to note that the OCDs and DEPs did not differ on the MOCI, which suggests the existence of OCD symptoms in the depressed patients. This result could be interpreted in terms of a measure effect, since the MOCI does not adequately assess the severity of OCD symptoms, and, therefore, is unable to discriminate clinical from subclinical OCD symptoms, which are common in depression. The absence of differences on the worry intrusions among the three clinical groups suggests that this variety of IT is not specific to the anxiety disorders, at least as assessed by the PSWQ. Finally, the DEP group obtained the highest score on the anxiety state measure (STAI-S). Other studies (e.g., Abramowitz, Whiteside, Lynam, & Kalsy, 2003; Mathews, Ridgeway, & Williamson, 1996) have also found that depressed and anxious patients are not distinguishable on the basis of their respective STAI scores, or even that depressive patients obtained higher scores. This fact has been interpreted by Mathews et al. (1996, p. 702) as follows: "despite its name, the STAI is not a pure measure of anxiety. It contains items that appear to overlap with depression".

As for the differential characteristics of the OITs in the three different diagnostic conditions (OCD, depression, and non-OCD anxiety disorders) and in the non-clinical participants, the OCD participants had the highest scores on the ROII-total score. This finding coincides with those obtained in a study comparing the ROII scores in subclinical OCD participants and non-clinical participants (Morillo et al., 2003). At first glance, these results could lead to affirming that OCD patients experience more OITs than other people. However, a detailed analysis reveals that the differences on the ROII score are not attributable to a higher variety of OITs in OCD, but rather to their average rate of frequency or recurrence. This result is highly consistent with the assumption of cognitive OCD models that the differences between abnormal and "normal" obsessions are quantitative (i.e. the former are more frequent) rather than qualitative (i.e., content or modalities of OITs). The importance of this piece of data should not be ignored when explaining why some OITs become clinical obsessions, while others continue to be merely intrusions.

The most frequently experienced OITs by the OCD patients were aggressive thoughts-impulses against others, contamination by touching neutral objects, and doubts about having left something on at home. The two former contents were not usually experienced by the other diagnostic and non-clinical groups, whereas the OITs on doubts were also common among these groups, as was also reported in a study with community controls using the ROII as a measure instrument for OITs (Belloch et al., 2004). In contrast, the self-aggressive thoughts and/or impulses were the most frequent OITs reported by depressed patients, suggesting that these OIT contents are not OCD-relevant, as was also reported by Morillo, García-Soriano, and Belloch (2005).

The ROII-2nd part was used to compare the most disturbing clinical obsession in OCD patients with the most disturbing OIT in the control groups. First, we will discuss the results concerning the frequency of obsessions and OITs, their emotional impact, and their associated interference. All these variables were useful for characterizing the clinical obsessions, since significant differences were found between the OCDs and the rest of the groups. Accordingly, we can conclude that the clinical obsessions, compared to the most upsetting normal OITs, are much more recurrent and are experienced with more unpleasantness. Moreover, the obsessions are also more difficult to control or dismiss, and they induce a greater desire to avoid potential thought triggers. So, as expected, clinical obsessions are more interfering than normal OITs. The especially large effect sizes observed for the frequency-recurrence of the thought and the difficulty of keeping it under control, suggest that these two variables are key features of a clinically significant obsession. As expected, the OCD patients were bothered by a higher recurrence of their obsession ("*several times during the day*"), whereas the most disturbing OIT in the rest of the groups was much less frequent. These results are highly consistent with those reported by Morillo et al. (2003), where the same variables successfully discriminate a group of subclinical OCDs from normal controls. Nevertheless, in this study the reported average frequency of the main OIT in the subclinically obsessive participants was 3 ("*Sometimes, once or twice a month*"), and this rate is far from the daily experience of the clinical obsessions reported by our OCD patients. Taken together, all these results suggest that the important quantitative differences between the recurrence of OITs in the OCD group and the other groups, including the subclinical OCDs, could explain the differences in "how" these thoughts are subjectively experienced and, hence, the interference they cause in daily life. An extreme recurrence of an OIT seems to be a main determinant factor of the search for an explanation for its presence and the urge to engage in neutralizing strategies for these unpleasant experiences.

