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Is context a crucial factor in distinguishing between intrusions and obsessions in patients with obsessive-compulsive disorder?

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Title

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Abstract

Objective: Some cognitive models of obsessive-compulsive disorder (OCD) posit that intrusions exist on a continuum with obsessions; others consider that they may be unrelated phenomena that differ in the context where they occur. We aimed to examine and compare, at two different moments, the context of the occurrence of intrusions and obsessions. Method: Sixty-eight patients with OCD completed an interview appraising their most upsetting obsession and intrusion. Results: At their onset, the obsessions/intrusions were associated with experiencing negative emotional states and life events, and they were more likely to appear in “inappropriate” contexts. The context of the obsessions/intrusions differed the last time they were experienced. Autogenous obsessions/intrusions occurred more frequently in contexts with an indirect link. Conclusions: The context distinguishes between intrusions and obsessions, not when they emerge, but when the obsession is already established. The results support that there is a continuum or progression from intrusions to obsessions.

1. Introduction

Obsessive-compulsive disorder (OCD) is characterized by obsessions and/or compulsions (American Psychiatric Association, 2013). Obsessions are characterized by recurrent and persistent thoughts, urges, or images that are experienced as intrusive and inappropriate and cause the individual to experience marked anxiety and distress. Most cognitive models for OCD have proposed that clinical obsessions have their origins in normal intrusive thoughts found in healthy populations, suggesting that there is a continuum of these cognitive phenomena, with strong similarities in their form and content (Rachman, 1997). According to this model, intrusions that are dysfunctionally appraised are more prone to becoming clinically relevant obsessions (Clark, 2004; Rachman, 1997; Salkovskis, 1985), and OCD patients can experience both types of cognitive phenomena, normal intrusive thoughts and obsessions.

Although a large amount of research has shown the universality of intrusions and their similarities with obsessions (e.g., García-Soriano & Belloch, 2013; Purdon & Clark, 1993; Radomsky et al., 2014), thus supporting the proposal, other studies have challenged these similarities (Rassin, Cougle, & Muris, 2007; Rassin & Muris, 2007). In fact, it has been suggested that intrusive thoughts and obsessions may be different and unrelated phenomena despite their similarities in content, and that obsessions that occur in OCD can be differentiated from intrusions in non-clinical populations based on the context where they emerge (Julien, O'Connor, & Aardema, 2007, 2009). Specifically, these authors argue that intrusive thoughts occur in more “appropriate” contexts, whereas clinical obsessions tend to occur in less “appropriate” contexts. Julien et al. (2009) hypothesized that intrusions experienced by non-clinical individuals emerge in a context directly linked to a trigger in the immediate environment. That is, the

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4 information from the context perceived at the moment the thought appears justifies its
5 content (e.g., a person who is having a discussion with someone and the thought pops
6 into his/her mind: "I could hit him"). Clinical obsessions emerge mostly in contexts
7 where there is an indirect association/ link or no association/ link between the obsession
8 and the information from the context. Either there is a trigger in the context that is
9 related to the content of the obsession but the information perceived is neither clear nor
10 precise (e.g., someone is watching a violent scene in a film, and the thought pops into
11 his/her mind that "I could hit someone"), or the information perceived through the
12 senses is not at all related to its content (e.g., thinking "I could hit someone" while
13 having breakfast alone at home).
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28 The context where intrusions/obsessions occur is also a key issue in the
29 autogenous-reactive model of obsessions (Lee & Kwon, 2003). These authors propose
30 that autogenous and reactive obsessions differ in terms of their content, cognitive
31 experiences, and the identifiability of their evoking stimuli. Thus, on the one hand,
32 autogenous intrusions/ obsessions (sexual, aggressive, aversive, or immoral contents),
33 "tend to come abruptly into consciousness without identifiable evoking stimuli" (page
34 12). On the other hand, reactive intrusions/ obsessions (contamination, doubt about a
35 mistake or an accident, loss of important things, dissymmetry contents) "tend to be
36 evoked by identifiable external stimuli (...) usually connected with the content of the
37 evoked thoughts in realistic and logical ways" (page 12).
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52 Despite the implications of contrasting these proposals (Aardema & O'Connor,
53 2007; Lee & Kwon, 2003) in OCD's conceptualization, including its therapeutic
54 approach, a scarce number of studies have empirically analyzed the context where
55 intrusions and obsessions appear. The pioneering study by Rachman and de Silva
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4 (1978) showed that at the onset of the occurrence, only 7.5% ($n=4$) of intrusions (non-
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clinical participants, $N=40$) and 50% ($n=4$) of obsessions (OCD participants, $N=8$)
appeared to be linked to an observable context, whereas 80% ($n=32$) of intrusions and
50% ($n=4$) of obsessions were associated with an external or internal trigger (Rachman
& de Silva, 1978). However, given the small sample size of OCD participants, it is
difficult to discuss these findings in a meaningful way.

Julien, O'Connor, and Aardema (2009) used a self-report questionnaire to
compare the context of the occurrence of intrusive thoughts experienced by a non-
clinical sample with those of clinical obsessions in OCD patients. They found that 51%
of obsessions and 34% of intrusions emerged in a context with an indirect link with the
content, whereas 33% of obsessions and 57% of intrusions appeared in a context
directly linked to triggers in the environment. Moreover, they reported that 16% of
obsessions and 8% intrusions showed no link at all with the context where they
occurred. Thus, the results confirmed the tendency of non-clinical intrusive thoughts to
appear in appropriate contexts (directly linked), whereas obsessions were more likely to
appear in inappropriate contexts (indirectly linked). Furthermore, taking into
consideration the content of the intrusions and obsessions, those revolving around
ordering/symmetry and hoarding were significantly more associated with direct contexts
than with indirect contexts.

