Obsessive beliefs and uncertainty in obsessive compulsive and related patients creencias obsesivas e incertidumbre en pacientes con trastorno obsesivo compulsivo y afines

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Abstract

Background/objective: The aim of the present study was to examine obsessive beliefs and intolerance of uncertainty differences among patients Obsessive compulsive disorder (OCD), trichotillomania, excoriation, generalized anxiety disorder (GAD) and a control group healthy.

Method: 130 participants between the ages of 17 and 62 years (Mean = 29.56, SD = 11.81) diagnosed with OCD (n = 36), trichotillomania (n = 18), excoriation (n = 17), GAD (n = 31) and a healthy control group (n = 28) were evaluated by Obsessive Beliefs Spanish Inventory-Revised and Intolerance of Uncertainty Scale.

Results: The trichotillomania group presented one of the highest obsessive beliefs highlighting over-importance of thoughts, thought action fusion-moral, importance of controlling one’s thoughts. The OCD group also had higher scores in inflated responsibility and thought action fusion-likelihood. The GAD group excelled in inhibitory and prospective uncertainty. The level of depression influenced obsessive beliefs while anxiety affected inhibitory and prospective uncertainty.

Conclusions: Cognitive variables such as obsessive beliefs and Intolerance of Uncertainty should be considered in the prevention and intervention of obsessive and anxiety disorders.

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Keywords

Obsessive beliefs; Intolerance of uncertainty; Obsessive disorders; Generalized anxiety disorder; Experiment

Introduction

Obsessive beliefs have been considered central to the onset and development of obsessive-compulsive disorder (OCD).

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The cognitive-behavioral model (Rachman, 1998; Salkovskis, 1985) postulates that clinical obsessions arise from mal-adaptive dysfunctional beliefs, such as overestimation of threat and responsibility, importance and need to control intrusive thoughts and perfectionism and intolerance of uncertainty. These beliefs lead to wrongly interpreting intrusive thoughts, causing anxiety-reducing behaviors and
thoughts. Haseth et al. (2019) proposed that thoughts and pulsions to alleviate the anguish associated with such are at the core of OCD, which may provoke the use of compensations among patients (OCD, TTM, ED, GAD) and a healthy control group. (2) To analyze if OB and IU can be influenced by anxiety and depression. (3) To assess the relationship between sex and pharmacological consumption and OB and IU among a clinical group, and (4) To study the relationship between OB and IU and severity symptoms in clinical groups.

Method

Participants

The study comprised 130 participants between the ages of 17 and 62 years (Mean = 29.56; SD = 11.81) diagnosed with OCD, GAD, ED and TTM and a healthy control group (CG).

Inclusion criteria were as follows: (i) diagnosis of OCD, TTM, ED and GAD (APA, 2013). (ii) OCD participants were required to obtain ≥ 16 scores in Y-BOCS (Goodman et al., 1989). (iii) GAD participants had to reach ≥ 56 in the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990). (iv) ED participants had to reach Milwaukee Inventory for the Dimensions of Adult Skin Picking scores ≥ 16 (Weimer et al., 2009). (v) TTM participants had to reach ≥ 12 on the Massachusetts General Hospital Hair-pulling Scale (MGH-HS; Keuthen et al., 1995). Exclusion criteria included: (i) comorbidity with Schizophrenic Spectrum Disorders, Personality Disorders, Anorexia, Bulimia, substance abuse disorders and Neurocognitive Disorders, and (ii) being under 15 or over 65 years of age. Participants in the control group were excluded if: (i) they presented a
current psychopathological disorder, (ii) had experienced or been diagnosed with any of the aforementioned disorders at some point in their life.

Sample characteristics are presented in Table 1.

**Procedure**

The study meets the ethical standards of the Declaration of Helsinki and has been approved by the Ethics Committee of the University of Murcia, Spain (code: 1296/2016; code: 2123/2018). All families provided written informed consent after which participants engaged in an individual diagnostic interview based on the DSM-5, conducted by three clinical psychologists. The test presentation order was the same for all participants. Two patients in the control group withdrew as they did not wish to continue being assessed. Recruitment is shown in Fig. 1.

