



Clinical presentation of not-just right experiences (NJREs) in individuals with OCD: Characteristics and response to treatment



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ABSTRACT

There is increasing recognition that instead of being motivated by a desire to prevent harm and reduce anxiety, some obsessive-compulsive symptoms may be driven by a desire to get things 'just right' or 'complete' and to reduce a sense of discomfort. However, existing data is largely from non-clinical samples. Therefore, in the current paper we examine the clinical presentation of not just right experiences (NJREs) in patients diagnosed with OCD and compare their experiences to both anxious and unselected controls. Then, we provide preliminary data on NJREs before and after cognitive behavioral therapy (exposure and response prevention). First, individuals with OCD were found to report experiencing significantly more NJREs and being more distressed by them compared to anxious controls and unselected controls. Next, there was some support for the specificity of NJREs to feelings of incompleteness. Finally, we found that after completing treatment, patients reported experiencing significantly less NJREs and experienced less distress associated with the NJREs. In conclusion we believe that more work on the role of NJREs is warranted and that characterizing OCD symptoms as either based on harm avoidance or incompleteness/NJREs may be a useful framework for classifying OCD symptoms.

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Over the past 50 years, models of obsessive-compulsive disorder (OCD) have emphasized the role of anxiety in the etiology and maintenance of the disorder. Individuals with OCD report anxiety in response to intrusive thoughts, images, or impulses, and in turn, perform specific behaviors to reduce the anxiety and prevent feared consequences from occurring. For example, intrusive images of a house on fire may lead to repeatedly checking that the stove is turned off, or intrusive thoughts of an infant stopping breathing can lead to repeated visits to the nursery to check on the child. Reductions in anxiety from checking or other compulsions are negatively reinforcing and maintain the behavior over time. Consistent with this model, exposure and response prevention (ERP) is designed to reducing anxiety through repeated trials of facing the fear without performing compulsions (Exposure and Response Prevention (ERP); Abel, 1993; Abramowitz, 1997). Cognitive therapy can be combined

with ERP or administered alone for treating OCD. Cognitive interventions focus on interpretations of intrusions. For example, beliefs that harm is likely and that one is personally responsible for preventing bad things from happening increase the likelihood that the person will interpret situations as dangerous and thereby produce anxiety. Learning how to identify and challenge these interpretations reduces the potency of the intrusive thoughts by developing a more balanced perspective on the likelihood of feared consequences occurring.

There is support for the efficacy of both ERP and cognitive therapy for the treatment of OCD (Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000; Ost, Havnen, Hansen & Kvale, 2015; Wilhelm & Steketee, 2009). Both interventions are associated with significant reductions in symptom severity and improved quality of life (Subramaniam, Soh, Vaingankar, Picco, & Chong, 2013). Both interventions seek to reduce anxiety that something bad will happen. However, in treating OCD, clinicians encounter patients who perform compulsions but deny experiencing anxiety or having a feared consequence (Abramowitz, Deacon, & Whiteside, 2012). This can have important implications for the treatment of individuals with OCD. For example, in the DSM-IV field trials, patients who did

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not report a feared outcome tended to be less responsive to cognitive-behavioral therapy compared to patients who articulated their fear (Foa et al., 1995).

There is accumulating data suggesting that in addition to anxiety, OCD symptoms may be driven by sensations of something being not just-right or incomplete.¹ Descriptions of such experiences can be found as early as 1908 when Janet wrote of sensations of incompleteness, or imperfection (Pitman, 1987). Janet's descriptions of sensations driving compulsions are consistent with current empirical findings. For example, Ferrao, Shavitt, Prado, Fontelle, Malavazzi et al. (2012) found that 65% of their patients with OCD reported experiencing sensory phenomena before performing a repetitive behavior. Consistent with these reports of sensory phenomena driving compulsions, research has demonstrated that not-just right experiences (NJREs) are more likely to be sensations or urges (vs. thoughts) and are more likely to be described as feelings of discomfort or tension (instead of anxiety, Coles, Frost, Heimberg, & Rhéaume, 2003, 2005; Pietrefesa & Coles, 2009; Rosario et al., 2009). Finally, NJREs are not accompanied by a feared consequence, or negative outcome, other than experiencing the discomfort of the NJRE itself. Instead of repeating a behavior or thought until the situation is 'safe', compulsions are performed until the NJRE passes, or in other words, things feel 'just-right' or "complete" (Starcevic et al., 2011).

