Not just right experience: Is it influenced by feelings of guilt?

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Abstract

Individuals with obsessive–compulsive disorder (OCD) experience increased guilt. Further, these individuals often report uncomfortable sensations of things being not quite right (“not just right experiences”—NJREs). As to the relation between these psychological phenomena, it was hypothesized that feelings of guilt may enhance NJRE. In two experiments, we demonstrated that the induction of a guilty emotion resulted in increased NJRE, and this finding was qualified by an interaction with trait guilt. Induced guilt was followed by stronger feelings of things being not just right only in high-trait-guilt participants. In the low-trait guilt participants NJRE was weaker. Moreover, we found a meaningful relationship between both NJRE and trait guilt and OCD features.

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Keywords: Obsessive–compulsive disorder; Obsessive–compulsive features; Not just right experience; Guilt; Trait–guilt

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1. Introduction

A not just right experience (NJRE) is an uncomfortable sensation that signals and represents a perceived mismatch between the state of the world or of one’s own performance and the individual’s accepted standards. As Rasmussen and Eisen (1992) write, patients with obsessive–compulsive disorder (OCD) frequently report “an inner drive that is connected with a wish to have things perfect, absolutely certain, or completely under control” (p. 756). Until this sense of rightness is reached “patients may be plagued with a “not just right experience” (NJRE)” (Coles, Frost, Heimberg, & Réaume, 2003, p. 682). Thus, individuals with OCD often report uncomfortable sensations of things being not quite right (Coles et al., 2003; Coles, Heimberg, Frost, & Steketee, 2005). Further, these individuals often describe feeling driven to perform an action until this uncomfortable sensation is reduced. They will continue with ritualistic compulsions until this feeling has gone in order to achieve a sensation of things being “just right”.

Research focusing on NJREs also suggests that they play an important role in the phenomenology of OCD. Leckman et al. (1995) found that a large percentage (73%) of 121 patients with OCD reported that they had felt the urge to perform compulsive acts until things were just right at some time during the past week. Moreover, patients who reported NJREs and achieved a just right sensation by performing compulsive acts during the past week were found to suffer significantly more severely from OCD than patients who had not reported these perceptions during the same time. Patients often reported the urge to achieve just right sensations as being central to their compulsions. Also, Miguel et al. (2000) found that a large proportion (63%) of patients with OCD described NJREs before or while they were performing their compulsive acts. These sensations were particularly common in OCD individuals with comorbid Tourette’s disorder.

In a number of quoted studies with large undergraduate samples, Coles et al. (2003, 2005) found that NJREs (even when experimentally induced) were significantly related to OCD features, and that the OC features that tended to show the strongest correlations with NJREs were checking, ordering, and doubting. Further, NJREs correlated significantly more strongly with features of OCD than other domains of psychopathology (e.g., social anxiety, trait anxiety, worry, depression). Moreover, they found that NJREs may represent a specific form of perfectionism, and that compulsions may be attempts to relieve the anxiety caused by NJREs. Finally, NJREs were a common occurrence in these unselected student samples.

Coles et al.’s results, together with the observations of other researchers on the role of NJRE in OCD, without doubt improve our understanding of the phenomenology of the disorder. However, researchers should now pursue a series of other important issues. For example, Does the construct help or hinder us in understanding how established psychological processes and mechanisms contribute to the psychopathology? (Davey, 2003). And why are NJREs significantly more strongly correlated with features of OCD than other domains of psychopathology (e.g., social anxiety, trait anxiety, worry, depression) (Coles et al., 2003, 2005)? A first answer to the latter question was suggested by Davey (2003), when he raised the issue whether the construct merely redescribes the symptomatology of OCD. Indeed, if NJREs are just redefinitions of OCD then the strong association between the two is the result of a tautology. Another answer has been proposed by Salkovskis and Forrester (2002). These authors argue that human beings faced with life and death choices usually make a decision by turning to a just right/not just right sensation. Individuals’ with OCD...
are often subjectively faced with life and death decisions and thus often turn to a just right/not just right sensation. This explanation does not take into account two fundamental questions. First, it does not consider those not infrequent cases, where obsessive patients’ behaviour is motivated by the goal of reducing a not just right sensation, even if the patient does not perceive himself as being faced with a life and death choice. For example, clinical observations suggest that some symptoms of symmetry or ordering are not driven by life and death decisions (Summerfeldt, Richter, Antony, & Swinson, 1999). Second, patients suffering from anxiety disorders are easily subjectively faced with life and death choices, for example, a social anxious individual faced with the decision of whether to speak to the public, but they do not seem to turn to a just right/not just right sensation.