**Clinical measures**

- Yale Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989) is comprised of 10 items assessing the severity of OCD. It contains two subscales, obsessions (range = 0–20) and compulsions (range = 0–20) and a total score (range = 0–40). The scale has a high internal consistency (α = .87–.90) and good convergent validity (r = .47–.74). Cronbach's alpha in this study was .87.

- Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990). A 16-item self-report scale that assesses the general tendency to worry especially present in GAD. The cut-off point for detection of GAD is 56. It has been shown to have good psychometric properties. Cronbach's alpha was high (α = .96).

- Milwaukee Inventory for the Dimensions of Adult Skin Picking (MIDAS; Walther et al., 2009) is a 12-item self-report questionnaire assessing the extent to which individuals report “focused” (six items) and “automatic” (six items) styles of skin picking. Each item is rated on a Likert-type scale from 1 to 5. Cronbach's alpha was: focused = 0.70, automatic = 0.71, and total = 0.75.

- The Massachusetts General Hospital Hair-pulling Scale (MGH-HS; Keuthen et al., 1995) is a seven-item self-report measure of TTM severity. Items are ranked on a 5-point Likert scale resulting in

| Table 1  | Sample measures. |
|----------|------------------|
| Characteristics | OCD (n = 36) | ED (n = 17) | TTM (n = 18) | GAD (n = 31) | GC (n = 28) | p       |
| Age (Mean ± SD)     | 35.75 ± 11.45 | 25.24 ± 5.23 | 21.33 ± 4.23 | 30.65 ± 11.18 | 33.92 ± 10.58 | <.001 |
| Sex n (%)           | Men 16 (44.4) | 0 | 0 | 11 (35.5) | 11 (39.3) | <.001 |
|                     | Women 20 (55.6) | 17 (100) | 18 (100) | 20 (64.5) | 17 (60.7) | <.001 |
| Years disorder duration (Mean ± SD) | 14.19 ± 11.35 | 7.88 ± 1.65 | 11.16 ± 7.86 | 4.85 ± 4.07 | - | <.001 |
| Comorbidity n (%)   | No comorbidity 19 (57.6) | 6 (35.3) | 0 | 13 (48.1) | - | <.001 |
|                     | Marital status n (%) | 17 (42.4) | 11 (64.7) | 18 (100%) | 18 (51.9) | - | <.001 |
|                     | Single 17 (47.2) | 20 (64.5) | 18 (100) | 20 (64.5) | 14 (50.0) | - | <.001 |
|                     | Married 16 (44.4) | 9 (29) | 0 | 9 (29) | 13 (46.4) | - | <.001 |
|                     | Divorced 3 (8.4) | 2 (6.5) | 0 | 2 (6.5) | 1 (3.6) | - | <.001 |
| Educational level n (%) | Elementary 7 (19.4) | - | - | 5 (16.1) | 5 (17.9) | - | <.001 |
|                     | Secondary education 7 (19.4) | 5 (29.4) | 6 (33.3) | 5 (16.1) | 6 (21.4) | - | <.001 |
|                     | High school 10 (27.9) | - | 6 (33.3) | 8 (25.8) | 9 (32.1) | - | <.001 |
| Psychiatric treatment |   |   |   |   |   |   | <.001 |
|                     | Yes 22 (61.1) | 11 (64.7) | 0 | 14 (45.2) | - | <.001 |
|                     | No 14 (38.9) | 6 (35.3) | 18 (100) | 17 (54.8) | - | <.001 |
| Psychological treatment | Yes 28 (77.8) | 11 (64.7) | 12 (66.7) | 26 (83.9) | - | <.001 |
|                     | No 8 (22.2) | 6 (35.3) | 6 (33.3) | 5 (16.1) | - | <.001 |
| Type of pharmacotherapy | None 18 (50) | 12 (70.6) | 18 (100) | 17 (54.8) | - | <.001 |
|                     | Antidepressant 16 (44.6) | 5 (29.4) | 0 | 14 (45.2) | - | <.001 |
|                     | Antipsicot. Antidepr. 1 (2.7) | 0 | 0 | 0 | - | <.001 |
|                     | +antipsicot. 1 (2.7) | 0 | 0 | 0 | - | <.001 |
| BAI (Mean ± SD)     | 18.91 ± 10.29 | 20.29 ± 15.76 | 13.00 ± 8.237 | 23.42 ± 13.92 | 7.14 ± 6.09 | <.001 |
| BDI (Mean ± SD)     | 19.72 ± 11.98 | 23.82 ± 15.44 | 13.50 ± 2.57 | 24.25 ± 7.17 | 6.61 ± 4.45 | <.001 |

