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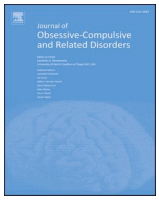

In/stability of moral sense of self and OCD

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ABSTRACT

Why are people with obsessive-compulsive disorder (OCD) susceptible to deontological (vs. altruistic) guilt? The present research addresses this question by examining the association of OC tendencies with deontological rather than altruistic guilt. Specifically, we conducted two correlational studies in which we examined whether and how the perceived instability of the moral sense of self (i.e., instability of morality) is associated with OC tendencies and deontological (vs. altruistic) guilt. As predicted, the results of path analysis models showed that the susceptibility to deontological (vs. altruistic) guilt typical of individuals with OC traits is primarily associated with the perceived instability of morality relative to the perceived status of morality (Study 1) and instability of extraversion (Study 2). These results suggest that deontological guilt and its association with OC traits can be understood better when the instability of the moral sense of self and vulnerability to sudden changes in moral status are considered. We discuss how these results contribute to theory, research, and clinical practice on OCD, morality, and guilt.

1. Introduction

Morality plays a pivotal role in the conceptualization of obsessive-compulsive disorder. Several works provide evidence consistent with this claim by showing, for example, that symptomatologic behavior is associated with moral identity threat (Doron et al., 2012; Reuven, Liberman, & Dar, 2014), and with the moral foundation of purity/sanctity (Kang et al., 2016). Consistently, research on OCD also examined moral emotions with a special focus on guilt. A well-developed line of research indicates that obsession and compulsions characterizing OCD are associated with intentions to minimize feelings of deontological (as opposed to altruistic) guilt (Basile et al., 2011; D'Olimpio & Mancini, 2014; Mancini & Mancini, 2015). As we will discuss more in-depth later, deontological guilt refers to violating a moral norm, whereas altruistic guilt is related to the harm caused to another person.

In the present research, we want to complement this line of research by examining the association of OC tendencies with deontological rather than altruistic guilt. We advance that stability of the moral sense of self could, at least partially, explain the link between OCD and the aversive experience of deontological guilt. More specifically, individuals characterized by OC tendencies, such as repeatedly checking items, washing due to contamination concerns, or efforts to control disturbing thoughts, tend to perceive themselves as more unstable in terms of moral identity, and such variability is positively correlated with an inclination to feel deontological rather than altruistic guilt. In the next paragraphs, we will briefly review previous work on OCD and guilt. Subsequently, we will introduce the concept of the variability of the moral sense of self and our hypotheses about its role in linking OC tendencies and guilt.

1.1. OCD and guilt

Growing evidence suggests that addressing responsibility and promoting acceptance of concomitant feelings of guilt can effectively contrast obsessive symptoms and the urge to enact compulsions (Arntz et al., 2007; Cosentino et al., 2012; Lopatka & Rachman, 1995).

A fine-grained understanding of the association between OCD and guilt can be obtained if two distinct facets of guilt are considered. More specifically, Carnì et al. (2013, see also Prinz & Nichols, 2010 for similar conclusions) propose the possibility of differentiating between intrapsychic guilt, which arises from transgressions of an internalized moral norm, and interpersonal guilt, which stems from causing harm to others. The first type of guilt can be referred to as deontological guilt and it does not entail that anybody is harmed by the violation (e.g., cheating at school or consensual sibling sex). Feelings of unworthiness and

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expectations of punishment are typically associated with this type of guilt. Altruistic guilt, on the other hand, emerges when one's conduct is not altruistic and is linked to others' suffering, even if moral norms are not violated (e.g., breaking up with the partner). Interestingly, these two types of guilt overlap with deontological and consequentialist moral viewpoints (Conway & Gawronski, 2013; Mancini & Gangemi, 2015, 2021). That is, deontological guilt stems from a deontological stance of morality in which the appropriateness of a given action is based on rules and the rightness of the action per se. In contrast, altruistic guilt is associated with a consequentialist viewpoint in which the moral evaluation of the action depends on the consequences it produces. Neuroimaging evidence supports the idea that these two types of guilts are distinguishable since they rely on different neural networks (Basile et al., 2011). Deontological guilt is associated more strongly with the activation of the insula and anterior cingulate cortex which are also activated when a person feels disgusted, self-reproach, and self-loathing (Rozin et al., 1999). On the other hand, altruistic guilt shares the activation of the brain areas involved in the experience of empathy, compassion, and the theory of mind (i.e., medial prefrontal cortex; Shallice, 2001). Despite the independence of these two types of guilt, it is rather common to experience them simultaneously. Everyday wrongdoings, indeed, entail both a violation of norms and harm to others.