In our opinion, it is plausible that patients’ sensitivity to NJREs depends on the occurrence of frequent and intense feelings of guilt or fear of guilt. In fact, patients affected by OCD experience guilt in a chronic fashion, that is they are characterized by high levels of trait guilt (Mancini, 2001; Mancini & Gangemi, 2004; Niler & Beck, 1989; Rachman, 1993; van Oppen & Arntz, 1994). The results of two different studies may suggest that feelings of guilt could possibly influence the sensation of things being not just right (Mancini & Gangemi, 2005; Mancini, Gangemi, & van den Hout, 2006). In both these experiments the induction of guilt emotion in high-trait-guilt participants resulted in increased dissatisfaction with one’s own preventive performance.

The two studies presented in the current paper were designed to explore the hypothesis that feelings of guilt could be among the factors that influence NJREs: the more guilty one feels, the greater the sensation of things being not just right. In both these experiments, we expected that the influence on NJRE of feeling guilty would be stronger in persons with high levels of ‘trait guilt’, whereas it would be weaker in case of low “trait guilt”. Moreover, we predicted that guilt feelings would increase NJRE even if:

● the source of the guilt experienced had nothing to do with the situation in which NJRE was elicited;
● the standards to be reached had nothing to do with ethics, but rather with aesthetics or ordering and harmonizing standards;
● induced-NJRE was not related to subjectively important or crucial events or situations.

2. Experiment 1

Experiment 1 uses a task in which the standards to be achieved were of an aesthetic or ordering nature to examine whether (trait and state) guilt affect influences NJRE. If so, then (a) state guilt should produce an increase in NJRE feelings, (b) this effect should be stronger in participants with high-trait guilt. In the present task, participants were divided into high and low-trait-guilt groups on the basis of a measure of trait guilt. They were then assigned to one of the two affect induction conditions (guilty vs. neutral). Affect was induced by asking participants to write about a guilty/neutral life event. The emotional states were thus neither generated by nor related to the task used in the experiment. All participants were asked to fill in a self-report questionnaire about NJRE related to the task. Note that in this experiment NJRE was referred to a domain different from those regarding the source of guilt experienced. Moreover, it had nothing to do with morality but
rather with aesthetics or ordering standards, and finally it was not related to subjectively
important or crucial events or situations. Indeed, the task was about set of dominoes and
the standard to be achieved was of the aesthetic or ordering type.

As we argue that feelings of guilt influence state NJRE by an interaction with trait guilt,
and that OC patients experience guilt in a chronic fashion, in the current experiment we
also examined the relationship of both state NJRE induced by guilt affect and trait guilt to
features of OCD. Trait- and state-guilt were assessed by the Guilt Inventory (Jones &
Kugler, 1992; Jones, Schratter, & Kugler, 2000).

2.1. Method

2.1.1. Participants and design

Participants consisted of 104 introductory course psychology students from the
University of Rome, 58 were female and 46 male. Ages ranged from 20 to 31 yr with a
mean age of 25.3 (SD = 5.2). All of the participants were volunteers.

They were randomly divided into high (n = 52) and low (n = 52) trait-guilt groups on
the basis of a measure of trait guilt. Within each of these groups, they were then randomly
assigned to either receive guilt induction (n = 55) or neutral induction (n = 49). A 2 x 2
factorial design was used. The between subject factors were Affect Induction Condition
(neutral vs. guilt) and Trait-guilt (high vs. low).

2.1.2. Materials and procedure

Participants were tested in three groups. Two days before the experimental session they
were given the Trait Guilt Inventory (see below). At the beginning of the experimental
session they were given a booklet with written instruction manipulations, the State Guilt
Inventory, the “rearranging task” (see below), the State-NJRE survey questionnaire (see
below), and the 41-item Padua Inventory–Revised (van Oppen, Hoekstra, & Emmelkamp,
1995).

Participants were told that the study was about how personality differences might affect
students’ perceptions. They had to solve the task individually. Informed consent was
obtained.

2.1.2.1. High and low-trait-guilt group. The Trait Guilt Inventory consists of 20 items
assessing trait guilt (x = .89) (Jones & Kugler, 1990, 2000). Responses were rendered using
a 5-point scale in which a low score indicated strong disagreement and a high score
indicated strong agreement. We used the total Trait Guilt Inventory score (20–100) by
summing the scores of the 20 items with higher scores indicating higher trait guilt.
Participants were classified as either low or high in trait guilt on the basis of a median split.

2.1.2.2. Affect induction. Following the procedure used by Schwarz and Clore (1983),
affect was manipulated by having participants describe either a neutral (control group), or
a guilt-related (guilt induction group) personal life event. They were instructed to describe
this neutral/guilt event in their recent life as vividly as possible and to include details of
what they were feeling and thinking. For example, the guilt induction group was given the
following instructions (translated from Italian):

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We shall now ask you to recall and describe in the space of 20 min a relatively recent event in your life for which you felt and still feel particularly guilty, for example, having wounded someone who did not deserve it, having gone back on your word, not having done your duty even when this was possible, or having sinned. Try to relive this event for which you felt and still feel guilty and describe it in as accurate and detailed way as possible (i.e., in all its detail). Include also such details as to what your thoughts, feelings and sensations were on the occasion.