Increasing our understanding of NJREs and how they are similar to and different from compulsions driven by harm avoidance will deepen our understanding of OCD. To date, the majority of empirical work has focused on the measurement of NJREs, their prevalence, their specificity to OCD, and their relation to symptom subtypes. This work has shown that NJREs occur beyond patient samples and are associated with OCD symptom severity (Fergus, 2014; Summers, Fitch & Cogle, 2014; Sica, Caudek, Rocco Chiri, Ghisi, & Marchetti, 2012) and may be useful in discriminating between OCD vs. anxiety disorders and depression (Ghisi, Rocco, Marchetti, Sanavio, & Sica, 2010). Additional work has examined what types of OCD symptoms are most strongly related to NJREs. This work has shown that NJREs occur most commonly in association with symptoms related to symmetry, ordering, and arranging (Coles et al., 2003; Ecker & Gonner, 2008; Pietrefesa & Coles, 2008; Starcevic et al., 2011; Summerfeldt, 2004). This link with symmetry, ordering and arranging is of concern given data showing that these symptoms are among the least responsive to treatment. Further, patients who are unable to articulate a feared consequence (potentially low on harm avoidance) may respond more poorly to exposure and response prevention (Foa, Abramowitz, Franklin, & Kozak, 1999). In addition, individuals with symptoms driven by NJREs (e.g., symmetry, ordering) may be more likely to refuse treatment or drop-out of treatment (see Summerfeldt, 2004). These studies suggest that treatment may work best for OCD symptoms related to anxiety and harm avoidance.

The current study was designed to increase our understanding of NJREs in a clinical sample and to provide more information regarding the utility of distinguishing symptoms motivated by NJREs/incompleteness versus harm avoidance.

¹ We note that our primary goal herein is to distinguish OCD symptoms with and without anxiety and feared consequences. In considering the motivations underlying these non-anxiety based symptoms prior work has referred to not just right experiences, sensations of incompleteness, and sensory phenomenon. Although fine-grained distinctions can be drawn between these (e.g., between NJREs and incompleteness), we believe that the first step is to raise awareness of distinguishing this cluster of motivations from harm avoidance (e.g., incompleteness vs. harm avoidance). Therefore, we use the terms incompleteness and NJREs interchangeably.

First, we tested the hypothesis that patients with OCD would report experiencing more NJREs and being more disturbed by them compared to anxious and unselected controls. Second, we tested the hypothesis that in patients with OCD, the number of NJREs endorsed and reactions to them would be significantly associated with OCD severity. Further, we predicted that the number of NJREs endorsed and reactions to them would be more strongly associated with ordering/arranging than obsessing symptoms. Finally, we tested the hypothesis that patients would report significantly less disturbance related to NJREs after ERP than before, and that changes in OCD symptoms from ERP would be significantly correlated with changes in NJREs.

1. Methods

1.1. Participants

Participants for this study were recruited via two sources. Individuals in the OCD group ($n = 45$) and anxious control groups ($n = 34$) presented for assessment and potential treatment at a specialty clinic for people with anxiety disorders and OCD. The anxious control group was composed of 23 individuals with social phobia, 5 with generalized anxiety disorder (GAD), 3 with panic disorder and agoraphobia, 1 with panic disorder without agoraphobia and 2 with anxiety disorder NOS. In regards to comorbidity, 11 members of the OCD group and 9 members of the anxious control group met criteria for a unipolar depression diagnosis. Nine members of the OCD group and 4 members of the anxious control group met criteria for social phobia, and 3 members of the anxious control group also met criteria for Generalized Anxiety Disorder. The two clinical groups were not found to differ significantly on the severity of their primary diagnoses (mean clinician severity ratings = 5.20 ($SD = 0.90$) for the OCD group and 5.53 ($SD = 0.79$) for the anxious controls using the Anxiety Disorders Interview Schedule ratings from 0 to 8 with higher numbers indicating increased severity). Nor were the two groups found to differ on age of symptom onset (mean = 14.03 ($SD = 8.61$) for OCD and mean = 12.58 ($SD = 4.91$) for the anxious controls). Finally, members of the OCD group were more likely than anxious controls to be employed full-time (24.4 vs. 20.0% respectively) or part-time (15.2% vs. 6.1% respectively), and were less likely to be students (22.2% vs 54.5%). Individuals with anxiety and OCD completed questionnaires as part of an intake interview.