Of relevance to the present work is a line of research building on the idea that individuals with OCD are more sensitive to deontological rather than altruistic guilt and therefore are more strongly motivated to avoid and minimize this type of guilt (see Gangemi & Mancini, 2017 for a review). Consistently, it was found that inducing deontological guilt enhanced obsessive-like behaviors (i.e., checking and washing) more than inducting altruistic guilt (D'Olimpio & Mancini, 2014; Giacomantonio et al., 2019; Ottaviani et al., 2018). In addition, Ottaviani et al. (2019), while replicating the association between deontological guilt and washing behavior, showed that manipulating deontological, rather than altruistic, guilt elicited more disgust at the physiological level. Combining their findings with previous research, Ottaviani et al. (2019) concluded that individuals with OCD tend to construe events that elicit guilt accentuating more deontological rather than altruistic implications. We reason that emphasis on deontological guilt is rooted in a sense of instability of the moral sense of self characterizing individuals with obsessive-compulsive inclinations.

1.2. Moral in/stability and OCD

Self-concept in the moral domain can tap into several dimensions. For example, a great deal of research examined the perception of the importance of moral identity as a key factor determining the association between moral values and moral action (Aquino & Reed, 2002; Blasi, 1983). Other work examined the chronicity of morality, that is the tendency to frame events and the world more in general moral terms (Narvaez et al., 2006).

Here we are interested in two basic dimensions of the moral sense of self, namely status and in/stability. Moral status describes self-perception about having a set of moral characteristics (e.g., fairness, loyalty, honesty). Moral status does not refer to the importance or centrality of morality, but rather to the mere possession of certain moral qualities. In more metaphorical terms, a person with a self-concept characterized by high moral status would feel to belong to a top position of the chain of beings, that is an imagery vertical hierarchy of morality in which human beings are ranked from the most virtuous to the most immoral (Brandt & Reyna, 2011). Although the moral self-concept can be conceived as a relatively stable component of the self, there is agreement on the idea that moral status is rather perceived as dynamic, malleable, and affected by contingencies (Jordan et al., 2015; Monin & Jordan, 2009). In other words, individuals perceive that their moral status can vary depending on their actions, intentions, and desires, and thus they strive to maintain it high and positive (Mazar et al., 2008). Consistently, research on moral licensing and moral credentials found that a prior moral act can license later ethically morally ambiguous behavior (Monin & Miller, 2001). Having engaged in virtuous behavior could be seen by the actor as proof of high moral status, thus reducing concern to preserve it and, paradoxically, favoring further immoral behavior.

Considering the great concern attached to variation in moral status, it is plausible that individuals incorporate in their moral self-concept both the perception of the moral status and the perception of its variability. Beliefs about the variability and susceptibility of one's moral status, such as the potential for degradation, can exhibit significant individual variability. While some individuals may experience a relatively stable sense of their moral status, others anticipate sudden and frequent fluctuations.

Here we predict that obsessive traits are associated with greater perceptions of instability of the moral sense of self. OCD individuals do not necessarily perceive themselves as low in terms of moral self-regard, but rather they are preoccupied with a "fall" of their status. As noted by Ottaviani et al. (2019), they fear moral degradation and such concern increases sensitivity to minimal variations of their status which are perceived as aversive. Any potential change from current moral status, related for example to contamination or blasphemous thoughts, is overemphasized in terms of seriousness and frequency. Consequently, the moral self-concept is construed as rather unstable and prone to degradation. Early experiences with parenting hypercriticism, disproportionate responsibility, and rigid codes of conduct might contribute to building up the idea that one's moral status is rather unstable and, consequently, minor violations could produce major changes that are difficult to repair (Barcaccia et al., 2015; Salkovskis et al., 1999).