All three groups were said they would have 20 min to write the biographical event. At the end of the affect induction period, participants were asked to complete the State Guilt Inventory (10 items; \( z = .83 \)) (Jones & Kugler, 1990, 2000), for quantifying the guilt induction effect through the total State Guilt Inventory score. This total score (range 10–50) was calculated by adding scores on the 10 items. Items were coded such that higher numbers reflect greater state guilt.

2.1.2.3. The rearranging task. All the participants were then told that their task was to rearrange a number of 15 cardboards representing a set of dominoes on a desk, using what they considered to be the best criterion for them, i.e., the one that satisfied them most. The instructions given stressed the importance of identifying what in their opinion was the best possible ordering criterion. To this aim, participants were given a few minutes to try out or change configurations whenever they wanted to. Participants could end the trial by saying “stop”.

2.1.2.4. State-NJRE survey questionnaire (ST-NJRE Q). After the task had been completed, participants filled in the State-NJRE survey questionnaire (ST-NJRE Q) regarding the task they had just completed. It was developed on the basis of the Revised NJRE Questionnaire (NJRE Q-R) by Coles et al. (2003). The ST-NJRE Q begins by presenting participants the NJRE: While I was doing the task, I had the unpleasant sensation that I was not doing things exactly as I should or the way I would have liked to do them. Afterwards, respondents were asked to indicate whether or not they experienced this NJRE during the task and the degree of this feeling (from 0: not at all to 4: extremely strong). Participants then rated this feeling in seven dimensions:

- How intense was this sensation?
- How stressful was this sensation?
- How stressful is this sensation now?
- How difficult is it to get rid of this sensation?
- How strongly do you feel the urge to do something to reduce or modify this sensation?
- To what extent was this sensation due to the feeling the configuration was not quite right?
- To what extent did this sensation mean there was something wrong or incomplete?

ST-NJRE Q total score can range from 0 to 32, with higher scores reflecting stronger feelings of not just right experience.

2.1.2.5. Padua inventory (PI). According to a consolidated procedure used in other studies in which emotions were experimentally induced (e.g. Gasper & Clore, 1998; Scott &
Cervone, 2002), only at the end of the experimental session were our participants asked to complete the 41-item Padua Inventory—Revised (van Oppen et al., 1995). It was given in order to examine the relationship between both NJRE and trait guilt and OCD features. The original PI (Sanavio, 1988) is a 60-item self-report inventory assessing four factors related to obsessive–compulsive behaviour: impaired mental control, checking, loss of control of actions, and contamination. Each item is rated from 0 = not at all disturbing to 4 = very much disturbing. Sanavio (1988) found the PI to have good psychometric properties, including strong internal consistency (a = .90 for males, .94 for females) and good 30-day retest reliability (r = .78 for males, .83 for females). Finally, the PI total score has been shown to discriminate between individuals with OCD and individuals with neurotic disorders (Sanavio, 1988). Since the publication of the original version of the PI, many other versions have also been used. For example, the 39-item PI–Washington State University Revision (Burns, Keortge, Formea, & Sternberger, 1996), the 41-item Padua Inventory–Revised (van Oppen et al., 1995), and the 40-item abridged version (Rhéaume et al., 2000). The 41-item abridged version was used in the current study. It assesses five factors related to obsessive–compulsive behaviour: impulses, checking, washing, rumination, and precision. Also in this version each item is rated from 0 = not at all disturbing to 4 = very much disturbing.

2.2. Results

2.2.1. Scale characteristics

To examine how well the occurrence ratings for the ST-NJRE Q items held together, we computed an index of the internal consistency of this scale using Cronbach’s Alpha formula. Analysis revealed that the internal consistency for the scale is fairly high in the current sample; median alpha coefficient is .68.

2.2.2. Affect induction check

To assess the effectiveness of the affect manipulation, we performed a 2 (affect) × 2 (trait guilt) ANOVA on the state guilt scores. Affect manipulation was found to be effective, (F(1, 100) = 38.63, p < .001), as indicated by higher reports of guilt after having written a guilt-related story (M = 31.18, SD = 6.9) than a neutral story (M = 22.97, SD = 5.85). In addition, high-trait-guilt participants reported more state guilt (M = 30.59, SD = 7.32) than low-trait-guilt participants (M = 24.03, SD = 6.4), as indicated by a trait guilt main effect, F(1, 100) = 19.64, p < .001. Finally, high-trait-guilt individuals were no more responsive to the affect induction than low-trait-guilt individuals, as indicated by the lack of any significant Affect × Trait Guilt interaction, F(1, 100) = 1.37. Thus differences in NJRE are unlikely to be due to high-trait-guilt individuals having a greater change in state guilt than low-trait-guilt individuals.