Similar to these findings, but focusing specifically on whether there was any
evidence for the reality of the obsession or intrusion in the environment, Audet,
Aardema, and Moulding (2016) observed that most of the intrusions reported by a non-
clinical sample took place without direct evidence from the context that the intrusion
could potentially be real (68.9%), as assessed by independent clinician expert raters.

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4 Intrusions that occurred without evidence were associated with significantly higher
5 levels of obsessionality than those that occurred with direct evidence. In addition,
6 intrusions that were judged as non-OCD relevant by raters (67.2%) were associated with
7 lower levels of obsessionality, compared to intrusions that were judged to be OCD
8 relevant (32.8%) on the basis of the context where they occurred. Recently, Audet and
9 colleagues (submitted), in an experimental task consisting of scenarios that elicited
10 intrusions with and without direct evidence supporting them, found that intrusions
11 without direct evidence (but not those with indirect evidence) predicted OCD symptoms
12 in non-clinical samples.
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26 Overall, current empirical research has not fully clarified the role of the context
27 in the emergence of clinical obsessions. Julien et al. (2009) suggested that context is the
28 key element differentiating obsessions from intrusions, and Lee and Kwon (2003)
29 proposed that context differentiates between different obsessional content domains. In
30 fact, in a review of the contextual determinants of intrusions and obsessions, Clark and
31 Inozu (2014) suggested the relevance of exploring what proportion of intrusions and
32 obsessions are unexpected, spontaneous intrusions versus context-dependent thoughts
33 triggered by an external precipitant, and whether obsessions are more or less
34 spontaneous than intrusions. Moreover, although OCD patients can experience both
35 intrusive thoughts and obsessions, there are no studies comparing the context of the
36 appearance of obsessions and intrusions in the same individual. Because OCD patients
37 experience normal intrusive thoughts and obsessions, it is relevant to explore whether
38 the context plays a crucial role in distinguishing between intrusions –with an
39 obsessional content- that remain intrusions and intrusions that turn into an obsession in
40 patients diagnosed with OCD. The general aim of the current study is to analyze the
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4 context of the appearance of obsessions and intrusive thoughts in the same patients
5 diagnosed with OCD. We will analyze the following elements of the context at the onset
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7 of occurrence: emotional state, stress level, stressful events, and the association between
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9 the content of the obsession/ intrusion and evidence relevant to the content when the
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11 thought occurs. Moreover, we will analyze whether the association between the content
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13 of the obsession/ intrusion and the evidence from the here and now differs depending on
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15 the moment (onset *versus* last occurrence) and the thematic content (autogenous *versus*
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17 reactive).

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23 We hypothesize, first, that obsessions will be more frequent, disturbing, and
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25 dysfunctionally appraised than intrusions, as proposed by the literature. Regarding the
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27 context, our main hypothesis is that clinical obsessions will occur more frequently in
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29 contexts with an indirect link or no link (inappropriate contexts), and intrusions in
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31 contexts where there is a direct link (appropriate contexts) with the evidence in the here
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33 and now. Additionally, we hypothesize that at the onset of occurrence, in the same
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35 patient, his/her obsessions (*versus* intrusive thoughts) will be associated with a higher
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37 negative mood state, stress level, and frequency of relevant life events. Finally, we also
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39 expect that autogenous intrusions/ obsessions will appear more spontaneously than
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41 reactive intrusions/ obsessions (Lee & Kwon, 2003).

42 43 44 45 46 47 **2. Method**

48 49 50 *2.1. Sample*

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52 Sixty-eight patients with a primary Axis I DSM-IV OCD diagnosis participated in the
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54 study. The mean age was 35.59 (SD= 10.54) years, with a balanced gender
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56 representation (53% women). The majority of the participants had a medium socio-
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58 economic level (74.6%), according to the parameters of the Spanish National Institute of
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Statistics, and university education (77.6%). Nineteen patients (27.9%) had one or more secondary Axis I (DSM-IV) comorbid disorders: major depression (4 patients), panic disorder (2 patients), panic disorder with agoraphobia (1 patient), generalized anxiety disorder (6 patients), social phobia (3 patients), specific phobia (1 patients), hypochondriasis (3 patients), and an eating disorder (1 patient).