n = number; SD: Standard deviation; OCD: Obsessive-compulsive disorder; ED: Excoriation; TTM: Trichotillomania; GAD: Generalized anxiety disorder; CG: Control group; BAI: Beck Anxiety Inventory; BDI: Beck-II Depression Inventory.
total scores ranging from 0 to 28. Higher scores indicate greater TTM severity. Internal consistency was \( \alpha = .94 \).

- Beck-II Depression Inventory (BDI; Beck et al., 2011) is a 21-item self-report scale that assesses depression severity. Classification of scores was as follows: minimal (0 to 13), mild (14 to 19), moderate (20 to 28) and severe (>29). Cronbach’s alpha was .91.

- Beck Anxiety Inventory (BAI; Beck & Steer, 1996) is a 21-item self-report scale that measures anxiety severity. Classification of scores was as follows: minimal (0 to 7), mild (8 to 15), moderate (16 to 25) and severe (26+). The internal consistency coefficients varied between .85 and .93. Cronbach’s alpha was .92.

- Obsessive Beliefs Spanish Inventory-Revised (OBSI-R; Belloch et al., 2010) is a 50-item self-report questionnaire (from 1, strongly disagree, to 7, strongly agree) with eight scales: Inflated responsibility, over-importance of thoughts, thought action fusion-likelihood, thought action fusion-moral, importance of controlling one’s thoughts, overestimation of threat, intolerance of uncertainty, and perfectionism. This has been shown to have adequate psychometric properties. Cronbach’s alpha was 0.92.

- Intolerance of Uncertainty Scale (IUS; Freeston et al., 1994). Comprising 27 items with five types of response which evaluates the tendency to react negatively on an emotional, cognitive and behavioral level to uncertain situations and events. It is divided into two factors: Inhibitory uncertainty and prospective uncertainty. The internal consistency coefficient was .91 and test-retest reliability .78. Cronbach’s alpha in this study was 94.

**Data analysis**

Chi-square and one-factor ANOVA were used to examine potential group differences in clinical and demographic (age/gender) variables at pretreatment. Subsequently, ANOVA and post-hoc comparisons (Tukey or Games-Howel) of OBSI-R and IUS were carried out. An analysis of covariance was performed when there were significant differences between clinical groups in anxiety and depression. Independent samples Tests (Kruskal Wallis H test) were performed within each clinical group taking into account the sex and medication use. The Pearson correlation was used to analyze the relationship between variables. All participants were included in the analyzes. SPSS Statistic 22.00 was used for statistical analysis.

**Results**

**Equivalence of groups in pretest**

The groups were not equivalent in any sociodemographic or clinical variable. See Table 1

**A comparison of clinical group and CG in OB and IU**

Table 2 shows the results of ANOVA on all variables, except in OBSI-R-P.

The TTM group reported one of the highest obsessive beliefs, highlighting OBSI-R-IT, OBSI-R-TAFM, OBSI-R-CT and OBSI-R-OT. OCD group also presented higher scores in OBSI-R-IR and OBSI-R-TAF. GAD group excelled in Inhibitory and prospective IUS (Table 3).

**OB and IU controlling anxiety and depression levels**

Correlation between sociodemographic variables, anxiety and depression with OB and IU was carried out. In addition, we carried out a comparison of independent means with the gender variable. Results indicated that only the anxiety and depression variables correlated with OB and IU. These variables (anxiety and depression) obtained statistically significant differences among groups, an analysis of covariance was carried out. BDI influenced all OBs except OBSI-R-OT and inhibitory and prospective IUS. BAI influenced OBSI-R-CT, OBSI-R-OT and inhibitory and prospective IU. Once these variables were controlled, the TTM group mean was increased.