Additionally, a subsample of individuals ($n = 19$) who completed cognitive behavioral treatment for OCD completed questionnaires upon treatment completion. This group was 42.1% female and ranged in age from 18 to 66 years old ($M = 28.84$, $SD = 13.95$). Of the treatment group, 94.7% were Caucasian, 73.7% were single/never married, almost 33% had completed at least some graduate coursework, 21.1% worked full time, 10.5% worked part time, 21.1% were full time students, 26.3% were unemployed, and 21.1% reported some other form of employment.

Unselected control participants ($n = 242$) were students enrolled in a large public university in Northeastern USA. Unselected participants completed a battery of self-report questionnaires as part of a research requirement for a course. There were no exclusion criteria based on psychological functioning. Between groups comparisons on demographic characteristics showed that the two clinical groups did not differ from one another in gender distribution or race, but that the OCD group members were significantly older than members of the anxious control group (see Table 1). Group differences were found between the OCD and

Table 1
Demographic characteristics of the sample.

	OCD (n = 45)	Anxious controls (n = 32)	Unselected controls (n = 242)
Sex	62.2% male ^a	51.5% male ^a	31.8% male ^b
Race	91.1% White 2.2% Black ^a	82.4% White 2.9% Black ^a	72.2% White 27.8% Black ^b
Age	28.36 (13.49) ^a	25.97 (11.59) ^a	20.39 (7.85) ^b

Note. Scores with different superscripts across rows differ significantly from one another.

student control groups on gender distribution, racial distribution, and age.²

1.2. Measures

1.2.1. Not just right experiences questionnaire-revised

The Not Just Right Experiences Questionnaire-Revised (NJRE-QR; Coles et al., 2003) is a 19 item self-report questionnaire in which respondents rate whether they experienced the presence or absence of ten specific NJREs over the previous month, and if they have, the severity of the most recently experienced NJRE. The NJRE-QR has been used in unselected as well as clinical populations (Belloch et al., 2016; Pietrefesa & Coles, 2008; Ghisi, Chiri, Marchetti, Sanavio, & Sica, 2010), and has been translated into a number of different languages (Belloch et al., 2016; Ghisi et al., 2010; Sica et al., 2012). The NJRE-QR yields a Checklist score composed of a summation of positive responses on the first 10 items, and a Severity score composed of an average of ratings on items related to the intensity, how much it bothered him/her at the time it occurred and later in the day, difficulty cognitively disengaging, urge to correct, and responsibility felt for the most recently experienced NJRE. The internal consistencies of the NJRE-QR Checklist score (KR-20 = 0.80) and severity score (Alpha = 0.92) were strong in the current sample.

1.2.2. Obsessive-compulsive trait core domains questionnaire

The Obsessive-Compulsive Trait Core Domains Questionnaire (OC-TCDQ; Summerfeldt, Kloosterman, Antony, & Swinson, 2014) is a 20 item self-report questionnaire examining symptoms of harm avoidance (HA) and incompleteness (Inc) on a five-point likert-type scale (0 = never applies to me – 4 = always applies to me). These scales are viewed as orthogonal, such that a person could score high on either, one, or neither of the scales. The OC-TCDQ has been used in both clinical and unselected samples and ratings have shown robust relations with OCD symptoms. The internal consistency of HA and INC scales have been demonstrated to be good in prior samples (all α 's > 0.87 in clinical and unselected samples; Summerfeldt et al., 2014), and were good the current sample (α 's Incompleteness = 0.70, Harm Avoidance = 0.92).

1.2.3. Yale-brown obsessive compulsive scale

The Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman

et al., 1989) is a semi-structured interview in which respondents are first asked about if they currently, or ever experienced specific OCD symptoms. Respondents are then presented with 10 items asking about the severity of obsessions and compulsions, and they rate their experience on a 5-point likert-type scale (0 = not at all through 4 = extreme). The Y-BOCS severity scales have been shown to have good internal consistency, test-retest reliability, and inter-rater reliability (Goodman et al., 1989). The internal consistency for the Y-BOCS Total score in the current sample was strong (α = 0.82) and acceptable for the subscales (α 's Obsessions = 0.67, Compulsions = 0.69).