2.2. *Instruments*

Obsessional Intrusive Thoughts Inventory (Spanish original version: *Inventario de Pensamientos Intrusos Obsesivos*, INPIOS; García-Soriano, 2008). This self-report questionnaire is designed to assess the frequency of unwanted obsessional intrusive thoughts, images and impulses, as well as the appraisals and control strategies associated with each participant's most upsetting intrusive thought. The first part consists of a list of 48 items grouped in six first-order factors: aggressive; sexual, religious, and immoral; contamination; doubts, mistakes, and necessity to check; symmetry and order; and superstition intrusions. These six first-order factors are nested in a second-order structure composed of two dimensions: (1) Type I moral-based intrusions/ obsessions (similar to autogenous intrusions/ obsessions), which include aggressive, sexual, religious and immoral themes; and (2) Type II non moral-based obsessions (similar to reactive intrusions/ obsessions), which include contents that do not refer to moral issues. The two subtypes closely resemble the differentiation between autogenous and reactive obsessions proposed by Lee and Kwon (2003). Respondents rate each statement on a 7-point scale ranging from 0 ("I have never had this intrusion") to 6 ("I have this intrusion frequently during the day"). It also includes two options to include an idiosyncratic open intrusion. The second part of the INPIOS asks participants to choose from the 48 items the most upsetting intrusion they have experienced in the past three months. Focusing on their most upsetting intrusion, individuals evaluate this

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4 intrusion across several dimensions using a 5-point scale ranging from 0 (“not at all”) to
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6 4 (“extreme”). The scale includes: (a) the emotional reactions linked to the intrusion
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8 recorded (i.e., unpleasantness, anxiety, sadness, guilt, and shame); (b) the difficulty in
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10 controlling the intrusion and the interference it produces (i.e., difficulty in controlling it,
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12 success controlling/ suppressing it (reverse scored), and interference); and (c) the
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14 dysfunctional appraisals associated with the intrusion (i.e., importance of the thought,
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16 thought-action fusion-moral, thought-action fusion-probability, responsibility,
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18 importance of control, over-estimation of threat, and intolerance to uncertainty). Finally,
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20 participants are asked to record how often (from 0 “never” to 4 “always”) they use a list
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22 of control strategies to get rid of the intrusion. These strategies are grouped in four
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24 empirically derived factors and one independent item: (i) general strategies to control
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26 anxiety (five items); (ii) covert thought control strategies (eight items); (iii) distraction
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28 (two items); (iv) overt compulsions (four items); and (v) do nothing. In this study,
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30 patients completed the INPIOS-1st part as a self-report. These data were used by the
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32 interviewer to help patients choose their main obsession/ intrusion for the interview
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34 described below. At the end of the interview, most of the INPIOS-2nd part was used as a
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36 face-to-face interview (i.e., emotional reactions, difficulty in controlling the intrusion
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38 and interference, and dysfunctional appraisals).

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46 *Semi-structured interview of obsessions and intrusive thoughts in OCD* (Llorens &
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48 García-Soriano, 2016). This is a semi-structured interview designed to explore
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50 obsessions and intrusions in the same OCD patient. The same questions are asked about
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52 their main (most upsetting) obsession or intrusion in a counterbalanced order. After a
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54 description of what an intrusive thought is, based on the INPIOS description, patients
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56 are asked to choose their most upsetting intrusion that constitutes an obsession and
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4 describe it. Then, they are asked to describe an intrusion that has never become an
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6 obsession, out of those experienced in the past three months. The following areas are
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8 explored regarding their main obsession/ intrusion: thematic content (description),
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10 reasons for his/her level of discomfort, form (i.e., thought, impulse, image, feeling),
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12 frequency (from 1= I have had this intrusion/ obsession once or twice in my life to 6 = I
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14 have this intrusion/ obsession frequently during the day), description of the context of
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16 appearance of the onset and the last time it occurred (*when was it?, where were you?,*
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18 *what were you doing?*), mood state (*what was your mood at that moment? positive,*
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20 *negative, neutral*), stressful life events (*can you remember any relevant event that was*
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22 *happening or happened recently in your life at that time?*), and stress level (*what was*
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24 *your level of stress at that time –as usual, higher, or lower than usual-*) associated with
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26 the onset of occurrence, inferential reasoning, and different areas of the self. Then, the
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28 INPIOS-2nd part (García-Soriano, 2008) was applied in an interview format in order to
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30 appraise the following functional consequences of the upsetting cognitive phenomena:
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32 emotional reactions, difficulty in controlling the intrusion and the interference it
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34 produces, and the dysfunctional appraisals associated with the intrusion. In this study,
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36 we focus on the variables associated with the context of the intrusion's appearance
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38 (description, mood state, stressful life events, stress level) and its functional
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40 consequences.
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49 2.3. Procedure

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51 Participants were recruited from a private clinical practice and announcements posted in
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53 blogs and an OCD patients' association. The evaluation process was divided into three
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55 sessions. First, subjects received information about the purpose of the research and
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57 signed the written consent. Then, participants were individually screened with the
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4 ADIS-IV-L diagnostic interview (Di Nardo et al., 1994). Second, participants
5 completed a set of questionnaires at home, including the INPIOS-1st part. And third,
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7 participants were interviewed using the Semi-structured interview of obsessions and
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9 intrusive thoughts in OCD (Llorens & García-Soriano, 2016) (average time 60-90
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11 minutes). The same questions were asked for their main obsession or intrusion in a
12
13 counterbalanced order. Patients' descriptions of their intrusions and obsessions were
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15 checked with their INPIOS-1st part answers and with their answers in the clinical
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17 interview, in order to ensure that they chose a disturbing obsession and a non clinically
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19 significant intrusion that had never been an obsession in the past. The present study
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21 received the approval of the Ethical Committee of the University.
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27 2.4. Statistical analysis