Appeal to deontological rather than utilitarian morality would be better suited to address preoccupation related to moral instability (e.g., degradation). Indeed, people tend to view deontological, rule-based positions as more "moral" and trustworthy whereas utilitarian decisions are seen as an indicator of pragmatic competence and logical reasoning but with scarce moral character (Everett et al., 2016; Reynolds et al., 2019; Rom et al., 2017). In other words, only deontological considerations can help to prevent the "fall" of moral status. Translated in terms of emotions, moral instability should be associated with the tendency to experience deontological rather than altruistic guilt following misdoings.

To summarize, we expect that the association between OC traits and deontological, rather than altruistic, guilt can be explained in terms of the perceived instability of the moral self-concept. Based on the reasoning presented above, we advance that OC tendencies and deontological (vs. altruistic) guilt are associated with each other through moral instability, rather than status. We test these predictions in two correlational studies.

2. Study 1

In the first study, we asked participants to empathize with the main characters in a series of vignettes that depicted minor misbehaviors, such as leaving the faucet running. Each situation was carefully crafted to involve both deontological implications (i.e., breaking a rule) and altruistic implications (i.e., causing harm to someone). Subsequently, we assessed the extent to which participants experienced feelings of deontological and altruistic guilt after each misbehavior. Before evaluating the vignettes, we administered a set of measures related to obsessive-compulsive (OC) traits and morality. Our expectation was that OC tendencies would exhibit a positive correlation with perceived moral instability while remaining unrelated to moral status (Hypothesis 1). Furthermore, we hypothesized that stronger perceptions of moral instability would be positively associated with deontological guilt, rather than altruistic guilt (Hypothesis 2).

2.1. Method

2.1.1. Participants

1146 participants completed a 10-min online survey. The sample was composed of 440 men (38.4%) and 706 women (61.6%). Their mean age was 30.88 years ($SD = 15.88$). 0.2% of participants had no educational qualifications, 6.3% had a middle school diploma, 70.5% had a high school diploma, 18.6% had a bachelor's or master's degree, and 4.5% had higher levels titles such as a Ph.D. Participation was anonymous and voluntary. To determine the needed sample size, we performed a power analysis using an R application which entails a Monte Carlo simulation approach (Schoemann et al., 2017). We estimated the statistical power by setting a power threshold of 0.80 and expected relations of 0.20 between (a) OC tendencies and instability of morality, and (b) instability of morality and deontological and altruistic guilt. We opted for a large total number of power analysis replications (5,000) and wide coefficient draws per replication (20,000). Analysis revealed that we needed a minimum sample size of 260 participants.

2.1.2. Measures and procedure

OC Tendencies. Firstly, we measured OC tendencies through the 18-item Obsessive-Compulsive Inventory-Revised (Foa et al., 2002). Examples of items are: "I have saved up so many things that they get in the way", "I check things more often than necessary", and "I get upset if objects are not arranged properly". Responses were made on 5-point scales, where 1 = *not at all* and 5 = *extremely* so that higher scores indicate greater OC tendencies ($\alpha = .87$, $M = 2.11$, $SD = 0.67$).

Status of Morality and Instability of Morality. Several previous works have concentrated on the development of lists encompassing moral traits, utilized for studying moral identity (Aquino & Reed, 2002; Jordan et al., 2015), interpersonal perception (Brambilla et al., 2011), and personality traits (Romano et al., 2023). Borrowing from this previous work, we created a list of 15 morality-related adjectives (i.e., worthy, chaste, pure, honest, loyal, sincere, reliable, humble, modest, righteous, respectable, thrifty, blameless, moral, and clean) which were administered to our participants with different instructions. To measure moral status, we asked participants to indicate how well each adjective describes themselves on a 7-point scale, where 1 = *not at all descriptive of me* and 7 = *very descriptive of me* so that higher scores indicate greater moral status ($\alpha = .82$, $M = 5.11$, $SD = 0.75$). Then, we measured moral instability by asking participants to indicate the extent to which they view adjectives as self-descriptive characteristics that are (un)stable over time. Specifically, participants read: "Some people think they are honest/dishonest every day, never changing their idea about themselves. Other people consider themselves honest on some days, while dishonest on other days, often changing their idea about themselves. How stable or unstable is your idea about yourself?". Participants indicated the extent to which they have a fixed idea of themselves for each self-descriptive adjective on a 7-point scale ranging from 1 = *I often change idea* to 7 = *I never change idea*. We computed a composite score of moral instability by averaging the responses to the 15 items. The scale was reverse coded so that higher scores indicate greater instability of morality ($\alpha = .87$, $M = 2.61$, $SD = 0.96$). Given some criticism about the alpha coefficient (Deng & Chan, 2017), we also examined the reliability of the Status of Morality and Instability of Morality scales through the McDonald's Ω. Analyses revealed values of 0.815 and 0.867 for moral status and moral instability, respectively.