1.2.4. Obsessive compulsive inventory

The Obsessive Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998) is a 42 item self-report measure in which respondents use a 5-point likert-type scale to rate both the frequency distress associated with behaviors related to OCD. The scale provides a score for total frequency and distress, as well as frequency and distress scores for washing, checking, doubting, ordering, obsessing, hoarding, and mental neutralizing. The OCI Frequency and Distress scale and subscale scores demonstrate adequate to good internal consistency (α 's between 0.68 and 0.96; Foa et al., 1998). The measure has been used in both clinical and normative samples (Foa et al., 1998; Simonds, Thorpe, & Elliott, 2000). The OCI scales used in this study were found to have strong internal consistency (OCI-Total = 0.90, Obsessing = 0.83, Ordering = 0.84).

1.2.5. Cognitive-behavior therapy

A subset of participants with OCD received cognitive behavioral treatment for OCD, with a specific emphasis on exposure and response/ritual prevention (ERP; see Kozak & Foa, 1997). Masters and doctoral level clinicians with training in ERP for OCD provided treatment. Services were provided in a specialty outpatient setting on a university campus. After an initial diagnostic assessment, treatment began with psychoeducation about OCD and cognitive behavioral therapy. Next, the clinician and patient worked collaboratively to develop a hierarchy, and to implement response/ritual prevention. Final sessions addressed the maintenance of gains and relapse prevention. Participants were only included in the current treatment-related analyses if they had completed at least 14 treatment sessions (range = 14 to 17). Notably, clinicians in our clinic have published extensively on NJREs, and routinely altered treatment to incorporate and address symptoms motivated by NJREs (e.g. by asking about symptoms driven by NJREs, and conducting NJRE-focused exposures, Schubert, Ravid, & Coles, 2016). Independent clinicians (not the therapist) conducted post-treatment assessments and all interviewers were trained in administration and scoring of the Y-BOCS by the senior author (MEC).

1.2.6. Data cleaning and analyses

Before conducting the study analyses, data were examined for missing values and normality. First, variables that demonstrated significant skew ($z > 3.29$; cf. Tabachnick & Fidell, 2007) were

² Given observed differences in some of the demographic characteristics between groups we examined their potential impact on the primary variables of interest. There were no evidence for differences in the number of NJREs or severity according to sex and they were only modestly correlated with age. No racial differences were found for the number of NJREs reported. However, Caucasian participants were found to have significantly higher NJRE ratings than participants of other races. Therefore, given that the OCD group was over 90% Caucasian we conducted follow-up analyses comparing the groups within Caucasian participants only. Consistent with findings for the full sample, individuals with OCD scored higher than both other groups on both the number of NJREs and severity. Finally, we also repeated the ANOVAs entering both race and age as covariates and these analyses yielded the same pattern of results as the initial analyses presented in the text. Additional information is available upon request.

transformed to satisfy assumptions of normality. Next, given the presence of some missing data, we examined whether the data were missing at random, thereby justifying the use of data imputation methods for estimating missing values (cf. Schafer & Graham, 2002). Little's missing completely at random test (Little & Rubin, 1987), supported the use of imputation ($X^2(1435) = 933.467, p = 1.00$). Therefore, maximum likelihood estimates of missing data were created and used in all subsequent analyses (see Schafer & Graham, 2002). Means and standard deviations are presented based on untransformed data to facilitate interpretation.