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29 Statistical analyses were conducted using the Statistical Package for Social Sciences
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31 [SPSS for Windows, 22.0, 2013]. Descriptive statistics were used to report frequencies,
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33 means, and standard deviations. Paired sample *t*-tests were then conducted to compare
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35 the quantitative variables associated with the most upsetting intrusion *versus* obsession
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37 for each patient. The effect size was calculated using Cohen's *d* index. Hence, a small
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39 effect is $\leq .2$, medium $\leq .5$, and large $\leq .8$. For categorical variables, we used the
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41 McNemar test to compare related groups (e.g., obsession first time vs. obsession last
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43 time) and Fisher's exact tests (two-tailed) to compare independent groups (obsession vs.
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45 intrusion).
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51 Due to the categorical characteristics of some of the data (thematic content, context of
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53 appearance, and stressful events), two PhD level psychologists with a strong
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55 background in cognitive-behavioral models of OCD independently classified the
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57 information about these variables extracted from the interview for both the obsession
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4 and the intrusion. None of the raters had evaluated the patients. Regarding thematic
5 content, raters classified all the reported obsessions and intrusions as either autogenous
6 or reactive (García-Soriano et al., 2011; Lee & Kwon, 2003). Obsessions/ intrusions
7 were classified as autogenous if they were related to aggressive, sexual, blasphemous,
8 or immoral thoughts, images, or impulses. Intrusions/ obsessions about doubts about
9 mistakes and necessity to check, symmetry/order, contamination, or superstitious/
10 magical thinking contents were classified as reactive. Regarding the context of
11 occurrence, it was categorized according to the proposal defined by Julien et al. (2009).
12 A context with a direct link was identified when the information perceived through the
13 senses (sight, hearing, smell, taste, touch) at the moment the thought appeared justified
14 its content (e.g., while very angry and having a discussion with a work colleague,
15 experiencing the intrusion "I could hurt someone"). A context with an indirect link
16 would be one where there was a trigger in the here and now that could partly justify the
17 content of the thought, but the information perceived was not clear or precise (e.g.,
18 while cooking with a knife, having the intrusion "I could hurt someone"). A context
19 with no link would be when the information perceived through the senses did not justify
20 the content of the thought at all (e.g., while taking a shower, having the intrusion " I
21 could hurt someone"). Finally, regarding the categorization of the stressful events, raters
22 followed the classification by Fernández-Ballesteros (1987) (as cited in Aybar, 2007):
23 physical (e.g., natural catastrophes), socio-cultural (e.g., unemployment), interpersonal
24 (e.g., accidents, aggressions), educational (school troubles), economic (e.g., economic
25 difficulties), personal (e.g., discussions, an unwanted pregnancy), and labor (e.g.,
26 difficulties or work changes) events.
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Interrater reliability was calculated using the kappa statistic to assess the reliability of the thematic content, context of appearance, and type of stressful events categories. Following Cohen (1988), the data were interpreted in the following way: values ≤ 0 indicated no agreement, 0.01–0.20 indicated from no agreement to a slight amount, 0.21–0.40 indicate a fair amount, 0.41–0.60 was moderate, 0.61–0.80 was substantial, and 0.81–1.00 indicated almost perfect agreement. Moderate interrater agreement was found for the categorization of obsessions and intrusions as autogenous and reactive (obsessions= 0.62; intrusions= 0.79), for the context of the occurrence of obsessions (onset= 0.75; last time= 0.60), and for the type of stressful events experienced (obsessions= 0.82; intrusions= 0.85). The level of agreement between raters for the context of the occurrence of the intrusions was substantial (onset=0.82, last time= 0.81). For each category, disagreements were resolved through discussion until achieving 100% agreement between raters.

3. Results

3.1. *Preliminary analyses. Do patients experience obsessions and intrusions? A comparison of the frequency, form, thematic content description, and functional consequences.*

All the patients reported experiencing an obsession in the past three months, but two of them could not remember having an intrusion with obsessional content during this time period. Thus, analyses were conducted with the 68 obsessions and 66 intrusions described by the 68 OCD patients. Results showed that patients experienced obsessions ($Mean= 5.35$ [$SD= 0.832$]) with a higher frequency than intrusions ($Mean= 2.89$ [$SD= 1.152$]) ($t_{(65)} = 13.667$; $p < .001$).

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4 Obsessions were fundamentally experienced in thought form (66.7%), followed
5 by feeling (36.4%), image (30.3%), and impulse (15.2%), whereas intrusions were
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7 mainly experienced in thought form (75.8%), followed by image (25.8%), impulse
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9 (13.6%), and feeling (10.6%).
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14 Regarding the thematic content, approximately half of the obsessions and
15 intrusions could be categorized as autogenous (36 obsessions, 32 intrusions), and half as
16 reactive (32 obsessions, 34 intrusions). Fisher's exact test revealed that there were no
17 significant differences in content between obsessions and intrusions, $p = .090$.
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24 Patients appraised their obsessions as more unpleasant than their intrusions, they
25 associated them with greater anxiety and sadness, they found them more difficult to
26 control, and, in general, they associated them with more dysfunctional appraisals. When
27 we examined each appraisal at the item level, the greatest differences appeared in the
28 importance of the thought (Table 1).
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36 37 3.2. *The context of appearance of intrusions and obsessions* 38 39