2.2.3. State NJRE

Table 1 presents the mean NJRE state ratings for the experimental conditions (Trait—Affect Induction). A 2 × 2 analysis of variance on ST-NJRE R ratings was conducted, with Affect induction condition (guilt vs. neutral) and Trait guilt (high; low) as factors. A main effect of Affect Induction on NJRE experienced (F(1, 100) = 14.77, p < .001) was obtained. In line with our predictions, “guilty” participants rated state NJRE higher (M = 11.03, SD = 5.4) than control participants (M = 6.93, SD = 4.39).

Also a main effect of Trait guilt was found ($F(1, 100) = 15.4, p < .001$), with high-trait-guilt individuals ($M = 11.03, SD = 5.43$) rating the NJRE higher relative to low-trait-guilt participants ($M = 6.93, SD = 4.39$).

Moreover, results demonstrate that affect manipulation affected state NJRE through interaction with trait guilt, ($F(1, 100) = 4.57, p < .05$), with the two groups differing only in the high-trait-guilt condition. High trait individuals in the “guilt induction” group rated the NJRE higher ($M = 13.34, SD = 4.67$) than high-trait-guilt participants in the neutral condition ($M = 7.9, SD = 4.69, t (50) = -4.08, p < .001$). The affect manipulations had no effect on NJRE scores in the low-trait-guilt participants. Indeed, the comparison between the two affect induction groups (guilt vs. neutral) in the low-trait-guilt participants did not reach significance (guilt group: $M = 7.83, SD = 4.8$; neutral group: $M = 6.28, SD = 4.13$; $t (50) = -1.25$, ns).

2.2.4. Relationship of state NJRE to OCD features

To examine the relationship of state NJRE to OCD features, we correlated NJRE ratings with the total and subscale scores of the PI (see Table 2).

The state NJRE ratings correlated significantly with the PI total score ($r(101) = .23, p < .05$) and with only two of the five subscales scores: Washing: $r(101) = .24, p < .05$; Rumination: $r(101) = .27, p < .01$.

Table 2

<table>
<thead>
<tr>
<th>Padua inventory</th>
<th>Scale range</th>
<th>$M$ (SD)</th>
<th>State NJRE</th>
<th>Trait guilt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0–164</td>
<td>38.7 (23.8)</td>
<td>.23*</td>
<td>.60**</td>
</tr>
<tr>
<td>Impulses</td>
<td>0–28</td>
<td>3 (2.7)</td>
<td>.18</td>
<td>.50**</td>
</tr>
<tr>
<td>Washing</td>
<td>0–40</td>
<td>10.9 (8.5)</td>
<td>.24*</td>
<td>.35**</td>
</tr>
<tr>
<td>Checking</td>
<td>0–28</td>
<td>8.1 (6.4)</td>
<td>.02</td>
<td>.42**</td>
</tr>
<tr>
<td>Rumination</td>
<td>0–44</td>
<td>13.5 (9.3)</td>
<td>.27***</td>
<td>.66**</td>
</tr>
<tr>
<td>Precision</td>
<td>0–24</td>
<td>3.1 (3.1)</td>
<td>.11</td>
<td>.35**</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01.

Also a main effect of Trait guilt was found ($F(1, 100) = 15.4, p < .001$), with high-trait-guilt individuals ($M = 11.03, SD = 5.43$) rating the NJRE higher relative to low-trait-guilt participants ($M = 6.93, SD = 4.39$).

Table 1

Mean ($M$) and standard deviation ($SD$) of NJRE ratings for low- and high-trait-guilty individuals by affect induction condition in Experiment 1

<table>
<thead>
<tr>
<th>Trait-guilt</th>
<th>Affect induction</th>
<th>NJRE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilt</td>
<td>13.5</td>
<td>4.6</td>
</tr>
<tr>
<td>Neutral</td>
<td>7.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilt</td>
<td>7.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Neutral</td>
<td>6.3</td>
<td>4.4</td>
</tr>
</tbody>
</table>

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2.2.5. Relationship of trait-guilt to OCD features

To examine the relationship of trait guilt to OCD features, we correlated trait guilt ratings with the total and subscale scores of the PI (see Table 2). The trait guilt ratings correlated significantly with the PI total score ($r(101) = .60, p < .001$) and all subscale scores ($r = .35–.66$).

