

Not Just Right Experiences in Obsessive-Compulsive and Related Disorders

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ABSTRACT. The present study examined the correlation between “not just right experiences” (NJREs)—a discomfort experienced when there is a discrepancy between one’s desired and current sensory state—and symptoms of syndromes classified as obsessive-compulsive and related disorders. Participants were 319 nonclinical adults recruited via Amazon Mechanical Turk (MTurk). Results of bivariate correlational tests suggested that NJREs are associated with symptoms of several disorders beyond obsessive-compulsive disorder including hoarding disorder ($r = .50, p < .001$) and body dysmorphic disorder ($r = .62, p < .001$). In particular, hierarchical regression analyses revealed that elevated scores on a measure of obsessive-compulsive disorder symmetry symptoms were found to be the most significant predictor of self-reported NJREs, $\beta = .35, t(317) = 7.32, p < .001$, followed by symptoms of body dysmorphic disorder, $\beta = .29, t(317) = 6.98, p < .001$. The expanding base of literature on NJREs and overarching implications are discussed.

Obsessive-compulsive disorder (OCD) is characterized in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) by persistent, unwanted thoughts (obsessions) and/or repetitive behaviors (compulsions) performed to diminish feelings of anxiety or distress. Although the specific content of obsessions and compulsions can vary across individuals, several replicable symptom dimensions have been identified including cleaning (e.g., contamination, obsessions with cleaning compulsions), symmetry (e.g., obsessions about symmetry with counting, repeating, and ordering compulsions), and taboo thoughts (e.g., aggressive or sexual obsessions and compulsions relating to acts viewed as “forbidden” or “wrong”; Mataix-Cols, Rosario-Campos, & Leckman, 2005). The disorder was reclassified as an obsessive-compulsive and related disorder (OCD) in the newest edition of the DSM, alongside hoarding disorder, body dysmorphic disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking disorder).

Research efforts examining the underlying mechanisms of OCD have revealed two distinct motivational domains for compulsions: harm avoidance and incompleteness (Summerfeldt, 2004). Compulsions motivated by harm avoidance are typically enacted upon to reduce anxiety associated with safety concerns or feared consequences of anticipated and potentially harmful events (Salkovskis, 1991). For example, individuals with OCD may check their stoves multiple times in order to prevent the start of a fire or wash their hands repeatedly to ensure they do not contract physical illness.

However, compulsions driven by a sense of incompleteness are intended to prevent or alleviate uncomfortable internal sensations associated with one’s immediate environment feeling flawed or imperfect in some way (Rasmussen & Eisen, 1992). This “not just right experience” (NJRE), which is defined in the context of this article as a discomfort experienced when there is a discrepancy between one’s desired and current sensory state, can be experienced across a range of sensory phenomena including sight (“this doesn’t look right”), touch

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(“that action/movement did not feel right”), and sound (“this action should have led to a different sound”; Rosario et al., 2009). Indeed, many individuals with OCD have reported an inner drive to maintain perfection, absolute certainty, and complete control in these and other domains in an attempt to achieve a “just right” state (Rasmussen & Eisen, 1992). For instance, individuals who displayed washing compulsions reported feeling more internal pressure to continue washing behaviors once they had begun until it “feels right” (e.g., continue scrubbing hands until a feeling or state of completeness or perfection is reached) compared to healthy controls (Wahl, Salkovskis, & Cotter, 2008).

However, although the ideal state for some individuals with OCD seems to be one of certainty and perfection, such a state has been shown to be unattainable for a sustained period of time (Grayson, 2010). This inability to constantly and fully relieve NJREs then engenders engagement in compulsions (Coles, Frost, Heimberg, & Rheume, 2003), reinforcing the behavior and increasing the likelihood of future-presenting OCD symptoms of greater intensity (Taylor et al., 2014). In this way, these “not just right” sensations may reflect both an underlying core motivation for the compulsions (Summerfeldt, Kloosterman, Antony, & Swinson, 2014) and are perhaps even implicated in the maintenance of obsessive thoughts. Indeed, upwards of 80% of individuals with OCD report experiencing at least one NJRE (Jacoby, Fabricant, Leonard, Riemann, & Abramowitz, 2013; Leckman et al., 1994).

It is notable, however, that the original conceptualization of “incompleteness”—first described by Pierre Janet (1903) as an inner sense of imperfection when an action or perception was incompletely or imperfectly achieved—was one of a broad construct that could be seen as a part of depersonalization, derealization, impaired psychological mindedness, and a range of psychiatric disorders. Although the self-reported experience of an NJRE has been shown to correlate highly with obsessive-compulsive symptomatology (Ghisi, Chiri, Marchetti, Sanavio, & Sica, 2010), previous work has also demonstrated its associations with a range of emotional disorders as well as Tourette’s syndrome (Neal & Cavanna, 2013). Fergus (2014) recently reported significant correlations between NJREs and OCD, generalized anxiety, social anxiety, and depressive symptoms. In regression analyses, both generalized anxiety and OCD symptoms remained significant predictors of NJREs (Fergus, 2014). This suggests that NJREs may in fact be a transdiagnostic risk factor underlying

several psychiatric disorders. The transdiagnostic conceptualization and treatment of emotional disorders, which has gained increased attention in the empirical literature (Mansell, Harvey, Watkins, & Shafraan, 2008), suggests more similarities than distinctions between emotional disorders in regard to risk factors, and calls for future research to enhance understanding of their shared aspects. Focusing on processes shared across emotional disorders has the potential to lead to development of efficient treatments for multiple disorders simultaneously.