2. Results

2.1. Levels of NJREs in individuals with OCD versus controls

One-way ANOVAs were used to test the hypotheses that individuals with OCD would endorse more NJREs and higher severity of NJREs than controls (see Table 2). Consistent with this hypothesis, significant between group differences were found for both the number of NJREs reported and severity ($F(2,318) = 5.79, p = 0.003$, and $F(2,318) = 28.19, p = 0.001$, respectively). Post-hoc Student Newman Keuls showed that individuals with OCD scored significantly higher than both control groups for the number of NJREs experienced in the past month and NJRE severity. Next, we examined whether there were specific NJREs from the checklist that differentiated individuals with and without OCD. For this aim, we collapsed the anxious and unselected control groups into one control group, which also made this a more stringent test. We then conducted Chi-square analyses comparing the prevalence of each of the NJREs between controls and individuals with OCD. Results showed that two specific NJREs were much more prevalent in the OCD group (NJREs number 8 and number 9). Item number 8 "When putting a bill or letter into a mailbox, I have had the sensation that the way I placed the envelope in the mailbox and closed the door didn't feel just right" was endorsed by 46.7% of the OCD group compared to 19.0% of the controls, $X^2(N = 319) = 16.79, p < 0.001$, and number 9 "After washing my hands once, I have had the sensation that they did not feel just the way clean hands are supposed to feel" was endorsed by 55.6% of the OCD group compared to 23.0% of the controls, $X^2(N = 319) = 20.52, p < 0.001$.

2.2. Relations between NJREs and OC symptoms

We tested the relations between NJREs and hypothesized correlates in individuals with OCD using Pearson r correlations. First, we found that both the number and severity of NJREs were significantly correlated with self-reported OCD symptom severity (see Table 3). Further, the severity of NJREs was also significantly correlated with clinician-rated levels of total OCD symptoms and obsessions. However, severity of NJREs was not significantly correlated with clinician-rated compulsions. Finally, the number of NJREs endorsed was not significantly correlated with clinician-rated OCD symptoms.

2.3. Relations between NJREs and motivations associated with OCD symptoms

We examined the specificity of NJREs in two ways. First, we tested our hypothesis that NJREs are often motivated by a sense of

incompleteness, in contrast to many OCD symptoms that may be motivated by a desire to avoid harm. As hypothesized, the number of NJREs experienced was significantly more strongly correlated with Incompleteness than Harm Avoidance (r 's = 0.48 and 0.09, respectively, $Z = 2.72, p < 0.01$). However, contrary to prediction, significant differences were not found in regards to the magnitude of relation between NJRE related distress with Inc vs HA ($r = 0.66$ and 0.40, respectively, $Z = 2.15, p = 0.03$). Notably, there is a non-significant trend in the hypothesized direction.

Our second approach to examining the specificity of NJREs was to test the hypothesis that NJREs would be more strongly correlated with ordering/arranging symptoms and show more modest correlations with obsessing. Consistent with our hypothesis, both the number of NJREs reported and the severity of NJREs were significantly correlated with symptoms of ordering/arranging (r 's = 0.48 and 0.60, respectively, p 's < 01). Further, the number of NJREs and the severity were only modestly correlated with obsessing symptoms (r 's = 0.15 and 0.03). Finally, NJRE severity was significantly more strongly correlated with ordering/arranging symptoms than with obsessing symptoms (NJRE intensity: $Z = 3.16, p < 0.001$), but significant differences were not found for the number of NJREs ($Z = 1.78, p = 0.08$).

2.4. Changes in NJREs from treatment

Repeated Measures ANOVAs were used to examine changes in the number and severity of NJREs from pre to post-treatment while controlling for changes in Harm Avoidance (standardized residual change scores). Results showed that individuals who completed CBT for OCD reported significantly fewer NJREs, and significantly less severe NJREs at the end of treatment compared to before (see Table 4).³ The amount of change in NJREs from pre to post-treatment was significantly correlated with changes in self-reported OCD symptoms overall (changes in number of NJREs and OCI-D Total $r = 0.62; p < 0.01$ changes in NJRE severity and OCI-D Total $r = 0.65; p < 0.01$) and in the obsessing domain (changes in number of NJREs and OCI-D obsessing $r = 0.46; p < 0.05$ changes in NJRE severity and OCI-D Obsessing $r = 0.48; p < 0.05$). Changes in the number and severity of NJREs were not found to be significantly correlated with changes in ordering/arranging symptoms (changes in number of NJREs and OCI-D Ordering/arranging $r = 0.19; p > 0.05$; changes in NJRE severity and OCI-D Ordering/arranging $r = 0.09; p > 0.05$).