![CONSORT flow diagrams of study development. OCD: Obsessive-compulsive disorder; ED: Excoriation; TTM: Trichotillomania; GAD: Generalized anxiety disorder; CG: Control group; ADHA: Attention deficit hyperactivity disorder; ASD: Autism spectrum disorder; PD: Personality disorders.](image-url)
### Table 2: ANOVA and post-hoc analysis.

| Variables    | OCD Mean (SD) | ED Mean (SD) | TTM Mean (SD) | GAD Mean (SD) | CG Mean (SD) | F ANOVA | Post hoc                |
|--------------|---------------|--------------|---------------|---------------|--------------|---------|------------------------|
| OBSI-R-IR    | 29.11 (8.56)  | 28.65 (14.59)| 26.50 (8.41)  | 28.06 (8.22)  | 21.42 (6.43) | 3.23**  | OCD > CG**                     |
| OBSI-R-IT    | 12.22 (6.45)  | 11.00 (6.90) | 16.00 (1.45)  | 9.42 (5.16)   | 9.28 (4.21)  | 5.83*** | TTM > OCD**, CG, GAD ***     |
| OBSI-R-TAF   | 16.03 (8.83)  | 13.12 (8.45) | 12.50 (7.24)  | 12.32 (6.95)  | 7.89 (3.74)  | 5.25**  | OCD > CG*** TTM > CG** GAD > CG |
| OBSI-R-TAFM  | 22.72 (10.49)| 21.58 (7.85) | 26.00 (8.89)  | 16.96 (11.21) | 16.85 (5.87) | 4.38**  | OCD > CG* TTM > CG** GAD > CG |
| OBSI-R-CT    | 23.64 (6.43)  | 18.88 (10.87)| 24.00 (2.36)  | 20.22 (4.88)  | 19.00 (6.73) | 3.62**  | TTM > GAD**, CG*            |
| OBSI-R-OT    | 27.92 (6.89)  | 22.05 (13.22)| 28.00 (2.05)  | 27.32 (8.57)  | 21.00 (6.11) | 4.38**  | OCD > CG** TTM > CG** GAD > CG |
| OBSI-R-IU    | 24.17 (9.48)  | 26.18 (12.49)| 25.00 (7.20)  | 24.55 (10.97) | 18.50 (7.98) | 2.40*   | ED > CG*                 |
| OBSI-R-P     | 24.19 (9.45)  | 26.18 (12.49)| 25.00 (7.20)  | 24.97 (11.28) | 20.04 (10.48)| 1.31    |                         |
| InhibitoryIUS| 49.95 (11.16)| 32.00 (1.89)| 29.50 (1.54)  | 57.15 (10.85) | 31.57 (8.35) | 43.54***| OCD > CG*** TTM *** ED *** |
| ProspectiveIUS| 31.45 (8.60)| 16.00 (1.32)| 21.50 (6.68)  | 36.25 (8.55)  | 20.15 (6.10) | 23.72***| OCD > TTM*, CG *, ExD ***  |

OCD: Obsessive-compulsive disorder; ED: Excoriation; TTM: Trichotillomania; GAD: Generalized anxiety disorder; CG: Control group, OBSI-R-IR: Inflated responsibility, OBSI-R-IT: over-importance of thoughts, OBSI-R-TAF: thought action fusion-likelihood, OBSI-R-TAFM: thought action fusion-moral, OBSI-R-CT: importance of controlling one’s thoughts, OBSI-R-OT: overestimation of threat, OBSI-R-IU: intolerance of uncertainty, OBSI-R-P: perfectionism, Inhibitory IUS: Inhibitory Intolerance of Uncertainty, Prospective IUS: Prospective Intolerance of Uncertainty. *** < .001; ** < .01; * < .05.