NJREs and Obsessive-Compulsive and Related Disorders

As indicated earlier, NJREs represent a mismatch between perception of an actual, current state and a desired one, with the desired state being one of certainty and perfection. Moreover, it has been noted that NJREs may characterize emotional disorders beyond OCD (Fergus, 2014). However, previous research has not examined the association between NJREs and other disorders in the OCD category. NJREs have been posited to represent a motivational domain underlying OCD symptoms, and have also been preliminarily shown to be transdiagnostic in nature. If the NJRE sensation is indeed a shared risk factor, examining its potential role in other disorders with which OCD shares a diagnostic category may increase understanding of the shared features of these disorders.

Although the base of literature examining NJREs and OCDs is presently lacking, there are some points that may indicate the crossdiagnostic presence of NJREs beyond OCD. For example, NJREs may act as a motivational core dimension of specific facets of hoarding disorder such as acquiring (e.g., “I don’t think I would feel ‘just right’ or ‘complete’ without this object”) and saving behavior (e.g., “I don’t feel ‘right’/this space would be ‘incomplete’ by throwing this object away”; Ecker, Kupfer, & Gönner, 2014; Frost, Steketee, Tolin, Sinopoli, & Ruby, 2014). Additionally, individuals diagnosed with body dysmorphic disorder have reported greater levels of perfectionism than control samples (Hartmann, Thomas, Greenberg, Matheny, & Wilhelm, 2014) and have demonstrated appearance-related symmetrical concerns (Hart & Phillips, 2013; Reese, McNally, & Wilhelm, 2010) akin to OCD-related symmetry symptomatology. A recent study found that individuals diagnosed with body dysmorphic disorder reported more severe NJREs compared to control participants (Summers, Matheny, & Cogle, 2017). This suggests the

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potential presence of an underlying transdiagnostic mechanism related to NJREs.

Furthermore, despite the lack of research regarding the immediate relationship between NJREs and psychophysiological disorders such as hair pulling or skin picking, individuals diagnosed with these disorders may experience NJREs in a similar way. Research has shown that emphasis on control and perfectionism were among the superordinate themes of cognitions/beliefs that contribute to both the onset and maintenance of trichotillomania in a clinical hair-pulling sample (Rehm, Nedeljkovic, Thomas, & Moulding, 2015). In addition, both control and perfectionism have been strongly related to NJREs such that individuals may not feel right without the presence of pulling or picking sensations.

Although little research exists linking NJREs to skin picking and hair pulling (Summerfeldt, 2004), evidence has suggested that skin picking and hair pulling have substantial similarities in a variety of etiological clinical characteristics such as symptom presentation and course of illness (Stein et al., 2010). It may be possible that individuals who display symptoms of, or are diagnosed with, skin-picking disorder may engage in such behaviors similar to those with hair-pulling disorder, in part to achieve a just-right state. We believe the similarities across OCRDs (e.g., recurrent and intrusive thoughts and compulsive, motivated action to alleviate uncomfortable sensations) suggest that a not-just-right feeling acts as a core motivator of symptoms. Therefore, the association between NJREs and OCRDs merits further investigation.

The current study aimed to address this question by providing a preliminary descriptive analysis of the relationship between NJREs and symptoms of the disorders classified in the OCRD category. Although exploratory in nature, this study represents an important first step in elucidating the role of NJREs in OCRDs; an association between NJREs and symptoms of each of the OCRDs would lend support to their coclassification, increase understanding of the shared features of the disorders in the OCRD diagnostic class, and have implications for conceptualization and treatment of these disorders.

In light of past research that has demonstrated correlations between NJREs and symptoms of several emotional disorders beyond OCD (Fergus, 2014), as well as the similarities between NJRE symptom presentation and the underlying factors of a variety of OCRDs, we hypothesized that the

experience of NJREs would be associated with symptoms of the other disorders currently classified in the DSM-5 as OCRDs. Although we expected OCD symptoms to account for more variance in total NJRE scores than other OCRD symptomatology, we nonetheless hypothesized that OCRD symptoms would demonstrate a significant positive association with the self-reported experience of NJREs.

Method

Participants

Three hundred thirty-three individuals recruited via Amazon's Mechanical Turk consented to participate and completed all study measures. Fourteen individuals were excluded from data analysis due to invalid responding: three were excluded due to the attention check questions being answered incorrectly and 11 more were dropped due to responding in far less time (less than 5 minutes) than it would have taken to validly respond to the items (an estimated 15–20 minutes); thus, we report on data from 319 participants.

Participants were required to be at least 18 years old, residing in the United States, and fluent in English. The sample consisted of 163 (51%) women and 155 men (49%; 1 otherwise specified: female to male transsexual) who were on average 35.60 years old ($SD = 11.99$). Of these, 79.6% identified as European American or White, 8.5% African American or Black, 7.2% Asian, 1.6% American Indian or Alaskan Native, and 2.5% as multiracial. Two individuals (0.6%) preferred not to indicate race. Additionally, 7.8% of all participants identified their ethnicity as Hispanic. Finally, 21.9% of participants reported having a current psychiatric disorder diagnosis, and 34.8% reported ever being diagnosed with a psychiatric disorder.

Procedures

Prior to the study, approval was given by the Institutional Review Board at Knox College. Participants were recruited from Amazon Mechanical Turk, a crowdsourcing venue hosted via Amazon.com in which "workers" (i.e., study participants) can sign up to complete "HITS" (i.e., tasks) for payment. Workers read descriptions of the task including what is involved, how much time it will take, and how much compensation will be provided, prior to deciding to accept participation in a HIT. Mechanical Turk has been particularly effective at helping researchers find participants with specific psychiatric symptoms, risk factors, or rare demographic characteristics that may be crucial for research in

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the social, behavioral, and clinical sciences. Furthermore, Mechanical Turk has been shown to offer an even more representative sample than other popular samples utilized in psychological research such as college students (Shapiro, Chandler, & Mueller, 2013). Mechanical Turk has also been used in previous research on NJREs and emotional disorders (Fergus, 2014).