Finally, given that the NJRE severity score failed to reach significance, we conducted exploratory analyses to evaluate whether there was variability in the extent of change in the different components that go into the severity score (items 14–19; see Table 4). These preliminary analyses suggest the largest reductions were related to difficulty dismissing NJREs (item #17) and perceptions of the perceived responsibility to do something (item #19). The intensity of the NJREs (item #14) and the related distress at the time (item #15) showed the smallest changes. Given that these comparisons were completely exploratory and we conducted several comparisons they warrant further testing in larger samples.

3. Discussion

These findings add to a growing body of work suggesting the utility of studying NJREs in individuals with OCD. These experiences have been observed clinically for many years but empirical

Table 2
Scores on the NJRE-QR by group.

	OCD	Anxious controls	Unselected controls
NJRE-QR total score	4.76 (2.73) ^a	3.29 (3.11) ^b	3.27 (2.68) ^b
NJRE-QR severity score	4.55 (1.46) ^a	3.79 (1.43) ^b	2.61 (1.21) ^b

Note. Scores with different superscripts across rows differ significantly from one another.

³ We also examined the opposite, whether changes in HA were significant when controlling the number or severity of NJREs. Both repeated measures ANOVAs found significant reductions in HA from pre to post-treatment even after accounting for change in the number or severity of NJREs.

Table 3
Correlations between NJRE-QR scores and measures of OCD symptoms and motivations in individuals with OCD.

		NJRE-QR total score	NJRE-QR severity
OCD symptom measures	OCI-distress	0.53**	0.51**
	Y-BOCS total	−0.07	0.53*
	Y-BOCS obsessions	−0.00	0.58**
	Y-BOCS compulsions	−0.12	0.46
OCD related motivations	Incompleteness	0.48**	0.66**
	Harm avoidance	0.09	0.40**

Note. * = $p \leq 0.05$, ** = $p \leq 0.01$.

NJRE-QR = Not Just Right Experience Questionnaire-Revised, OCI = Obsessive Compulsive Inventory, Y-BOCS = Yale-Brown Obsessive Compulsive Scale.

Table 4
Measures of OCD-related motivations and NJREs before and after treatment of OCD.

	Pre	Post	t-test	Effect size
Incompleteness	31.68 (11.10)	17.88 (10.74)	$t = 16.74, p < 0.001$	0.95
Harm avoidance	32.84 (10.74)	20.00 (10.94)	$t = 17.79, p < 0.001$	0.97
# NJREs reported	4.68 (2.8)	2.07 (1.98)	$t = 2.79, p \leq 0.01$	0.54
NJRE severity score	4.61 (1.38)	3.04 (1.44)	$t = 1.65, p = 0.11$	0.36
NJRE #14: Intensity	4.24 (1.60)	3.00 (1.71)	$t = 1.62, p = 0.12$	0.36
NJRE #15: Distress at the time	4.00 (1.77)	2.75 (1.71)	$t = 1.65, p = 0.12$	0.36
NJRE #16: Distress later that day	3.18 (2.00)	2.08 (1.31)	$t = 3.99, p < 0.01$	0.68
NJRE #17: Difficulty dismissing NJRE from mind	4.12 (2.34)	2.58 (1.51)	$t = 4.54, p < 0.001$	0.73
NJRE #18: Urge to do something	5.00 (1.73)	2.83 (1.89)	$t = 2.95, p < 0.01$	0.57
NJRE #19: Responsibility to do something	5.18 (1.63)	2.92 (2.07)	$t = 4.57, p < 0.001$	0.73

Note. * = $p \leq 0.05$, ** = $p \leq 0.01$, all $df = 18$.

work on their correlates and consequences has lagged behind. Findings from the current study are the first that we are aware of that directly tested whether CBT was associated with reductions in NJREs. Given that CBT for OCD was developed focusing on addressing anxiety, it could not be assumed that the intervention would also reduce NJREs or sensations of incompleteness. However, in our sample we found that CBT was associated with significant reductions in NJRE scores and that the amount of change in NJREs was significantly correlated with the amount of OCD symptom reduction. These findings support the continued examination of NJREs in OCD and the potential benefits of addressing them in treatment.