40 Regarding the context of the onset of the occurrence of their most upsetting
41 obsession/ intrusion, most of the participants remembered it even if it took place around
42 10 (obsessions, $Mean = 10.46$, $SD = 10.87$ years) or 8 years (intrusions, $Mean = 8.37$,
43 $SD = 10$) earlier. Specifically, 82.3% ($n=56$) of the participants remembered the context
44 where their obsession appeared for the first time, and 57.6 % ($n=38$) remembered the
45 context of their intrusion. Regarding the context the last time it appeared, 98.53%
46 ($n=67$) and 90.9% ($n=60$) of the patients remembered it for their obsession and
47 intrusion, respectively.
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Most of the patients reported that when the obsession appeared for the first time (onset), their mood was negative (72.6%, n=45), they were experiencing a higher stress level than usual (78.6%, n=44), and they had experienced a relevant stressful life event during this period (74.6%, n=44). This also occurred in about half the patients when they experienced the intrusion for the first time (negative mood: 42.10% [n=16]; high stress 52.6% [n=20]; stressful life event 50% [n=19]). Differences between obsessions and intrusions did not reach statistically significant levels (negative mood: $p=.450$, Fisher's exact test; higher stress: $p = .663$, Fisher's exact test; stressful life event: $p = .711$, Fisher's exact test). Regarding the type of stressful event, most of them were classified as personal (e.g., pregnancy, marital/relationships problems, death of a family member/ friend) (obsession: n=23; intrusion: n=13) and interpersonal (obsession n=6; intrusion n=5) (e.g., bullying, moving to a different place, difficulties with a friend/ work colleague).

Regarding the context of the appearance of the obsessions and intrusions, for the onset and the last time it appeared, taking into account the three categories proposed by Julien et al. (2009), the results showed that a large proportion of the obsessions (49.3-67.9%) and intrusions (66.7-71.1%) appeared in a context with an indirect link with the content of the cognitive phenomena (see Table 2). Moreover, only a small proportion of the obsessions (3-7.1%) and intrusions (6.7-7.9%) appeared in a context with a direct link with the content of the cognitive phenomena.

3.3. *Does the context of the appearance of obsessions (and intrusions) change over time?*

Next, we analyzed differences in the context of the occurrence of the cognitive phenomena between the onset of their appearance and the last time they appeared. We

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4 conducted these analyses separately for obsessions and intrusions. The context of the
5 appearance of the obsession significantly changed from the onset to the last time the
6 obsession was experienced, McNemar test, $X^2(3, N = 55) = 11.933, p = .008$. As Table
7 2 shows, at the time of onset, the most frequent context was indirect, but the last time it
8 appeared, the most frequent association between the content and the context was
9 indirect and with no link. Regarding the intrusion, there were no statistically significant
10 differences in the context between the onset and the last time patients experienced their
11 intrusion, McNemar, $X^2(2, N = 35) = 1.152, p = .562$.

22 23 3.4. *Does the context of the appearance of obsessions and intrusions differ?*

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Next, we compared the context of the appearance of obsessions and intrusions. Analyses were conducted separately for each moment because differences were found in the context between the obsessions' onset and last time they were experienced. There were no significant differences in the context of obsessions and intrusions the first time they appeared (onset) ($p = .643$, Fisher's exact test), or the last time ($p = .665$, Fisher's exact test).

3.5 *Does the context of the appearance of obsessions and intrusions differ depending on their thematic content?*

Results show that there were no statistically significant differences between autogenous and reactive obsessions ($p = .247$, Fisher's exact test) or intrusions ($p = .766$, Fisher's exact test) in the context at the onset (see Table 3). In all the conditions, the most frequent context had an indirect link. However, differences appeared between autogenous and reactive obsessions ($p = .006$, Fisher's exact test) and intrusions ($p = .032$, Fisher's exact test) in the context where they were experienced for the last time.

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4 Autogenous obsessions and intrusions were more frequently experienced in a context
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6 with an indirect link, whereas the reactive subtype was more frequently experienced in a
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8 context with no link (obsessions), or with an indirect link or no link (intrusions).
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11 12 **4. Discussion** 13