Upon indicating consent, participants completed a battery of questionnaires assessing NJREs and symptoms of OCD, body dysmorphic disorder, hoarding disorder, hair-pulling disorder, and skin-picking disorder. Several attention check items (e.g., "Please select Option 4") were included to assess response validity.

Measures

Dimensional Obsessive-Compulsive Scale (DOCS; Abramowitz et al., 2010). The DOCS is a 20-item self-report questionnaire that assesses four factor analytically derived OCD symptom dimensions: Contamination (e.g., "About how much time have you spent each day thinking about contamination and engaging in washing or cleaning behaviors because of contamination?"), Responsibility (e.g., "About how much time have you spent each day thinking about the possibility of harm or disasters and engaging in checking or efforts to get reassurance that such things do not or did not occur?"), Unacceptable Thoughts (e.g., "About how much time have you spent each day with unwanted unpleasant thoughts and with behavioral or mental actions to deal with them?"), and Symmetry (e.g., "About how much time have you spent each day with unwanted thoughts about symmetry, order, or balance and with behaviors intended to achieve symmetry, order, or balance?"). Each dimension is assessed by five items assessing time spent, avoidance behaviors, distress, interference, and difficulty disregarding thoughts about that dimension. The DOCS total score has demonstrated excellent internal consistency ($\alpha = .90$), convergent validity, and test-retest reliability, and all factor subscales were strongly correlated with the total score (Abramowitz et al., 2010).

In the present study, internal consistency reliability estimates ranged from .89 to .94, with the alpha coefficient of the total scale being .95. A cutoff score of 18 was found to effectively distinguish between clinical OCD patients and nonclinical adults (Abramowitz et al., 2010); in the current study, 97 participants (31% of the sample) scored 18 or more.

Savings Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004). The SI-R is a 23-item self-report measure that assesses the cognitive and behavioral dimensions of hoarding. It contains three factor analytically derived subscales: Clutter (9 items; e.g., "To what extent does the clutter in your home cause you distress?"), Difficulty Discarding (7 items; e.g., "To what extent do you have difficulty throwing things away?"), and Excessive Acquisition (7 items; e.g., "How much control do you have over your urges to acquire possessions?").

The SI-R has been validated in both clinical and nonclinical samples, and its total and subscale scores demonstrated good internal consistency, test-retest reliability, and convergent and discriminant validity (Frost et al., 2004). In the current study, the SI-R demonstrated excellent internal consistency, $\alpha = .94$. Scores of 41 and above on the SI-R have been used to identify clinically significant hoarding behavior (Steketee, Frost, Tolin, Rasmussen, & Brown, 2010). In the current sample, 59 participants (18% of the sample) scored 41 or above.

Milwaukee Inventory for the Dimensions of Adult Skin Picking (MIDAS; Walther, Flessner, Conelea, & Woods, 2008). The MIDAS is a 12-item self-report measure of skin-picking behavior. The MIDAS consists of two distinct subscales: Focused (6 items) and Automatic (6 items) Picking. Focused picking involves awareness of picking behaviors (e.g., "I pick my skin when I am anxious or upset"), whereas automatic picking refers to subconscious picking that takes place outside awareness (e.g., "I am not usually aware of picking my skin during a picking episode"). The MIDAS yields a distinct score for each of the two subscales; focused and automatic picking have been shown to be unique from one another (intersubscale $r = .008$, $p = .94$; Walther et al., 2008). The MIDAS Focused Scale demonstrated adequate internal consistency ($\alpha = .95$) in the present study, however the Automatic scale yielded an unacceptable reliability value ($\alpha = .22$).

Milwaukee Inventory for Subtypes of Trichotillomania (MIST; Flessner et al., 2008). The MIST is a 15-item self-report measure that assesses two forms of hair-pulling behavior via factor analytically derived subscales: Focused Pulling (10 items; e.g., "I intentionally start pulling my hair") and Automatic Pulling (5 items; e.g., "I am usually not aware of pulling my hair during a pulling episode"), each scored on a 10-point Likert-type scale from 0 (*not true of any of my hair pulling*) to 9 (*true for all of my hair pulling*). Like the MIDAS, the MIST is scored

as two symptom subscales. Both scales have exhibited adequate convergent and construct validity, and demonstrated adequate internal consistency (focused $\alpha = .77$; automatic $\alpha = .78$), although they were not significantly associated with one another ($r = .01, p = .74$; Flessner et al., 2008). In the present study, the MIST demonstrated excellent internal consistency; the Focused scale resulted in an alpha value of .96, and the Automatic scale resulted in a value of .94. Due to a data administration error, the MIST was scored on a 1 to 9 score in the current sample.

Cosmetic Procedure Screening Questionnaire (COPS; Veale et al., 2012). The COPS is a 9-item self-report measure intended to identify individuals with body dysmorphic disorder. Items assess the cognitive and behavioral facets of body dysmorphic disorder such as feature-checking, preoccupation, and avoidance behaviors (e.g., “How often do you deliberately check your feature(s)?” and “How much does your feature(s) currently preoccupy you?”). ROC analysis has suggested that the COPS is a valid diagnostic test because a cutoff score of 40 and above successfully identified body dysmorphic disorder patients 88.9% of the time (Veale et al., 2012). Total scores on the COPS have been shown to have good test-retest reliability over a 12-week time period ($r = .87$) and have demonstrated sensitivity to change in response to various treatment methods (Veale et al., 2012). Convergent validity for the COPS has also been well-established and shown to indicate lower body image levels via high COPS scores. In the present study, the COPS resulted in a Cronbach’s alpha value of .89, suggesting good internal consistency. In the current sample, 33 participants (10% of the sample) scored 40 or above.