Replication of our findings is needed and future work can test whether modifications of traditional CBT for OCD are needed to reduce symptoms. Given our interest in NJREs, therapists in our clinic are vigilant to the potential role of NJREs in their patients' OCD and frequently address NJREs in treatment (Schubert et al., 2016). For example, clinicians discuss the distinction between harm avoidance and NJREs throughout treatment, inquire regarding the appropriateness of putting NJRE-focused exposures on the hierarchy, assess for perfectionism that may be related to NJREs, and conduct exposures to the discomfort and tension related to NJREs. Therefore, we are unable to assess whether traditional CBT alone will be sufficient to lead to reductions in OCD severity when NJREs are part of the picture.

The study of NJREs and incompleteness has advanced our understanding of OCD and future work will likely continue to do so. In the past, OCD was almost exclusively seen as being driven by anxiety and feared consequences. However, recent studies of NJREs, incompleteness, and other related sensory phenomenon have also been linked to OCD. Indeed, the recent removal of OCD from the anxiety disorders category in the DSM-5 (American Psychiatric Association, 2013) reflects growing consensus that classic behavioral conditioning model(s) are not sufficient for explaining all OCD symptoms. Further, even with the addition of cognitive constructs such as responsibility, there are many OCD symptoms left unexplained. We believe that these remaining symptoms are likely to reflect sensations of things not being 'just

right' or a feeling that something is incomplete or unfinished. As work on NJREs moves forward, we will continue to better define the boundaries between disorders and look for underlying systems that connect and separate them. OCD is a heterogeneous disorder and therefore there have been many efforts to create categories or subgroups. However, many of the subtyping schemes that have been proposed have ultimately not been found to have strong utility. We believe that distinguishing between harm avoidance and NJREs/incompleteness is worthy of attention. A great deal of consideration has been devoted to understanding the harm avoidance component of OCD, including work on comorbidity, underlying features, neural pathways and both pharmacological and psychotherapeutic treatment approaches. Additional work examining an NJRE/incompleteness component is likely to further enhance our understanding of OCD, and raise new questions to be explored.

It is important to note limitations of the current study. First, we had a relatively small OCD group. A larger sample size would facilitate testing additional questions such as the impact of comorbidity, demographic features (e.g., sex, age of onset), and symptom content on the occurrence and experience of NJREs. Next, our assessment of NJREs in this study was purely based on a self-report questionnaire. The use of experimental paradigms to elicit NJREs and the development of other ways to measure them that do not rely on self-report will be useful. One possibility is to present stimuli meant to elicit obsessions or NJREs while measuring brain activity (Adler et al., 2000; Schienle, Schafer, Stark, Walter, Vaitl, 2005) or subsequent reaction times. Such designs could produce insight into novel neurobiological correlates of OCD. For example, we know of one study in which NJREs were used to predict response time on a behavioral inhibition task in people with OCD (Ghisi, Bottesi, Sica, Sanavio, & Freeston, 2013). Finally, although we found that NJREs decrease in response to CBT for OCD delivered in our clinic, it remains to be seen how NJREs will respond to CBT delivered in settings without such heightened awareness of NJREs or to medications typically used in the treatment of OCD. Examining the relation between NJREs and responses to pharmacotherapy may be important as previous medication trials have found

that low insight into feared outcomes is associated with poorer responses to intervention (Catapano et al., 2010; Kishore, Samar, & Reddy, 2004) and difficulties identifying feared outcomes may be indicative of symptoms motivated by NJREs. In addition, it also remains to be seen how much clients can improve when interventions specifically targeted at NJREs are formally integrated into treatment.

Findings from the current study expand our knowledge of NJREs in several important ways. First, the results show that individuals with OCD report experiencing more NJREs than both anxious and unselected controls, and that they are more disturbed by them. In addition, these experiences were significantly correlated with OCD symptoms. Consistent with prior studies (Coles et al., 2003; Ecker & Gonner, 2008), NJREs were more strongly correlated with symptoms of ordering/arranging than obsessing symptoms. Findings of this study also showed that the number of NJREs experienced was significantly more strongly correlated with incompleteness than harm avoidance. Finally, we found that CBT was associated with significant reductions in the number of NJREs experienced and their severity, and that the amount of change in NJREs was strongly correlated with the amount of symptom change. Future work on NJREs holds promise for enhancing our understanding and treatment of OCD.

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