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15 Using an interview format, this study explored the differential characteristics of
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17 obsessions and intrusions in a clinical OCD sample, focusing on the characteristics of
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19 the context of the occurrence of these cognitive phenomena, and taking into account
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21 their thematic content. We aimed to answer whether the context of appearance
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23 distinguishes between intrusions and obsessions in the same person, or if it is similar in
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25 both cases. This is a relevant issue because different OCD cognitive proposals assume
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27 either that “unwanted, intrusive thoughts are the raw material of obsessions” (p. 293)
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29 (Rachman, 1997), with obsessions lying on a continuum with normality, or that
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31 intrusive thoughts and obsessions are unrelated phenomena (Julien et al., 2009). The
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33 latter proposes that intrusions and obsessions can be differentiated based on the context
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35 where they occur. This difference between proposals has relevant clinical implications
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37 because cognitive interventions are based on the way these models understand OCD’s
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39 development and maintenance. Thus, is the context a relevant element to take into
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41 consideration in understanding and treating OCD?
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48 Prior to pursuing this principal aim, we found that OCD patients experienced
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50 and were able to identify and clearly distinguish, in their own flow of thought,
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52 obsessions and intrusions with OCD-relevant content. Second, we found that obsessions
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54 and intrusions are similar in the way they are experienced, mainly as a thought, as
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56 reported by Rachman and de Silva (1978), and they do not differ in their thematic
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58 content, taking into account the autogenous versus reactive classification (Lee & Kwon,
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4 2003). Third, also as expected, obsessions were experienced more frequently, associated
5 with more negative emotions and interference, more difficult to control, and, in general,
6 associated with more dysfunctional appraisals than the intrusions experienced by the
7 same patients. Although our results showed differences between intrusions and
8 obsessions on all the dysfunctional appraisals, the greatest differences appeared in the
9 importance of the thoughts dimension; patients considered that their obsessions were
10 important simply because they had them. Thus, the results support, first, that OCD
11 patients experience both intrusions and obsessions at the same time, suggesting that
12 these cognitive phenomena are similar in form and content but differ in the way they are
13 experienced, supporting the continuum hypothesis. Moreover, the results show that the
14 way intrusions are experienced by the OCD sample is similar to what was reported in
15 previous studies by non-clinical samples using the INPIOS-2nd part (see for example
16 García-Soriano & Belloch (2013)), and different from the way obsessions are
17 experienced. This is a relevant result because research testing the continuum proposal
18 has frequently compared intrusions experienced by non-clinical individuals with
19 obsessions experienced by clinical patients (e.g., Morillo, Belloch, & García-Soriano,
20 2007; Rachman & de Silva, 1978), rather than comparing these cognitive phenomena in
21 the same person.
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46 Regarding our main objective, exploring the context where obsessions and
47 intrusions emerge, we defined the context in a broad way, including different elements
48 such as mood, life events experienced, or what the person was doing, and we appraised
49 it at two different moments: at the onset and the last time it was experienced. Our focus
50 was to evaluate the first time these cognitive phenomena appear because differences
51 between cognitive OCD models have to do with the development of the obsessions. The
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4 description and comparison of the first emergence of an intrusion and obsession could
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6 be interpreted differently from different cognitive perspectives. Based on a continuum
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8 proposal, it can be interpreted as the comparison between the first time an intrusion that
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10 remained an intrusion appeared, the first time an intrusion that later developed into an
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12 obsession appeared, or the first occurrence of two unrelated phenomena, an intrusion
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14 and an obsession.
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19 Our results suggest that at the onset, both obsessions and intrusions emerged in a
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21 context where the OCD patient was experiencing negative mood and higher stress levels
22
23 than usual. Moreover, most of the obsessions and half of the intrusions were associated
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25 with the experience of different negative life events, mostly personal. The high
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27 prevalence of stressful events is similar to what was reported in previous studies when
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29 asking OCD patients about stressful life events in the year preceding the onset of the
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31 OCD (Roncero, Belloch, Cabedo, & Carrió, 2017; Rosso, Albert, Asinari, Bogetto, &
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33 Maina, 2012). Rowa, Purdon, Summerfeldt, and Antony (2005) also reported a
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35 significant link between experiencing life events/ concerns and the occurrence of the
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37 most and least upsetting obsession in OCD patients. We found a tendency for a greater
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39 number of patients to report a negative mood state, their stress was higher than usual,
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41 and they had experienced a stressful life event associated with their obsession rather
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43 than their intrusion. However, these differences were not significant, and so our
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45 hypothesis was not fully supported.
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52 Regarding the association between the cognitive phenomena and the evidence
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54 from the context linking it, or not, to the immediate reality, the data support our main
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56 hypothesis; that is, obsessions occur more frequently in “inappropriate” contexts. In
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58 fact, in the majority of the obsessions reported, the information from the context did not
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4 justify its content. Specifically, most of these obsessions appear in a context with an
5 indirect link, and only a small part appear out of the blue. These data do not support the
6 idea of obsessions being mostly spontaneous in origin. However, when we analyzed the
7 context of the onset of the intrusions, we observed a similar pattern; 92.2% of the
8 intrusions appeared in “inappropriate” contexts. This percentage is higher than the
9 percentages reported by Julien et al. (2009) (42%) or Audet et al. (2016) (68.9%) in
10 their respective studies. Hence, contrary to expectations, intrusions did not often emerge
11 in “appropriate” contexts. Our results seem to suggest that there are no differences
12 between intrusions and obsessions regarding the information or evidence provided by
13 the context about their potential reality, at least between the intrusions and obsessions of
14 clinical OCD samples. Hence, whereas the data support the notion that obsessions are