The absence of significant differences between obsessive and depressed patients in the guilt ratings for having a thought chosen as the most upsetting OIT, could be attributed to the content of this thought. As a group, the depressed participants experienced self-aggressive thoughts more frequently, and this fact can increase the self-guilt feelings commonly experienced by these patients.

Some of the ROII-2nd part cognitive appraisals, referring to dysfunctional interpretations of the most disturbing obsession and/or OIT, could be considered representative of three dysfunctional belief domains emphasized by the OCCWG (1997, 2001, 2003) as highly relevant to OCD: Over-importance of thoughts, Control of thoughts, and Responsibility. Our data reveal that all the dysfunctional appraisals measured by the ROII are OCD-relevant. The OCD group, in comparison with their matched non-clinical controls, attached a greater importance to their obsession, since they were more worried that the thought would come true, they experienced their obsession as being an unacceptable or immoral thought, they gave more importance to controlling the thought, and they felt more responsible for the possible consequences of having it. These results are also similar to those obtained in subclinical OCD people (Morillo et al., 2003), where differences between subclinical OCDs and non-clinical participants were found on the same variables. There is a lot of empirical evidence about the relevance of dysfunctional interpretations of OITs in OCD. For instance, the OCCWG (2001) designed the Interpretations of Intrusions Inventory (III) to assess the negative appraisals of recently experienced OIT, and they reported that all three of their subscales (importance of thoughts, control of thoughts, and responsibility) were able to distinguish between clinical OCDs and several non-clinical samples. Salkovskis et al. (2000), using the *Responsibility Intrusions Questionnaire* (*RIQ*), also obtained significant differences between OCDs and non-clinical participants in their dysfunctional appraisals about excessive responsibility.

In the present study, we also examine the specificity of dysfunctional appraisals or misinterpretations of cognitive intrusions in OCD, by analyzing the differences among OCDs and depressed and anxious groups. On one hand, our results support the specificity of such misinterpretations with regard to the non-OCD

anxious disorders, since the OCDs score higher than the ADs on all the dysfunctional appraisals assessed by the ROII. These results are once again consistent with those reported by Salkovskis et al., (2000) using the RIQ, and with those by the OCCWG (2001), using the III. In both studies significant differences between obsessive patients and other anxious controls were obtained in cognitive appraisals concerning responsibility, over-importance and control of thoughts. However, none of these studies has included depressed controls. In the present study, no clear evidence of the specificity for OCD on four of the valorative appraisals was obtained: OCD and DEP patients did not differ on unacceptability, likelihood thought will come true, thought portends harm/danger, and responsibility. In summary, all the measured misinterpretations of OIT seem to be relevant to the OCD experience, but only two could be considered OCD-specific: *worry thought will come true*, and *importance of controlling the thought*. The scores on these two beliefs had important effect sizes. These results do not adequately support the Salkovskis hypothesis about the specific role of responsibility in OCD (Salkovskis, 1985, 1989; Salkovskis et al., 2000; Salkovskis & Forrester, 2002). In our study, the responsibility appraisal about the most disturbing obsession or OIT did not differentiate between OCDs and DEPs. Moreover, as we mentioned above, the guilt feelings for having the thought, which are conceptually related to the self-feelings of responsibility to avoid the negative consequences of the thought, did not appear to be OCD-specific, since no differences were found between OCDs and depressed patients. Taking into account that in our study these beliefs are referred to the most disturbing obsession (OCD) or OIT (DEP) experienced by the subjects, the differences between our data and the Salkovskis results on the responsibility beliefs could be explained in terms of a more restrictive consideration of the belief in our study versus a most general view in the Salkovskis research. Nevertheless, bearing in mind that the self-aggressive thoughts were the most frequent OITs experienced by the DEP participants, it is not rare that they felt highly responsible for having them.