Not Just Right Experiences Questionnaire-Revised (NJRE-Q-R; Coles et al., 2003). The NJRE-Q-R is a unidimensional measure that assesses presence and characteristics of NJREs. The first 10 items constitute examples of NJREs and ask participants to indicate whether they have ever experienced each NJRE (e.g., “I have had the sensation after getting dressed that parts of my clothes such as tags, collars, pant legs, etc. didn’t feel just right”). The remaining nine items assess the characteristics of their most frequently occurring NJRE. In the present study, we were most interested in the presence/intensity of NJREs in general, thus participants completed the first 10 items of the NJRE-Q-R. These items were scored on a 7-point Likert-type scale from 1 (*not intense at all*) to 7 (*extremely intense*). The measure has been validated

in both nonclinical and clinical OCD samples, and has demonstrated good test-retest ability ($r = .76$; Coles et al., 2003). The internal consistency of the NJRE-Q-R proved to be excellent in the current study, $\alpha = .94$.

Results

Given the unacceptably low reliability of the MIDAS Automatic subscale in the current sample, we removed this scale from further analysis. Means, standard deviations, ranges, and sample sizes for each remaining scale are presented in Table 1. We tested our hypothesis by first examining the bivariate correlations among the included scales. We subsequently conducted a hierarchical linear regression analysis to look at the incremental predictive power of each OCD scale in relation to NJRE-Q-R scores. Multicollinearity statistics were examined for violations of assumptions. Tolerance values were all above the .2 recommended value (Field, 2009; values ranged from .337 to .703); variation inflation factor values did not exceed 10 (Field, 2009; values ranged from 1.41 to 2.93).

Bivariate Correlations Between Study Variables

In line with past research, 95% of individuals who took part in the study reported experiencing at least one NJRE (Coles et al., 2003; Jacoby et al., 2013). Two-tailed bivariate correlational tests for Pearson’s r were run to determine the strength and direction of the relationships between total

TABLE 1

Descriptive Statistics

Scale	<i>M</i> (<i>SD</i>)	Range	<i>N</i>
DOCS – Contamination	3.43 (3.66)	0 – 19	319
DOCS – Responsibility	3.50 (3.81)	0 – 20	319
DOCS – Unacceptable Thoughts	3.52 (3.95)	0 – 19	319
DOCS – Symmetry	2.97 (3.76)	0 – 18	319
DOCS Total	13.43 (12.37)	0 – 58	319
SI-R Total	27.48 (14.66)	9 – 78	319
MIDAS – Focused	8.40 (5.08)	6 – 30	319
MIST – Automatic ^a	7.03 (5.96)	5 – 34	319
MIST – Focused ^a	13.71 (10.90)	10 – 67	319
COPS Total	18.00 (13.69)	0 – 61	319
NJRE-Q-R Total	21.30 (12.67)	10 – 62	319

Note. DOCS = Dimensional Obsessive-Compulsive Scale; SI-R = Savings Inventory – Revised; MIDAS = Milwaukee Inventory for the Dimensions of Adult Skin Picking; MIST = Milwaukee Inventory for Subtypes of Trichotillomania; COPS = Cosmetic Procedure Screening Questionnaire; NJRE-Q-R = Not Just Right Experiences Questionnaire-Revised. ^a Due to a data administration error, this scale was scored on a 1–9 scale rather than 0–9.

scores on the NJRE-Q-R and scores on measures of OCRD symptoms (see Table 2). Total NJRE-Q-R scores were significantly correlated with each of the measures of OCRD symptoms ($r = .28-.71$, all p 's < .001). However, they were most strongly correlated with the DOCS total score ($r = .71$) and each of DOCS Contamination, Responsibility, Unacceptable Thoughts, and Symmetry ($r = .52-.68$). There was also a strong correlation between NJRE-Q-R and both the COPS ($r = .62$) and SI-R scores ($r = .50$). Finally, NJRE-Q-R scores were weakly to moderately correlated with the MIDAS ($r = .30$) and MIST ($r = .28-.37$) subscales.

To compare the magnitude of associations between the NJRE-Q-R and each of the OCRD measures, two-tailed significance testing of the difference between Pearson's r correlations was carried out using the Williams modification of the Hotelling test for two correlations involving a common variable (Kenny, 1987). Significance testing was performed by transforming each individual r value into a z score using the Fisher- z transformation, at which point a normalized z table was referenced to find the p values for the difference score for each correlational pair. As expected, overall scores on the DOCS demonstrated significantly stronger correlations with NJRE-Q-R scores ($r = .71$) than the other OCRD symptom measures ($r = .28-.62$), $z = 2.43-8.68$, all p values < .001.

Turning to the DOCS subscales, a similar pattern was found for DOCS Symmetry, in that

the correlation between the NJRE-Q-R and DOCS Symmetry ($r = .68$) was significantly stronger than the relation between the NJRE-Q-R and the remaining DOCS subscales ($r = .52-.57$, $z = 3.08-4.04$, all p values < .001), as well as greater than the relation between the NJRE-Q-R and all other OCRD symptom measures ($r = .28-.50$), $z = 3.99-7.45$, all p values < .001, except for the COPS ($r = .62$, $z = 1.49$, $p = .07$). The remaining DOCS subscales were significantly more strongly correlated with NJRE-Q-R scores than was the Focused scale of the MIDAS ($r = .30$, $z = 3.90-4.47$, $p < .001$) and both the Automatic and Focused subscales of the MIST ($r = .28-.37$, $z = 2.60-4.95$, $p < .001$). Finally, both the SI-R and the COPS were also more significantly associated with NJRE-Q-R scores ($r = .50 - .62$) than was any MIDAS and MIST scale ($r = .27-.36$, $z = 2.38-6.07$, $p = .008$).