15 frequently associated with inappropriate contexts (indirect link, no link), there was no
16 evidence that intrusions were more frequently associated with appropriate contexts
17 (direct link), compared to obsessions. In fact, only around 8% of intrusions (and 7% of
18 obsessions) had a direct link with the context, that is, appeared in a context with
19 evidence supporting the intrusion. This percentage is lower than what was reported in
20 previous studies. For example, Julien et al. (2009) reported that 57% of intrusive
21 thoughts and 33% of obsessions maintained a direct link with the evidence from the
22 context, and Audet et al. (2016) reported that 26.6% of the intrusions appeared in
23 contexts with direct evidence for the potential reality of the intrusion. Methodological
24 differences between studies could partially explain these results. For example, in the
25 data reported by Julien et al. (2009) or Audet et al. (2016), the participants rated the
26 type of association between their cognitive phenomena and the evidence from the here
27 and now, rather than an external clinician, as in the present study. Moreover, the
28 intrusions described in these studies were experienced by non-clinical participants
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4 (Audet et al., 2016; Julien et al., 2009) and not by OCD patients, as in the present study,
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6 and not all of these intrusions were OCD relevant (Audet et al., 2016). Importantly,
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8 although Audet et al. (2016) asked about the context “when it (intrusion) started”, Julien
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10 et al. (2009) evaluated the most frequent context of the three most disturbing intrusions.
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12 Patients were probably not thinking about the first time they appeared, as in our study.
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14 In the present study, raters frequently chose the “indirect link” to categorize the context
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16 of the occurrence of obsessions and intrusions. It is possible that raters considered the
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18 contextual information provided to them to be too inconclusive to allocate it to any of
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20 the remaining more “extreme” categories (“no link” and “direct link”), thus favoring the
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22 “indirect link” and reducing the variability. However, the methodology was similar to
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24 what was reported in other studies (Audet et al., 2016), where patients were encouraged
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26 to give as much information as possible about the context where the intrusion/ obsession
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28 appeared (e.g., *when was it?, where were you?, what were you doing?, can you*
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30 *remember any relevant event that was happening or happened recently in your life at*
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32 *that time?*). All this information was provided to the raters, and interrater agreement
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34 was substantial.
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42 When we asked participants about the context of the obsessions and intrusions
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44 the last time they experienced them, several differences did emerge. Although both
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46 obsessions and intrusions emerged more frequently in “inappropriate” contexts, there
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48 were differences between obsessions and intrusions, with the former appearing more out
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50 of context than intrusions, as suggested by earlier proposals (Clark & Inozu, 2014). This
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52 could be due to the fact that obsessions emerge in a more automatic way as time goes by
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54 and the disorder worsens or is more firmly established. Dysfunctional appraisals of
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56 earlier intrusions that are associated with indirect evidence from the context may
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4 facilitate the intrusion's development into an obsession that appears out of the blue.
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6 Another explanation may be that the OCD reasoning process becomes more elaborated
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8 with time, giving the obsession greater credibility and a greater presence in the patient's
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10 mind. The more real the obsession seems to the patient, the more likely it is to appear
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12 without any external cue.
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16 Finally, we aimed to test whether evidence from the context was different
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18 depending on the thematic content of the cognitive phenomena. Results show that, at the
19
20 onset, autogenous and reactive obsessions/ intrusions do not differ in their context, but
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22 they do differ in their context the last time they appear. However, the differences are not
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24 in the direction hypothesized by the autogenous versus reactive proposal (Lee & Kwon,
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26 2003), which suggests that autogenous intrusions/ obsessions emerge more
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28 spontaneously -or with no link with the context- than reactive intrusions/ obsessions,
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30 which are more "reactive" to triggers. In fact, our results suggest almost the opposite;
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32 autogenous obsessions and intrusions appear mostly in contexts with (indirect)
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34 associations with the content, whereas reactive obsessions mostly appear spontaneously.
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36 That is, it is more frequent for autogenous obsessions (e.g., I am a pedophile) to appear
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38 associated with a trigger (e.g., seeing my little baby without clothes when changing a
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40 diaper), and for reactive obsessions (e.g., I could be responsible for a misfortune) to
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42 appear spontaneously (e.g., while going for a walk with friends). Other results did not
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44 support Lee and Kwon's (2003) proposal about the context (Julien et al., 2009). In fact,
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46 Lee, Lee, Kim, Kwon, and Telch (2005) reported that autogenous and reactive
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48 intrusions, compared to worries, did not differ in the identifiability of the triggers that
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50 evoked them. However, reactive intrusions were associated with higher scores on "I
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52 clearly know what evokes this thought".
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4 This study has some limitations. First, the data obtained are retrospective and
5 based on subjective patient reports. Second, although we have a relatively large OCD
6 sample, larger than what was used in previous studies, in the different analyses the
7 sample size changed and decreased because not all the patients remembered the context
8 of their most upsetting obsession and intrusion. Moreover, we could not be completely
9 sure that all the intrusions reported by patients were really “intrusions” and not less
10 upsetting obsessions, although great effort was made to ensure that participants
11 understood the difference between obsessions and intrusions, and the data were
12 obtained through an interview, allowing us to be more sure of participants’ answers.
13 Moreover, the data collected support differences between intrusions and obsessions in
14 frequency, interference, and dysfunctional appraisals. These data are similar to those
15 reported previously with patients who appraised their obsessions and non-clinical
16 individuals who evaluated their intrusions, also using the questions on the INPIOS-2nd
17 part (Emerson, Heapy, & Garcia-Soriano, 2018; García-Soriano, Roncero, Perpiñá, &
18 Belloch, 2014; García-Soriano & Belloch, 2013).