Deontological Guilt and Altruistic Guilt. Studies frequently examine deontological and altruistic guilt through the induction of these types of guilt using first-person scenarios. In these scenarios, participants often relate to the individual responsible for a wrongdoing that either results in harm to another person or breaches a moral standard (e.g., Giacomantonio et al., 2019; D'Olimpio & Mancini, 2014; Mancini & Gangemi, 2015). In this particular study, rather than inducing guilt, our objective was to identify the extent to which each form of guilt spontaneously arises following descriptions of minor transgressions. To achieve this, we presented participants with ten vignettes illustrating situations that evoke feelings of guilt (e.g., accidently damaging a nearby scooter, arriving late for a business meeting, or staining a friend's dress with red wine). These vignettes were crafted similarly to those commonly used to elicit deontological or altruistic guilt. However, the transgressions described in each scenario were conducive to both forms of concern, be it altruistic or deontological. After each vignette, we measured deontological guilt using an item created to capture the typical mental state and inner dialogue associated with this type of guilt: "When I think of myself in this situation, I think that I am a superficial person. I am never careful enough about what I do, and I could be scolded". Along the same 10 vignettes, we measured altruistic guilt through the following item designed with the same rationale as the one used previously: "When I think of myself in this situation, I am sorry for the other person. I don't wish to hurt him/her". Therefore, responses were given to a total of 10 items measuring deontological guilt ($\alpha = .91$, $\Omega = .909$, $M = 4.26$, $SD = 1.52$) and 10 items measuring altruistic guilt ($\alpha = .83$, $\Omega = .839$, $M = 5.44$, $SD = 1.09$). Participants provided their ratings on 7-point scales ranging from 1 = *not at all* to 5 = *extremely* so that higher scores indicate greater deontological guilt and greater altruistic guilt, respectively.

2.2. Results and discussion

Study 1 tested whether moral instability (vs. moral status) may represent the psychological process through which OC tendencies relate to feelings of deontological rather than altruistic guilt. We tested a path analysis model in which indirect links between OC tendencies and the two types of guilts (deontological and altruistic) through status and instability of morality were examined. The model was tested with lavaan (Rosseel, 2012) by using the RStudio graphical interface (Team, 2015). Correlations for all variables are reported in Table 1.

In line with literature, we found a positive association between OC tendencies and deontological guilt, $\beta = 0.260$, $SE = 0.028$, $z = 9.233$, $p < .001$, *95% CI* [0.205, 0.316], whereas the association between OC tendencies and altruistic guilt was not significant, $\beta = 0.028$, $SE = 0.030$, $z = 0.942$, $p = .346$, *95% CI* [−0.031, 0.087]. As predicted by H1, OC tendencies were positively related to instability of morality, $\beta = 0.214$, $SE = 0.031$, $z = 6.87$, $p < .001$, *95% CI* [0.153, 0.275], whereas unrelated to the status of morality, $\beta = -0.019$, $SE = 0.031$, $z = -0.611$, $p = .541$, *95% CI* [−0.080, 0.042]. This means that OC tendencies have no implications for individuals' perceptions of themselves as im/moral. Rather, OC tendencies have implications for perceived vulnerability to moral changes: individuals with OC tendencies have a stronger perception that their moral status can change rapidly. As predicted by H2, instability of morality was positively related to deontological guilt, $\beta = 0.16$, $SE = 0.033$, $z = 4.794$, $p < .001$, *95% CI* [0.092, 0.220], whereas negatively related to altruistic guilt, $\beta = -0.129$, $SE = 0.038$, $z = -3.439$, $p = .001$, *95% CI* [−0.203, −0.056]. Status of morality was unrelated to deontological guilt, $\beta = -0.046$, $SE = 0.034$, $z = -1.340$, $p = .180$, *95% CI* [−0.113, 0.021], whereas positively related to altruistic guilt, $\beta = 0.247$, $SE = 0.037$, $z = 6.602$, $p < .001$, *95% CI* [0.173, 0.320]. Therefore, OC tendencies were indirectly and positively related to deontological guilt through the instability of morality, $\beta = 0.033$, $SE = 0.009$, $z = 3.75$, $p < .001$, *95% CI* [0.016, 0.051]. OC tendencies were also indirectly but negatively related to altruistic guilt through the instability of morality, $\beta = -0.028$, $SE = 0.009$, $z = -3.045$, $p = .002$, *95% CI* [−0.045, −0.010]. Instead, OC tendencies were unrelated to deontological guilt, $\beta = 0.001$, $SE = 0.002$, $z = 0.550$, $p = .583$, *95% CI* [−0.002, 0.004], and altruistic guilt, $\beta = -0.005$, $SE = 0.008$, $z = -0.608$, $p = .543$, *95% CI* [−0.020, 0.010], through moral status. Fig. 1 is a graphical representation of these results.