2.3. Discussion

In this experiment, we found that the responsiveness to NJRE is affected by state guilt, and that this effect is stronger in high-trait-guilt individuals. More specifically, we found that state guilt increases NJRE provided that there is high trait guilt. High-trait-guilty individuals felt stronger NJRE after guilt induction than after neutral affect induction, whereas low-trait-guilty individuals did not. These results provide support for a significant relationship between NJRE and OCD. Indeed, there was a significant relationship between state NJRE and OCD features. An examination of types of OCD features revealed that state NJRE may be more strongly related to some types of OCD symptoms than others. For example, the state NJRE ratings were significantly related to OCD washing and precision features than to checking concerns. Finally, there was also a meaningful relationship between trait guilt and OCD features. The occurrence of trait guilt is significantly related to all levels of OCD features.

3. Experiment 2

The results of the previous experiments support our prediction: guilt affect influences not just right experience feelings by increasing them. However, it may be objected that an important issue remains unresolved after this experiment: there is no assurance that the induction of guilt gave rise to a specific affect of guilt vs. negative affect in general. It could be claimed that our data are consistent both with the argument that it is guilt-affect that specifically increases the NJRE, and with the notion that it is a general negative affect that increases these feelings. Experiment 2 was conducted to resolve this issue. It was to some extent a replication of Experiment 1, although the experimental design was partially modified to demonstrate that our results stem from a specific guilt-emotion effect, and thus to dispel the confusion between the guilt-emotion and a general negative affect effect. To this aim, in this study we tested three groups of volunteers assigned to three different affect induction conditions (guilt emotion, emotion of being a victim of wrong doing and neutral emotion), instead of the two groups of Experiment 1 (guilt emotion vs. neutral emotion). We thus added a group in which another negative emotion (to feel one is a victim of wrong-doing) was induced. The main reason why we have chosen to induce victim feelings is that this emotional state is unlikely to involve guilty feelings. In any case, it should involve less guilt than the induction of other emotional states such as depression or anxiety. For example, if one induces depression asking participants to remember an autobiographical event of loss of a loved person, then it is plausible that guilty feelings are activated as well. If one induces anxiety through the anticipation of a threat, for example, a university exam, it is plausible that the fear of being reproached or criticized for the failure is activated too. Moreover, in this study, we utilized information gathered in Experiment 1 to improve and streamline our measure of state NJRE. For the revised questionnaire, we decided to increase the number of items by adding two questions. The content of these questions was as follows:
items was the result of attempts to define and measure more accurately the key aspects of the NJRE, also in order to assess the relationship with the sensation and OCD features more satisfactorily.

As in the earlier experiments, we expected that: (a) state guilt would specifically produce an increase in NJRE feelings; (b) these effects would be stronger specifically in participants with high-trait guilt.

3.1. Method

3.1.1. Participants and design

Participants consisted of 110 introductory course psychology students from the University of Rome, 69 were female and 41 male. Ages ranged from 18 to 38 yr with a mean age of 24.9 (SD = 3.9). All of the participants were volunteers.

They were randomly divided into high (n = 52) and low (n = 58) trait guilt groups on the basis of a measure of trait guilt. Within each of these groups, they were then randomly assigned to either receive guilt induction (n = 38) or neutral induction (n = 35) or the victim of wrong-doing induction (n = 37). A 3 × 2 factorial design was used. The between-subject factors were Affect Induction Condition (neutral vs. guilt vs. emotion of being a victim of wrong doing) and Trait-guilt (high vs. low).

3.1.2. Materials and procedure

Participants were tested in two groups. The materials and procedure were the same as in Experiment 1. The only exceptions were for the Manipulation Check Questionnaire (see below) and the revised version of the State-NJRE survey questionnaire (ST-NJRE Q-R).

3.1.2.1. High and low-trait-guilt group

As in Experiment 1, two days before the experimental session, participants filled out the Trait guilt subscale of the Guilt Inventory (Jones & Kugler, 1992; Jones et al., 2000). They were then classified as either low or high in trait guilt, on the basis of a median split.

3.1.2.2. Affect induction

As in the earlier experiment, affect was manipulated by asking participants to describe either a guilt-related (guilt induction group), or a neutral (control group) personal life event. Unlike the earlier study, in this experiment, a third group of subjects were asked to write about a biographical event in which they felt they were victims of wrong-doing (victim induction group).

3.1.2.3. Manipulation check questionnaire

After writing the event, a 3-item questionnaire was administered in order to check the effectiveness of the induction of the emotion at being a victim of wrong-doing. Participants were asked to what extent they felt a victim of wrong-doing after describing the event. Individuals rated their feelings of being victim within the range from 0 to 100, with anchors at 0 (not at all a victim of wrong-doing) and 100 (totally a victim of wrong-doing). The other two items (how guilty/angry they felt after describing the event) were added as filler items.