Hierarchical Linear Regression Analysis Predicting NJREs

To examine the incremental association between specific OCRD symptoms and NJREs, a 2-step hierarchical regression analysis was conducted with NJRE-Q-R scores as the dependent variable. The four DOCS subscales were entered in the first step to examine the combined effects of OCD symptomatology. Total scores for the remaining OCRD symptom scales were entered in the second step to observe the predictive power of the other OCRD symptoms on the self-reported experience

TABLE 2

Correlations Among OCRD Symptoms

	Cont	Resp	Thoughts	Sym	DOCS	SI-R	MIDAS_F	MIST_F	MIST_A	COPS	NJRE
Cont	1										
Resp	.59	1									
Thoughts	.48	.53	1								
Sym	.61	.58	.53	1							
DOCS	.82	.83	.78	.83	1						
SI-R	.33	.36	.38	.38	.45	1					
MIDAS_F	.16	.28	.32	.25	.31	.25	1				
MIST_F	.27	.29	.26	.24	.32	.36	.48	1			
MIST_A	.22	.27	.23	.21	.28	.29	.40	.78	1		
COPS	.37	.43	.42	.44	.51	.42	.26	.31	.23	1	
NJRE	.57	.55	.52	.68	.71	.50	.30	.37	.28	.62	1

Note. $N = 319$. OCRD = Obsessive-Compulsive and Related Disorder; DOCS = Dimensional Obsessive-Compulsive Scale total score; Cont = DOCS Contamination subscale; Resp = DOCS Responsibility for Harm and Mistakes subscale; Thoughts = DOCS Unacceptable Thoughts subscale; Sym = DOCS Symmetry subscale; SI-R = Savings Inventory – Revised total score; MIDAS_F = Milwaukee Inventory for Adult Skin-Picking – Focused subscale; MIST_F = Milwaukee Inventory for Subtypes of Trichotillomania – Focused subscale; MIST_A = Milwaukee Inventory for Styles of Trichotillomania – Automatic subscale; COPS = Cosmetic Procedure Screening questionnaire; NJRE = Not Just Right Experiences Questionnaire – Revised.
*All p values in table < .01

of NJREs, above and beyond the effects of OCD symptom dimensions (see Table 3).

At Stage 1, the initial four-predictor model using the DOCS subscales was significant ($p < .001$) and accounted for 54% of the variance in NJRE-Q-R scores, $F(4, 314) = 90.87, p < .001$. Contamination, $\beta = .16, t(317) = 2.97, p = .003$, Responsibility, $\beta = .13, t(317) = 2.46, p = .015$, Unacceptable Thoughts, $\beta = .15, t(317) = 3.18, p = .002$, and Symmetry, $\beta = .43, t(317) = 8.11, p < .001$, each contributed significantly to the model. It is notable that the effect of Symmetry was more than twice as strong as that of any of the other OCD symptom dimensions assessed. Introducing the remaining OCRD symptom scores in the second step resulted in a significant model ($p < .001$) and explained an additional 11.0% of the variance in NJRE-Q-R scores; this change in R^2 was significant, $F(9, 309) = 62.95, p < .001$.

When all nine independent variables were included in the linear regression analysis, DOCS Symmetry remained the strongest predictor of NJRE-Q-R scores, with a standardized β value of .35. Although DOCS Contamination also remained a significant predictor of NJRE-Q-R scores ($\beta = .13, p = .007$), neither Unacceptable Thoughts ($\beta = .06, p = .199$) nor Responsibility ($\beta = .05, p = .291$) remained significant. Notably, COPS ($\beta = .29, p < .001$) and SI-R ($\beta = .14, p = .001$) scores were the second and third strongest predictors of NJRE-Q-R scores, respectively. From the MIDAS and MIST, only the MIST-Focused subscale was marginally significant ($\beta = .11, p = .057$).

Discussion

This study was, to our knowledge, the first to directly examine the potential association between NJREs and symptoms of the full range of the DSM-5 defined OCRDs in addition to the specific symptom dimensions of OCD. Therefore, a more explicit perspective of the possible relationships between OCD symptom dimensions and symptoms of the OCRDs, as well as all of their associations with not just right phenomena, was examined. Although there is some evidence of specificity between NJREs and OCD (Coles et al., 2003; Ghisi et al., 2010; Rasmussen & Eisen, 1992), the present study extended the efforts of past research that have postulated that NJREs may not be obsessive-compulsive symptom-specific (Fergus, 2014). Parallel to our hypothesis, the current results suggest that NJREs are associated with not just OCD symptoms, but with symptoms of all of the OCRDs. Specifically, although the strength

of correlation between the DOCS and NJREs was strongest, we found that symptoms of each of the OCRDs also demonstrated a significant relationship with NJREs. However, it seems that symptoms of OCD, body dysmorphic disorder, and hoarding disorder are more strongly associated with NJREs than are symptoms of hair-pulling and skin-picking behavior.

Expanding the Base of Literature Between NJREs and OCD

We first aimed to replicate past work suggesting an association between NJREs and OCD by examining these associations at the symptom level. Specifically, we looked at the relationship between NJREs and each of the OCD symptom dimensions assessed by the DOCS. In line with our hypotheses, DOCS Symmetry, Contamination, Responsibility, and Unacceptable Thoughts each demonstrated stronger correlational values with NJREs than symptoms of any other OCRD measure, and each was a significant predictor of self-reported NJRE symptoms even when other OCD symptoms were part of the model. These results suggest that NJREs are