These results supported our reasoning that moral instability (but not moral status) is crucial to explaining how OC tendencies relate to increased deontological rather than altruistic guilt. As hypothesized, we found that OC tendencies are positively associated with deontological guilt not only directly but also indirectly through moral instability (but

Table 1
Correlations for scores on OC tendencies, Moral Status, Moral Instability, Deontological Guilt, and Altruistic Guilt.

	OC tendencies	Moral Status	Moral Instability	Deontological Guilt	Altruistic Guilt
OC tendencies	1				
Moral Status	−.019	1			
Moral Instability	.214***	−.491***	1		
Deontological Guilt	.295***	−.128***	.234***	1	
Altruistic Guilt	−.004	.31***	−.244***	−.035***	1

Note. Study 1 ($N = 1146$); ***$p < .001$.

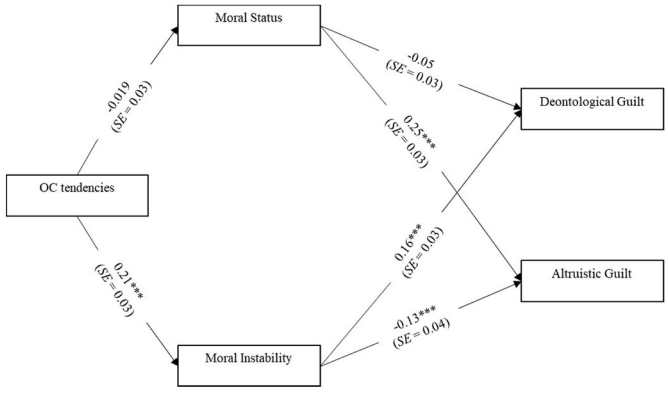


Fig. 1. The path analysis model tested in Study 1 ($N = 1146$)
Note. ***$p < .001$.

not moral status). Unexpectedly, we also found that OC tendencies are significantly and negatively associated with altruistic guilt via moral instability (but not moral status). These results suggest that individuals with OC traits are inclined to feel more deontological guilt and less altruistic guilt because of perceived variability of their moral self-concept over time (i.e., higher instability of morality) rather than variations in their moral status.

3. Study 2

The findings from Study 1 are robust and consistent with the expected patterns. However, it is important to acknowledge that the design of the study allows for the possibility that findings related to instability of morality are due to a general sense of instability concerning the self rather than to the specific moral dimension. This idea resonates with previous research indicating that negative inferences about one's general self may contribute to obsessive symptomatology (Ferrier & Brewin, 2005). To strengthen our argument, it is crucial to demonstrate that the indirect link between obsessive tendencies and deontological guilt is primarily based on the instability of moral aspects of the self rather than on the instability of traits unrelated to morality. To address this, the present study incorporated an additional measurement of perceived variability in the sense of self pertaining to a non-moral trait such as extraversion. By examining the role of extraversion instability, we can assess whether general self-variability serves as a central mechanism. If variability in the general sense of self is indeed a key mechanism, we would expect to observe similar results to those of Study 1 when considering instability in extraversion. Conversely, if moral dimensions are the primary factors at play, we anticipate replicating the findings from Study 1, and extraversion should not convey an indirect association between obsessive-compulsive traits and deontological guilt.