3.1.2.4. The rearranging task

The task given was the same as in the previous experiment.
3.1.2.5. Revised state-NJRE survey questionnaire (ST-NJRE Q-R). After the task had been completed, participants filled in the Revised State-NJRE survey questionnaire (ST-NJRE Q-R) referring to the task they had just completed. As in the earlier version, the ST-NJRE Q-R begins by presenting the NJRE to participants: While I was doing the task, I had the unpleasant sensation that I was not doing things exactly as I should or the way I would have liked to do them. Participants then rated this feeling on nine dimensions, instead of the seven ones of the previous questionnaire (in bold added items):

- How intense was this sensation?
- How stressful was this sensation?
- How stressful is this sensation now?
- How difficult is it to get rid of this sensation?
- Do you feel the urge to do something to reduce or modify this sensation?
- How strongly do you feel the urge to do something to reduce or modify this sensation?
- To what extent was this sensation due to the feeling the configuration wasn’t just right?
- Do what extent did this sensation mean there was something wrong or incomplete?
- How strongly do you feel the urge to do something to reduce or modify this sensation now?

ST-NJRE Q-R total score can now range from 0 to 40.

3.1.2.6. Padua inventory (PI). Our participants were asked to fill in the 41-item Padua Inventory–Revised (van Oppen et al., 1995) in order to examine the relationship of both NJRE and trait guilt to OCD features.

3.2. Results

3.2.1. Scale characteristics

To examine how well the occurrence ratings for the 10 ST-NJRE Q-R items held together, we computed the internal consistency index of this scale using Cronbach’s Alpha formula. Analysis revealed that the internal consistency for the scale is high in the current sample; median alpha coefficient is .72.

3.2.2. Guilt affect induction check

To assess the effectiveness of the guilt affect manipulation, we performed a 3(affect) × 2 (trait guilt) ANOVA on the state guilt scores. As in Experiment 1, the affect manipulation was found to be effective, $F(2, 104) = 12.48, p < .001$. Planned comparisons of the means using Sidak’s post hoc test were made based upon results from ANOVA. Post-hoc comparisons ($p < .001$) revealed that participants rated higher in state guilt after having written a guilt-related story ($M = 30.55, SD = 4.98$) than either a neutral story ($M = 23.17, SD = 4.32, t(71) = -6.72, p < .001$), and a victim-related story ($M = 25, SD = 5.28, t(73) = 4.68; p < .001$). Conversely, neutral and victim groups did not differ significantly in state guilt ratings ($t(70) = -1.60; ns$). In addition, high-trait-guilt participants reported more state guilt ($M = 29.38, SD = 5.44$) than low-trait-guilt participants did ($M = 23.60, SD = 4.63$), as indicated by a trait guilt main effect, $F(1, 104) = 16.44, p < .001$. Finally, high-trait-guilt individuals were no more responsive to the affect induction than low-trait-guilt individuals, as indicated by the lack of a significant Affect × Trait Guilt interaction, $F(2, 104) = .33$. Thus, as in the earlier experiment, it is...
unlikely that differences in NJRE were due to high-trait-guilt individuals undergoing a greater change in state guilt than low-trait-guilt individuals.

3.2.3. Manipulation check questionnaires
Moreover, in order to verify also the effectiveness of the “victim of wrong-doing” emotion induction, we analysed the data for “victim” feelings felt after writing about the victim-related event (Manipulation Check Questionnaire) using ANOVA. Results revealed that the induction was effective \( F(2, 107) = 36.79, p < .001 \). Post hoc comparisons \( (p < .001) \) revealed that participants perceived more victim feelings after having written a victim-related story \( (M = 66.72, SD = 23.44) \) than either a neutral story \( (M = 29.22; SD = 20, t(70) = -7.23, p < .001) \), and a guilt-related story \( (M = 33.76; SD = 17.11, t(73) = -6.96, p < .001) \). Conversely, neutral and “guilty” groups did not differ significantly in victim feeling ratings \( (t(71) = -1.03, ns) \).

3.2.4. State NJRE
Table 3 presents the mean NJRE state ratings for the experimental conditions (Trait-guilt, Affect Induction). A 3\( \times 2 \) analysis of variance on ST-NJRE R-Q ratings was conducted, with Affect induction condition (guilt; victim; neutral) and Trait guilt (high; low) as factors. A main effect of Affect Induction on NJRE felt \( (F(2, 104) = 7.17, p < .001) \) was obtained. In line with our predictions, Sidak’s post hoc comparisons \( (p < .05) \) revealed that “guilty” participants rated NJRE higher \( (M = 16.26, SD = 7.04) \) than both control participants \( (M = 8.69, SD = 4.55, t(71) = -5.45, p < .001) \) and the “victim” group \( (M = 9.59, SD = 5.21, t(73) = 4.65, p < .001) \). Conversely, neutral and victim groups did not differ significantly in NJRE ratings \( (t(70) = -.78; ns) \).