### Table 3: ANCOVA controlling depression and anxiety.

| Variables    | OCD adjusted Mean | ED adjusted Mean | TTM adjusted Mean | GAD Mean | F ANCOVA | Post hoc                | Eta² partial |
|--------------|-------------------|------------------|-------------------|----------|----------|------------------------|--------------|
| OBSI-R-IR    | 28.55 (12.61)     | 12.61 (6.89)     | 26.59 (12.49)     | 27.82    | 5.32**   | OCD > ExD** TTM > ExD* | .19          |
| OBSI-R-IT    | 11.51 (6.72)      | 6.72 (1.89)      | 18.12 (2.36)      | 9.18     | 16.16*** | TTM > OCD***, ExD***, TAG*** | .42          |
| OBSI-R-TAF   | 13.14 (6.58)      | 6.58 (1.54)      | 15.23 (1.54)      | 10.16    | 4.01**   | TTM > ExD**, GAD**     | .15          |
| OBSI-R-TAFM  | 20.77 (14.36)     | 14.36 (1.54)     | 30.91 (1.54)      | 16.66    | 10.14*** | TTM > OCD***, ExD***, GAD** | .32          |
| OBSI-R-CT    | 23.47 (11.81)     | 11.81 (1.54)     | 26.34 (1.54)      | 18.86    | 32.82*** | OCD > ExD***, GAD**    | .59          |
| OBSI-R-OT    | 27.27 (11.78)     | 11.78 (1.54)     | 30.36 (1.54)      | 25.98    | 11.59*** | OCD > ExD*** TTM > ExD** | .34          |
| OBSI-R-IU    | 23.51 (13.39)     | 13.39 (1.32)     | 28.08 (1.32)      | 25.15    | 3.86**   | TTM > ExD**            | .15          |
| OBSI-R-P     | 23.58 (13.12)     | 13.12 (1.32)     | 27.94 (1.32)      | 25.77    | 3.88**   | TTM > ExD**            | .15          |
| InhibitoryIUS| 49.61 (35.45)     | 35.45 (31.44)    | 31.44 (35.45)     | 55.49    | 25.36*** | OCD > ExD*, TTM***     | .54          |
| ProspectiveIUS| 30.93 (20.41)    | 20.41 (24.09)    | 24.09 (20.41)     | 34.13    | 10.91*** | OCD > ExD*, TTM***     | .33          |

OCD: Obsessive-compulsive disorder; ED: Excoriation; TTM: Trichotillomania; GAD: Generalized anxiety disorder; CG: Control group, OBSI-R-IR: Inflated responsibility, OBSI-R-IT: over-importance of thoughts, OBSI-R-TAF: thought action fusion-likelihood, OBSI-R-TAFM: thought action fusion-moral, OBSI-R-CT: importance of controlling one’s thoughts, OBSI-R-OT: overestimation of threat, OBSI-R-IU: intolerance of uncertainty, OBSI-R-P: perfectionism, Inhibitory IUS: Inhibitory Intolerance of Uncertainty, Prospective IUS: Prospective Intolerance of Uncertainty. *** < .001; ** < .01; * < .05.
thoughts and beliefs.

Romero-Sanchiz et al. (2017), the difference between clinical groups (Olatunji et al., 2019; Rizvi et al., 2020). According to Besharat et al. (2019) OB and IUS could be deemed possible transdiagnostic factors, though with specific variabilities in each disorder.

Regarding uncertainty, the GAD and OCD groups found higher scores, with no significant differences between groups. UI deficits in anxiety disorders have been widely reported, specifically in GAD (Counsell et al., 2017). However, it has also been shown to be relevant in other disorders, such as OCD (Fradkin et al., 2020; Williams & Levinson, 2021). This has been related to the control behaviors of the disorder, such as compulsive rituals, which might respond to the demand to alleviate anxiety related to uncertainty (Inozu et al., 2021). Nevertheless, we must stress that uncertainty was measured with two different instruments: OBSI-R-IU and IUS. The first focuses on beliefs and the second on paralyze action (inhibition) and uncertainty that generate great discomfort and bewilderment (prospective), closer to the concern of generalized anxiety. Therefore, the results in groups are different.