The OCD patients scored higher than the other three groups on the number of strategies they used to deal with the most upsetting obsession or OIT. Freeston and Ladouceur (1997) described an extensive repertoire of neutralizing strategies reported by OCD patients to neutralize their obsessions. The most usual strategies were similar to those reported by non-clinical participants when a frequent intrusive thought occurred (Freeston, Ladouceur, Provencher, & Blais, 1995). In a further study (Ladouceur, Freeston, Rhéaume, Dugas et al., 2000), the OCD patients differed from non-clinical participants, but not from a group of patients with other anxiety disorders different from OCD, on the number of strategies used. The differences between our results and those reported in this later study could be attributable to the OIT/obsession that was used as a reference to report on the control strategies to deal with it: the above-mentioned study was performed on the most frequent OIT or obsession, whereas in the present research the control strategies were referred to the most disturbing thought or obsession. But in any case, our results support the suggestion from the above mentioned studies that the efforts to actively control an OIT is not an OCD-specific feature. All non-obsessive groups, including normal controls, displayed a vast range of strategies to deal with their most disturbing OIT, and all of them "do something" with their OIT (no between-group differences on "do nothing" item). So, it seems that having an unwanted OIT is enough of a motivating stimulus to do something to control it.

Given that the differences between normality, depression, OCD, and other anxiety disorders do not lie in the absence vs. presence of effortful control strategies, the interest ought to be directed toward exploring whether certain thought control modalities or strategies are relevant and/or specific to OCD patients. The data obtained revealed that three of the measured strategies were OCD-relevant and OCD-specific: overt neutralizing, seeking reassurance, and thought suppression. These thought control modalities were used significantly more by OCDs than by the other three control groups. The *overt neutralizing* strategy seems to be especially important: it was the one most frequently employed by the OCD participants, and it also showed the highest effect size to differentiate OCDs from the other groups. Consequently, the need to engage in a certain specific behavior to deal with an OIT, or to alleviate the discomfort associated with the OIT, seems to be a typical feature of OCD. This result is similar to what was reported by Ladouceur et al. (2000), since these authors found that OCDs scored higher than anxious controls on overt compulsions and cognitive checking, and lower on distraction and on changing obsessions by positive thoughts. Moreover, OCDs employed the strategies of thought suppression, asking themselves what was happening, and overt compulsions more than normal controls. These results indicate that the overt compulsive behaviors were highly specific to OCD patients compared with non-clinical participants and non-obsessive patients. In short, the overt neutralizing behaviors, the intentional efforts to suppress the thought, and the searching for reassurance that the thought

has not come true, can be considered different modalities of safety-seeking behaviors (Salkovskis, 1991, 1996), which are highly specific to OCD and could have a crucial role in the maintenance of the disorder.

It is interesting to note the little use that OCDs make of the two distraction strategies included in the questionnaire, especially in comparison with the normal controls, although there were no statistically significant differences. This result is consistent with those reported in other studies (Abramowitz, Whiteside, Kalsy, & Tolin, 2003; Amir, Cashman, & Foa, 1997), in which the distraction strategy, as measured by the Thought Control Questionnaire, was used by normal controls but not by OCD patients. Similarly, in Belloch et al. (2004), distraction was a relevant strategy in non-clinical samples and predicted the unpleasantness associated with the most disturbing OIT.

A limitation of the present study is that the ROII assesses each of the dysfunctional appraisals and control strategies with only one item, so it is not as reliable as other measures that employ several items for each variable. Nevertheless, we decided to use this instrument because it assesses appraisals and strategies about a specific obsessional intrusive thought, which is selected by the respondent as the most disturbing one, and from this point it allows a clearer comparison between clinical and "normal" obsessions.

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