39 5. Conclusions

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43 Despite these limitations, the present study makes a contribution to the literature
44 by using a relatively big clinical OCD sample and exploring, through an interview, the
45 relevant and complex issue of the context where intrusions appear, which has been
46 proposed as relevant in the development and maintenance of OCD, but has been
47 understudied in the research to date. The use of structured interviews to assess
48 intrusions and obsessions allows as to approach these cognitive phenomena in an
49 ecological way and avoid the methodological difficulties of using self-report
50 questionnaires and experimental approaches to measure intrusive thoughts (Clark &
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4 Radomsky, 2014). Moreover, this study analyzed the context of obsessions and
5 intrusions in the same patient, and it differentiated between the first and last time they
6 were experienced, allowing us to compare changes in the context across time. This is
7 important because current cognitive OCD models are based on the differentiation
8 between intrusive thoughts and obsessions, making this research especially relevant for
9 both the theoretical basis of OCD and clinical practice. Taken together, our results
10 suggest that the context may not be a key issue in differentiating intrusions that remain
11 intrusions from those that become obsessions. Instead, the results show that cognitive
12 phenomena appear in a similar context, characterized by a negative emotional state,
13 higher stress than usual, diverse stressful events, and often some kind of trigger from
14 the context. Moreover, the results suggest that once the obsessions are established, they
15 appear spontaneously or with an indirect association with the context, in the same
16 percentage. Answering the questions by Clark and Inozu (2014), clinical obsessions are
17 not more context inappropriate than nonclinical intrusive thoughts; and at the time of
18 the last occurrence, a higher proportion of obsessions than intrusions are unexpected,
19 spontaneous, and not triggered by an external precipitant, although there are differences
20 depending on the content of the obsession. Autogenous obsessions (and intrusions)
21 appear more frequently in contexts with an indirect relation with the content, and
22 reactive obsessions appear spontaneously. Results could suggest that the intrusions
23 evaluated in this study are “similar” to intrusive thoughts at the moment of emergence,
24 and the appraisals and/or type of reasoning transform them into obsessions that appear
25 more spontaneously. Therefore, the context is a factor that distinguishes between
26 intrusive thoughts and clinical obsessions, not in their emergence, but when the
27 obsession is already established. The results also show that there is a continuum or
28 progression from intrusions to obsessions. Future research should replicate these

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4 findings and explore other possible variables as determinants that can explain
5 differences between intrusive thoughts and obsessions at the onset, such as the role of
6 the self (García-Soriano & Belloch, 2012). Our results show that, in general, obsessions
7 appear in inappropriate contexts. Thus, focusing attention on the context of the
8 occurrence to discredit obsessions in OCD seems to be a useful clinical intervention,
9 providing patients with another cognitive resource to more easily discredit their
10 obsessions.
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21 **Ethical approval:** All procedures performed in the study were in accordance with the
22 ethical standards of the institutional and/or national research committee and with the
23 1964 Helsinki declaration and its later amendments or comparable ethical standards.
24 An informed consent was obtained from all the individual participants included in the
25 study.
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33 **Informed consent:** Informed consent was obtained from all the individual participants
34 included in the study.
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36
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40 analysis or interpretation of the data, writing of the manuscript, or the decision to
41 submit the paper for publication.
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49 **Declaration of conflicts of interest:** none
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Table 1. Paired t test comparing the functional consequences of the obsession and intrusion in the patients diagnosed with OCD.

	Obsession ($N=66$)	Intrusion ($N=66$)	$t_{(65)}$	d
Unpleasantness	3.51 (0.63)	1.59 (0.92)	15.215***	2.43
Negative emotional reactions (anxiety and sadness mean)	3.11 (0.78)	1.25 (0.79)	12.682***	2.36
Difficult to control & interference	3.10 (0.83)	1.16 (1.30)	10.782***	1.77
Dysfunctional appraisals (total score mean)	2.74 (0.75)	1.42 (0.93)	7.993***	1.56
<i>Thought importance</i>	3.43 (0.70)	1.42 (1.08)	12.203***	2.20
<i>Thought-action fusion moral</i>	1.75 (1.52)	0.84 (1.21)	4.058***	0.66
<i>Thought-action fusion likelihood</i>	1.83 (1.44)	0.90 (1.12)	4.249***	0.72
<i>Responsibility</i>	2.89 (1.25)	1.90 (1.12)	4.560***	0.83
<i>Control Importance</i>	3.24 (0.96)	1.56 (1.32)	9.045***	1.45
<i>Overestimation of threat</i>	2.90 (1.33)	1.75 (1.44)	5.605***	0.82
<i>Intolerance of uncertainty</i>	3.13 (1.09)	1.62 (1.27)	7.556***	1.27

Note. Data are offered as means (SD). * $p < .05$; ** $p < .01$; *** $p < .001$. $N=66$ because only those patients reporting both an obsession and an intrusion are included in the analyses.

Table 2. Description of the context of occurrence of intrusions and obsessions

Context	Onset of appearance		Last appearance	
	Obsession (n=56)	Intrusion (n=38)	Obsession (n=67)	Intrusion (n=60)
Direct link	7.1% (4)	7.9% (3)	3% (2)	6.7% (4)
Indirect link	67.9% (38)	71.1% (27)	49.3% (33)	66.7% (40)
No link	25% (14)	21.1% (8)	47.8% (32)	26.7% (16)

Note. Data as % (n). Data calculated for those patients that remembered the context of the appearance of their obsession/ intrusion.

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Table 3. Description of the context of the appearance of intrusions and obsessions taking into account the content.

	Onset of appearance				Last appearance			
	Obsession (n=56)		Intrusion (n=38)		Obsession (n=67)		Intrusion (n=60)	
	A (n=31)	R (n=25)	A (n=18)	R (n=20)	A (n=37)	R (n=30)	A (n=29)	R (n=31)
Direct link	9.7% (3)	4% (1)	5.6% (1)	10% (2)	0% (0)	6.7% (2)	3.4% (1)	9.7% (3)
Indirect link	74.2% (23)	60% (15)	77.8% (14)	65% (13)	64.9% (24)	30% (9)	82.8% (24)	51.6% (16)
No link	16.1% (5)	36% (9)	16.7% (3)	25% (5)	35.1% (13)	63.3% (19)	13.8% (4)	38.7% (12)

Note. A = Autogenous; R = Reactive; Data as % (n)