Also a main effect of Trait guilt was found \( (F(1, 104) = 11.17, p < .001) \), with high-trait-guilt individuals \( (M = 14.62, SD = 6.9) \) rating NJRE higher relative to low-trait-guilt participants \( (M = 8.91, SD = 5.08) \).

Finally, results demonstrate that affect manipulation affected NJRE through interaction with trait guilt, \( (F(2, 104) = 4.11, p < .01) \), with the three groups differing only in the high-trait-guilt condition. In the high-trait-guilt condition, “guilty” participants rated state NJRE \( (M = 18.48, SD = 6) \) higher than both control \( (M = 9.25, SD = 4.67, t(39) = -4.81, p < .001) \) and “victim” individuals \( (M = 10.27, SD = 4.73, t(38) = -4.12, p < 0.001) \).

Table 3
Mean (M) and standard deviation (SD) of NJRE ratings for low- and high-trait-guilty individuals by affect induction condition in Experiment 2

<table>
<thead>
<tr>
<th>Trait-guilt</th>
<th>Affect induction</th>
<th>NJRE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
</tr>
<tr>
<td>High</td>
<td>Guilt</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Victim</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>9.2</td>
</tr>
<tr>
<td>Low</td>
<td>Guilt</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td>Victim</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Finally, a significant Affect Induction by Trait guilt interaction was also found (F(2, 104) = 6.11, p < .01). NJRE scores of participants high in trait guilt were clearly affected by the affect manipulation. That is, high-trait-guilt individuals in the ‘‘guilt induction’’ group rated the NJRE higher (M = 18.48, SD = 5.91) than both high-trait-guilt participants in the ‘‘victim’’ condition (M = 10.27, SD = 4.73, t(38) = 4.12, p < .001) and in the neutral condition (M = 9.25, SD = 4.67, t(39) = 4.81, p < .001).

By contrast, the affect manipulations had no effect on NJRE scores in the low-trait-guilt participants. Indeed, none of the between group comparisons in the low-trait-guilt participants reached significance (guilt group vs. victim group: t(33) = .92; ns; guilt group vs. neutral group: t(30) = .37; ns; victim group vs. neutral group: t(47) = .63; ns).

3.2.5. Relationship of state NJRE to OCD features

To examine the relationship of state NJRE to OCD features, we correlated NJRE ratings with the total and subscale scores of the PI (see Table 4). The state NJRE ratings correlated significantly with the PI total score (r(110) = .30, p < .001) and all subscale scores (r = .20−.29).

3.2.6. Relationship of trait guilt to OCD features

To examine the relationship of trait guilt to OCD features, we correlated trait guilt ratings with the total and subscale scores of the PI (see Table 4). The trait guilt ratings correlated significantly with the PI total score (r(110) = .43, p < .001) and all subscale scores (r = .21−.51).

3.3. Discussion

In this study, the experimental design was partially modified to clearly show that our data arise from a specific guilt-emotion effect, and not from a general negative affect effect.

In this experiment, we added a group in which another negative emotion (emotion at being the victim of wrong-doing) was induced. Thus we tested three different affect induction conditions (guilt, victim and neutral affect), instead of the two conditions of Experiment 1 (guilt and neutral affect). In line with the earlier study, we found that the responsiveness to NJRE is affected by state guilt, and that this effect is stronger in high trait guilt SS. More specifically, we found state-guilt influences NJRE and that the effect is stronger in individuals with high-trait guilt. High-trait-guilty individuals felt NJRE more strongly...
after the induction of guilt than after that of either a victim-related or neutral affect, whereas low-trait-guilty individuals did not. The current study also replicated our finding of a significant relationship between state NJRE and levels of OC features, and went beyond Experiment 1 in showing that the occurrence of state NJRE is significantly related to all types of OCD symptoms, and not only to some specific types, as in our previous study (e.g. washing and rumination). This sensation, as measured by our questionnaire, is deemed to be linked to OCD features. Finally, as in the earlier study, the occurrence of trait guilt was significantly related to all levels of OCD features.

4. General discussion

In this paper, two different experiments examined whether the activation of feelings of guilt influences NJRE in normal adults. We investigated how trait guilt influences the way state guilt affects the sensation of things being not quite right (state NJRE). To this aim, in a first experiment we demonstrated that the induction of a guilty affect resulted in increased NJRE, and this finding was qualified by an interaction with trait guilt (Experiment 1). That is, high-trait-guilty individuals felt stronger NJRE after the guilt induction than after the neutral affect induction. Low-trait-guilty individuals did not display this pattern. Moreover, we found a meaningful relationship of both NJRE and trait guilt to OCD. Specifically, there was a significant relationship between state NJRE and only a few types of OCD symptoms: washing and precision. The occurrence of trait guilt was strongly related to all levels of OCD features.