TABLE 3

Hierarchical Regression Results by OCRD Predictor Variables

OCRD Predictors	<i>t</i>	<i>p</i>	<i>B</i>	<i>F</i>	<i>df</i>	<i>p</i>	<i>R</i> ²
Step 1: DOCS subscales only							
Overall Model				90.87	4, 314	< .001	.54
Contamination	2.97	.003	.16				
Responsibility	2.46	.015	.13				
Unacceptable Thoughts	3.18	.002	.15				
Symmetry	8.11	< .001	.43				
Step 2: DOCS subscales + remaining OCRD measures							
Overall Model				62.95	9, 309	< .001	.65
Contamination	2.70	.007	.13				
Responsibility	1.06	.291	.05				
Unacceptable Thoughts	1.29	.199	.06				
Symmetry	7.25	< .001	.35				
SI-R	3.37	.001	.14				
COPS	7.01	< .001	.29				
MIDAS – Focused	0.38	.702	.02				
MIST – Focused	1.91	.057	.11				
MIST – Automatic	-0.82	.414	-.04				

Note. $N = 319$. The dependent variable for both regressions was the overall score on the Not Just Right Experience Questionnaire - Revised (NJRE-Q-R). DOCS = Dimensional Obsessive Compulsive Scale total score; Contamination = DOCS Contamination subscale; Responsibility = DOCS Responsibility subscale; Unacceptable Thoughts = DOCS Unacceptable Thoughts subscale; Symmetry = DOCS Symmetry subscale; SI-R = Savings Inventory - Revised total score; MIDAS = Milwaukee Inventory for Dimensions of Adult Skin-Picking; MIST = Milwaukee Inventory for Subtypes of Trichotillomania; COPS = Cosmetic Procedure Screening questionnaire; NJRE = Not Just Right Experiences Questionnaire - Revised.

associated with a variety of symptomology relative to OCD, concurrent with past literature (Cogle, Fitch, Jacobson, & Lee, 2013; Fergus, 2014; Taylor et al., 2014; Wahl et al., 2008).

Despite the strong associations found between each of the four OCD symptom dimensions and NJREs, we also examined whether certain OCD symptoms shared stronger relations with NREs than others. Indeed, our results showed that, once other OCD symptoms were taken into account, only Symmetry and Contamination remained significant predictors of NJREs, which is consistent with some findings that suggest that not all OCD symptom dimensions are equally associated with NJREs (Ecker et al., 2014). In line with the proposition that different motivational domains may underlie OCD symptom dimensions (Summerfeldt, 2004), Ecker and Gönner (2008) reported that symmetry symptoms were uniquely associated with incompleteness whereas obsessional thoughts were uniquely associated with harm avoidance. Thus, the present findings support the notion that obsessive thoughts and checking compulsions may not represent responses to NJREs. It is also important to note that the DOCS Symmetry subscale contains some items assessing the extent to which participants have felt that things are not symmetrical or just right. Although the DOCS measures overt OCD symptoms, and NJREs were being assessed as a broad dimension posited to underlie the development or maintenance of psychopathology symptoms, this shared item content may also account for the strong association between Symmetry and NJRE-Q-R scores.

Another noteworthy finding is related to Symmetry. When all predictors were included in the model, Symmetry accounted for 46.7% of the variance in NJRE-Q-R scores on its own. This is interesting, especially considering that Responsibility and Unacceptable Thoughts were no longer significant predictors of NJREs at Stage 2 of the regression analysis. This result calls into question the notion that NJREs are experienced exclusively by individuals with clinical psychiatric diagnoses because symmetrical concerns are very common among individuals in addition to those who display clinical-level OC symptoms (Cogle et al., 2013). Furthermore, the fact that Symmetry was significantly more strongly correlated with NJREs than was any other DOCS subscale may indicate that NJREs are not experienced equally across OCD symptom dimensions and in particular seem to be less prevalent or strong for OCD symptom dimensions driven by harm avoidance. Although it has

already been theoretically touched upon as to why this may be the case, future studies should explore why the potential factors unique to symmetry may make NJREs such a common experience, as this and other research suggests (Ecker & Gönner, 2008; Fergus, 2014).

Associations Between NJREs and Other OCDs

In addition to looking at the differential associations between NJREs and distinct OCD symptom dimensions, we also explored whether NJREs would be associated with symptoms of other DSM-5 defined OCDs. Because OCDs are posited to share features and potentially core etiologic mechanisms, we hypothesized that NJREs may also be associated with symptoms of other OCDs beyond OCD.

Hoarding and body dysmorphic disorder symptoms. Hoarding and body dysmorphic disorder symptoms were the strongest correlates with NJRE after OCD itself. When regressed onto NJRE, OCD, hoarding disorder, and body dysmorphic disorder symptoms accounted for 61.6% of all variance in scores, which indicates that NJREs are strongly associated with these symptoms.

One potential explanation for the correlation between NJREs and both hoarding disorder and body dysmorphic disorder symptoms is the similarity between their and OCD symptoms. Unlike skin-picking and hair-pulling behaviors, hoarding disorder and body dysmorphic disorder are both characterized by classic obsessions in the form of repetitive, unwanted, and intrusive thoughts that often compel affected individuals to respond compulsively in order to alleviate anxiety, disgust, or shame (Ecker et al., 2014). Each of these emotions may be closely tied with the occurrence of NJREs in a similar way to how a cluttered desk may engender not-just-right sensations for an individual with OCD symmetry concerns. That is, in each of these disorders, NJREs present in response to obsessions, leading to compulsive response behaviors.

With regard to hoarding behavior, NJREs may arise in relation to a number of symptoms. For example, acquiring behaviors may occur in response to an NJRE regarding not having a certain item that becomes greatly desired or perceived as needed. Similarly, an individual may experience a significant amount of stress when faced with a decision of whether to discard a particular item. Because hoarding often involves excessive attachment to items, it is possible that the thought of being without an item that is perceived to be

important could engender feelings of incompleteness which, in turn, may comprise an NJRE.