Focusing on comparisons between clinical groups, differences between TTM and OCD were observed only in over-importance of thoughts, being higher in the first group, while in inhibitory and prospective IUS, the OCD group reached higher averages. Differences between the TTM and GAD groups were seen in over-importance of thoughts, thought action, moral-fusion and importance of controlling one’s thoughts, being greater in the TTM group, while the GAD group stood out in inhibitory and prospective IUS. The ED group presented significantly lower scores in inhibitory and prospective IUS compared to the OCD and GAD groups. These data could indicate that the TTM group has highest obsessive beliefs, followed by the OCD group. Furthermore, the GAD and OCD group presented higher UIS (inhibition and prospective) in comparison to the other two clinical groups. Therefore, we could indicate that the GAD and OCD groups are close in terms of uncertainty variables, while the TTM and OCD groups would be close in regards OB. As indicated by Besharat et al. (2019) OB and IUS could be deemed possible transdiagnostic factors, though with specific variabilities in each disorder.

The second aim was to analyze whether differences between clinical groups varied when controlling for anxiety and depression. After controlling for anxiety and depressive symptoms, the TTM and OCD groups presented higher obsessive beliefs. The influence of anxiety and depression has also been reported in different studies (Capobianco et al., 2020). Following Purdon (1999) it may be that patients with obsessive spectrum disorders are more likely to repress thoughts, due to the egodynamic nature of obsessions. This would contribute to an increase of obsessive beliefs, compared to cognitive processes such as worries and negative thoughts more typical of anxiety disorders.

After controlling for anxiety, the groups with the greatest uncertainty were GAD and OCD, therefore both groups who consider uncertainty intolerable and that worry helps to cope with it (Aktar et al., 2017). This leads us to conclude, following Timkaya et al. (2018), that anxiety and depression appear to play a relevant role in OB and IUS. These variables could be transversal in the investigation of cognitive processes in these disorders.

The third aim analyzed the influence of sex and use of psychotropic drugs on obsessive beliefs and uncertainty.
We only found significant differences in the GAD group regarding sex, with women having higher scores in inflated responsibility and overestimation of threat and inhibitory and prospective IUS, while men scored higher in over-importance of thoughts. We consider these differences might be due to social and cultural factors, rather than differences of the sex itself (Hofmann et al., 2010).

A positive relationship was also found between the consumption of psychotropic drugs (antipsychotic vs antidepressant) and OB (OBSI-R-IT and OBSI-R-TAFM) in the OCD group. This could be explained by the possible greater severity of the disorder in patients taking antipsychotic drugs. These results may be in line with those by Park et al. (2020) on the predictive capacity of worry beliefs in response to psychopharmacological treatment in OCD.

The final aim was to check for a relationship between OB and UI and the severity of the disorder. In our study, it was found that in obsessive groups, the greater the severity of the disorder, the greater the presence of obsessive beliefs. In the GAD group, the positive relationship was between severity and uncertainty, coinciding with other authors (Rehm et al., 2019; Toffolo et al., 2016). These results could strengthen the thought that obsessive beliefs play an important role in maintenance and evolution of these psychopathological conditions.

As clinical implications, we can highlight that cognitive variables such as OB and UI should be considered not only in the intervention of obsessive and anxiety disorders, but even in their prevention. This is in line with some studies on the importance of dysfunctional beliefs and uncertainty in the development, maintenance and treatment of psychopathology (Shihata et al., 2016). In addition, levels of anxiety and depression have proven to be relevant factors to take into account, therefore it would be convenient to carry out adequate assessment and treatment of these variables to improve the psychological intervention of cognitive processes which patients present.

This study has some limitations, such as non-random selection of participants, small sample size, use of only self-reports for evaluation of key variables and evaluation in a single time point.

Future studies could include a larger sample size in order to generalize results and analyze these according to different subtypes of obsessions and compulsions. In addition, longitudinal research would help to observe how interventions focused on the cognitive field can improve the psychopathology of patients and its maintenance over time.

Despite these limitations, to our knowledge, this is the first study to compare OB and UI in four clinical samples (OCD, TTM, ED and GAD), clarifying some of the most important differences and indicating the possibility that it is trans-diagnostic variables that could influence the vulnerability and maintenance of these disorders.

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**Declaration of Conflict Interest**

None.

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