In a second experiment, in order to verify whether our results stem from a specific guilt-emotion effect and not from a general negative affect effect, we examined the influence of another negative emotion, i.e., being a victim of wrong-doing, induced in the laboratory (Experiment 2). As expected, it was found that guilt emotion has specific effects on state NJRE. Although guilt and being a victim of wrong-doing are emotions of the same valence (negative), guilt induction led participants to experience the sensation of things being not quite right more strongly than “victim” participants. As in the earlier experiment, these findings were qualified by an interaction with trait guilt. High-trait-guilty individuals evaluated the occurrence of a stronger NJRE after the guilt induction than after both the “victim” and neutral affect induction, whereas low-trait-guilty individuals did not. Further, as in the previous study, we found a significant relationship between state NJRE and levels of OC features. But unlike the earlier experiment the occurrence of state NJRE is now significantly related to all types of OCD symptoms, and not only to some specific types (e.g. washing and rumination). This change in the results might be due to the revision of our state NJRE questionnaire. These findings are consistent with existing models and previous empirical work (Coles et al., 2003, 2005) examining the relationship between NJREs and OCD features. Finally, this study confirms the presence of a meaningful relationship between trait guilt and all types of OCD features. This last finding is consistent with the current idea that trait guilt is linked to all OCD domains, and that it is involved in the development, maintenance and aggravation of OCD. Obsessive patients experience guilt for having acted irresponsibly in a chronic fashion (Mancini, 2001; Mancini & Gangemi, 2004; Niler & Beck, 1989; Rachman, 1993), and this emotion might increase the occurrence of the sensation that things are not just right.

In total, we have demonstrated that responsiveness to NJRE is actually affected by state guilt, and that this effect is stronger in high-trait-guilty subjects. These results might
contribute to explain the responsiveness of individuals with OCD to NJRE, especially if we consider the correlations between both state NJRE and trait guilt and OCD features.

It is worth noting that in our experiments, we found that participants in the guilt induction condition felt more state NJRE, than the comparisons groups even if their guilt referred to a domain (a) that was different from those related to the source of the guilt experienced, (b) having nothing to do with morality but rather with aesthetics or ordering standards, and (c) not subjectively crucial for the subject. Indeed, the task related to a set of dominoes and the standard to be achieved was of the aesthetic or ordering type. This finding may help to explain why individuals with OCD are responsive to NJRE also in domains that are not so crucial for them, and further that an increase in responsiveness to NJRE might come from feelings of guilt regarding totally unrelated events.

As to the specific effect of feelings of guilt on NJRE the current studies have two limitations. First, in Experiment 2 we have tried to verify whether our results stem from a specific guilt-emotion effect and not from a general negative affect by examining the influence of a second negative emotion, i.e., being a victim of wrong-doing, on NJRE. We have found that guilt induction led participants to experience NJRE more strongly than “victim” participants. Although we may state that guilt and being a victim of wrong-doing are emotions of the same valence (negative), we have not included a measure of Negative Affect. Therefore we cannot be sure that in both the negative affect induction groups (guilt vs. being a victim of wrong doing) the manipulation of affect would have actually resulted in a negative affect. Second, feelings of guilt could be affecting some features of the rearranging task, for example, perseveration, since it is an open-ended task. However, we did not measure how long participants did the task for, and so we did not check for the relationship between the time needed to complete the task and the measure of NJRE. Thus, we cannot be sure that NJRE could not simply be an epiphenomenal associate of perseveration.

Finally, a number of significant questions remain unresolved by the current studies. First, through what mechanism do feelings of guilt influence NJRE by increasing it? For example, it could be that guilt is being used as information via a process of ex-consequentia reasoning (“I feel guilty, so something must be wrong”) (Arntz, Rauner, & van den Hout, 1995). Alternatively, it could be that the emotion of guilt is being misinterpreted/ mislabeled as a “not just right experience” (I feel guilty/not right). Alternatively, guilt may be related to “Not just right experiences” by simply focusing attention internally on negative sensations. Second, does guilt actually influences NJRE in OCD? Third, as mentioned above, NJRE makes people aware that there is a mismatch among evaluated events or performances and their accepted standards. But could any standard be involved in the increase of NJRE or only some of them, and in the latter case which one/s? For instance, we could easily imagine that NJRE is elicited in a gymnast who does not perform perfectly. But NJRE is elicited also in the case of performance, that is also poor, imperfect, but in a quite different sense, for example, as in the case of a runner who arrives × hundredths of a second later than his personal record. And in the case of individuals with OCD, what are the standards involved in feeling that things are not just right? Finally, as regards obsessive patients again, why is it that in one case patients’ compulsions are regulated by evaluations, while in another case, they are regulated by sensations? This is a significant question because this difference may have important implications for treatment. Clearly, further studies are needed to investigate these issues more exhaustively.
References