Individuals who display body dysmorphic disorder symptoms, on the other hand, may experience body-focused NJREs. Individuals with body dysmorphic disorder perceive their bodies to be flawed in some way, even if that flaw is not perceptible to others or is not present in actuality. This can lead to distorted and perfectionistic patterns of cognition that lead to feelings of incompleteness and guilt that can be experienced as NJREs (Mancini, Gangemi, Perdighe, & Marini, 2008). In response, individuals may choose to engage in a variety of behaviors to mitigate the impact of the NJREs. For example, individuals concerned with hiding a flaw may check their appearance in the mirror as often as they can to make sure their features of concern stay out of sight and, therefore, possibly reduce a sense of imperfection.

Skin-picking and hair-pulling symptoms.

Whereas hoarding and body dysmorphic disorder symptoms demonstrated strong correlations with NJRE symptoms, the correlations between NJREs and skin-picking and hair-pulling behavior were weak to moderate. None of the MIDAS or MIST subscales approached a strong correlational magnitude with NJRE-Q-R scores. This is intriguing, especially because, at surface-level, it would seem that both skin-picking and hair-pulling symptoms revolve around strange physiological sensations (Cohen & Leckman, 1992). Indeed, several types of pullers have been identified; *pleasure pullers* primarily report pleasurable responses to hair-pulling, whereas *relief pullers* primarily pull their hair in order to relieve or cope with disturbing cognitions or sensations (Odlaug, Chamberlain, Schreiber, & Grant, 2013). Therefore, it is not unreasonable to assume that some of these sensations, particularly those experienced by relief pullers, would fit the definition of an NJRE. Although, to our knowledge, no literature to similarly categorize skin-picking exists, much of the extant body of research suggests that the two disorders are highly similar (Snorrason, Belleau, & Woods, 2012) and allow us to sensibly wonder why these symptoms had comparably lower associations with NJREs as compared to symptoms of other OCRDs.

One potential explanation is that the current study did not use a clinical skin-picking or hair-pulling sample and, therefore, there was not enough variance in the current sample to draw substantive conclusions about the relationships between NJREs and skin picking and hair pulling.

The majority of our sample (70–86%) reported no experience of hair pulling or skin picking. Another explanation incorporates the inherent differences between skin-picking disorder, hair-pulling disorder, and other OCRDs such as OCD and body dysmorphic disorder. Skin-picking and hair-pulling disorders, both of which can be classified as body-focused repetitive disorders (Bhugra, 2013), may be less similar to OCRDs than current diagnostic classifications imply. For instance, OCD and body dysmorphic disorder compulsions are enacted in an attempt to reduce anxiety and distress levels that have been elevated by symptoms. In the context of this article, this means that alleviatory behaviors would be in direct response to a negative evaluation of NJREs.

However, not all individuals with skin-picking or hair-pulling disorder perform these behaviors in response to negative emotions. In fact, the behaviors are sometimes gratifying instead of alleviatory (Odlaug et al., 2013; Stasik, 2014). Moreover, OCD and body dysmorphic disorder are ego-dystonic in that the individual views the symptoms themselves as distressing and in conflict with one's own sense of self. In contrast, hair-pulling and skin-picking symptoms, in some cases, are quite ego-syntonic, even leading to pleasure (Odlaug et al., 2013). Therefore, it is difficult to say for certain that these behaviors may be driven by NJREs because they may be enacted to acquire a positive sensation rather than alleviate negative ones such as NJREs.

These results pose some interesting questions that should be examined future studies. One such question involves the categorization of hair-pulling and skin-picking disorders in the DSM-5, both of which are classified as OCRDs. Given the potential differences between ego-dystonic disorders such as hoarding disorder, body dysmorphic disorder, and OCD and ego-syntonic (at least in part) disorders such as skin-picking and hair-pulling disorder, future research may help discern whether the body-focused nature of hair pulling and skin picking might better be classified as body-focused repetitive disorders (American Psychiatric Association, 2013).

Study Limitations

This study's contributions should be interpreted within the following limitations. First, the present research did not make use of a clinical sample. Twenty-two percent of our sample self-reported a current psychiatric diagnosis and a moderate proportion (10–31%) scored at or above the cutoff on the OCRD measures. However, we were not

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able to examine the association between NJREs and clinical diagnoses themselves. Therefore, the results of the present study reflect associations between NJREs and OCRD *symptoms* rather than disorders. In addition, the low base rate of several of the assessed disorders might have led to low endorsement rates and limited our ability to find significant associations between study variables. Although these disorders occur on a continuum, the results may not entirely reflect the experience of those with clinical diagnoses. In particular, scores on the measures of hair pulling, skin picking, and body dysmorphic disorder were quite low. Thus, results may not be generalizable to individuals with clinical presentations of these disorders. This study was also cross-sectional in nature, precluding causal or directional inferences. It will be important that future studies employ longitudinal design to determine whether NJREs indeed function as a risk factor for the development of OCD and related disorders.

In addition, the nature of self-report, and particularly electronically based self-report, has been known to be unreliable at times and might have led some participants to embellish or diminish their actual experiences (Austin, Deary, Gibson, McGregor, & Dent, 1998; Balakrishnan, 1999). Although data collected via Mechanical Turk samples have been found to be as reliable as traditional data collection methods (Buhrmester, Kwang, & Gosling, 2011) and we employed validity checks, Mechanical Turk participants have been found to pay less attention to experimental stimuli and to seek external information to ensure their responses are factually correct (Goodman, Cryder, & Cheema, 2013). Future studies might benefit from use of in-vivo NJRE inductions such as seating participants in front of a cluttered desk and instructing them not to organize anything. Previous studies have effectively used lab-based paradigms to induce NJREs and have found associations between in-vivo NJRE induction and both OCD (Coles, Heimberg, Frost, & Steketee, 2005; Cogle et al., 2013; Summers, Fitch, & Cogle, 2014) and body dysmorphic disorder symptoms (Summers et al., 2017). Studies that mirror such methodology and include measurement of other OCRDs can further enhance understanding of the associations between NJREs and OCRD symptoms.

Another limitation is that the NJRE-Q-R assesses NJREs in a manner that may tap into symptom dimensions specific to OCD (e.g., checking, washing; Fergus, 2014), thus artificially strengthening

the association between NJREs and OCD, and weakening the associations between NJREs and other types of symptoms. Therefore, using a measure that does not encompass as much content overlap would be beneficial for future research that aims to assess relationships between NJREs and a range of psychopathology.

Finally, it is important to note that we found unexpectedly high correlations between the Focused and Automatic subscales of the MIST. This measure was developed to include separable subscales, and previous research has demonstrated low intersubscale correlations ($r = .01$, $p = .74$; Flessner et al., 2008). However, in the present sample, these subscales were very strongly correlated ($r = .78$). It is possible that this indicates that focused and automatic hair pulling may not be as discordant as previously thought. It may also be an anomaly of our sample. In particular, our participants did not endorse very many hair-pulling or skin-picking symptoms. The majority of our sample received the lowest score possible on each of the MIDAS and MIST subscales. In addition, as noted in our Method, the MIDAS Automatic subscale had very low reliability (Coefficient alpha = .22). It appears that the low reliability value was due to the fact that the two reverse-keyed MIDAS items (which are both part of the Automatic subscale) actually correlated positively with the other items prior to rescoring, leading to poor psychometric properties when the items were reverse-scored. This seems to be because many participants endorsed “not true at all for me” for *all* of the items, irrespective of the direction the item was keyed. We opted to drop this scale from further analysis. However, this limits the generalizability of these results and highlights that the measure may not be as applicable in a nonclinical sample. Therefore, results involving the MIST and MIDAS in the present study should be interpreted with caution because these measures did not function as expected.

Despite the study's limitations, the yields of this research allow for further speculation not only into what spectra of disorders NJREs may present in, but in what specific types of OCRD symptoms. Furthermore, it may be that therapeutically addressing risk factors that underlie higher order problems regarding obsessive thoughts and compulsive behaviors could be useful in treating an array of disorders.

Future Directions

Although this research provided insight regarding the relationship between NJREs and symptoms

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of the OCRDs, several aspects of the phenomena are still unclear. First, although some studies have demonstrated the potential universality of NJREs for all individuals including those who do not suffer from psychiatric disorders (Coles et al., 2003; Jacoby et al., 2013), further evidence may be beneficial to support the strength of these assertions. If NJREs manifest in healthy individuals as well as individuals with psychiatric disorders, future research could delineate potential reasons why individuals focus on not-just-right sensations when they present. More specifically, why some people may become obsessed with their NJREs (such as someone with clinical hoarding, body dysmorphic, or OCD symptoms compared to the numerous others who potentially experience similar sensations but remain healthy) is not yet understood.

One possible explanation for the difference in attention paid to NJREs between those with and without a psychological disorder is a simple gap in expectations that individuals hold about their desired states. A highly perfectionistic individual, for example, may be more prone to developing clinical symptoms in response to a cluttered desk when compared to a nonperfectionistic counterpart. Because more situations are likely to be perceived as imperfect, the sheer experience of NJREs may expedite the development of clinical symptoms. Additionally, if most people do experience such sensations, it may be that only those who interpret NJREs as meaningful develop symptoms of various disorders (Ecker & Gönner, 2008; Moretz & McKay, 2009). Further research to either validate or invalidate such speculations would greatly increase current understanding of NJREs in both healthy and disordered individuals.

A final consideration of importance is the conceptualization of NJREs themselves. NJREs have broadly been defined as the need or drive for perfection, certainty, or “closure” (Ecker & Gönner, 2008; Rasmussen & Eisen, 1992). However, whether NJREs represent a vulnerability toward OCD and related symptomatology, or should be considered a symptom themselves is unclear. In some frameworks, NJREs are considered a trait-like underlying motivation that gives rise to symptoms such as those seen in OCD (Ecker & Gönner, 2008; Summerfeldt, 2004; Summerfeldt et al., 2014). As described earlier, “not just right” feelings may reflect one of the affective-motivational domains that underlie overt OCD symptoms. Defined this way, internal discomfort with one’s current sensory experience leads to the need to engage in compulsive behavior

(Summerfeldt, 2004; Summerfeldt et al., 2014). This was the conceptualization we used in the current study because we hypothesized that this same underlying drive or motivation may underlie symptoms of other OCRDs.

In other frameworks, though, NJREs are considered to be a symptom of the disorder itself (Moretz & McKay, 2009). For instance, the Vancouver Obsessional Compulsive Inventory (Thordarson et al., 2004) includes a 12-item “Just Right” subscale (e.g., “I often have trouble getting things done because I try to do everything exactly right”). Here, NJREs may be more similar to an obsession, in which its appraisal (rather than its existence) leads to compulsive behavior (Belloch et al., 2016). Future work examining the potential transdiagnostic nature of NJREs may shed further light on the precise nature of this experience.

Conclusion

This study aimed to better understand how NJREs manifest in a variety of symptom dimensions outside of those that have been previously studied. This involved a correlational assessment between NJRE-Q-R scores and the current spectrum of OCD symptoms as denoted by the DSM-5 including hair-pulling and skin-picking disorders, body dysmorphic disorder, hoarding disorder, and OCD, as well as their subscales. Although less strongly associated with NJREs as OCD, results indicated that symptoms of each OCD were significantly correlated (with varying magnitudes) to overall NJRE-Q-R scores. In particular, hoarding disorder and body dysmorphic disorder symptoms demonstrated strong positive correlations to NJREs both in correlational and hierarchical regression analyses. In summary, this article offers a new perspective on NJREs in relation to a variety of psychiatric symptoms that were previously unexplored in this context.

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