An additional goal of Study 2 was to develop a more comprehensive operationalization of moral instability. The adjectives used in Study 1 primarily captured a deontological dimension of morality (i.e., focused on rules and duties). To address this limitation, additional adjectives were included in Study 2 to ensure that altruistic concerns were also accounted for, resulting in a more detailed description of the moral sense of self. This expansion in the operationalization of moral instability allowed for a more nuanced understanding of participants' moral sense of self in the study. To sum up, we expect that OC tendencies would be positively associated with perceived moral instability, whereas unrelated to perceived extraversion instability (Hypothesis 1). In turn, greater perceptions of moral instability would be positively associated with deontological guilt rather than altruistic guilt (Hypothesis 2).

3.1. Method

3.1.1. Participants

351 participants were recruited online via Prolific. They were paid about £0.60 for completing an anonymous 10-min survey. The sample was composed of 160 men (45.6%) and 191 women (54.4%). Their mean age was 27.27 years ($SD = 8.94$). Among participants, 3.7% had a middle school diploma, 51.6% had a high school diploma, 39.6% had a bachelor's or master's degree, and 5.1% had higher levels titles such as a Ph.D. The same power analysis performed in Study 1 (1-β = 0.80, $r = .20$, draws = 20,000, replications = 5000) revealed a needed sample size of 260 participants.

3.1.2. Measures and procedure

OC Tendencies. As in Study 1, participants completed the 18-item Obsessive-Compulsive Inventory-Revised (Foa et al., 2002) to measure OC tendencies ($\alpha = .89$, $M = 2.21$, $SD = 0.69$).

Instability of Morality and Instability of Extraversion. In addition to the 15 adjectives used in Study 1, participants evaluated the following 10 adjectives: selfless, good, empathic, sensible, friendly, understanding, sweet, kind, loving, and tender. Participants indicated the extent to which they have a fixed idea of themselves for each of the 25 morality-related adjectives on a 7-point scale where 1 = *I often change idea* and 7 = *I never change idea*. We computed a composite moral instability score by averaging the responses to the 25 items. The scale was reverse coded so that higher scores indicate greater instability of morality ($\alpha = .93$, $\Omega = .928$, $M = 2.74$, $SD = 0.94$). Then, participants read a list of 5 extraversion-related adjectives namely extrovert, exuberant, sociable, self-confident, and effusive. Participants rated the extent to which they have a fixed idea of themselves for each of the 5 extraversion-related adjectives on a 7-point scale (1 = *I often change idea* and 7 = *I never change idea*). We computed a composite extraversion instability score by averaging the responses to the 5 items. The scale was reverse coded so that higher scores indicate greater extraversion instability ($\alpha = .89$, $\Omega = .887$, $M = 2.94$, $SD = 1.48$).

Deontological Guilt and Altruistic Guilt. We measured deontological ($\alpha = .86$, $\Omega = .869$, $M = 4.67$, $SD = 1.27$) and altruistic ($\alpha = .80$, $\Omega = .807$, $M = 5.16$, $SD = 1.03$) guilt following the procedure as in Study 1.

3.2. Results and discussion

Study 2 investigated whether, relative to the instability of extraversion, the instability of morality may better explain the relation of OC tendencies with feelings of deontological rather than altruistic guilt. We tested a path analysis model with lavaan (Rosseel, 2012), using the

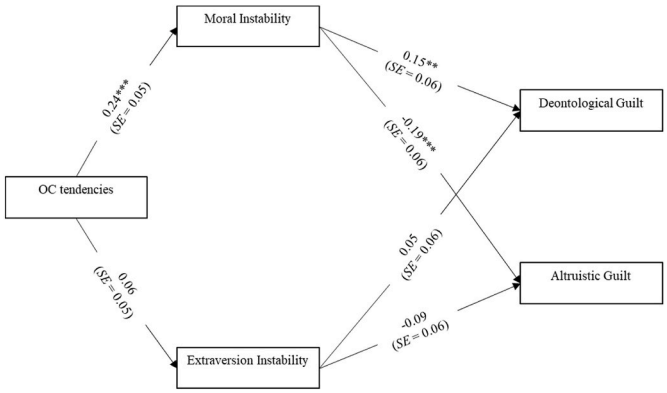
RStudio graphical interface (Team, 2015) in which indirect links between OC tendencies and the two types of guilts (deontological and altruistic) through the instability of morality and extraversion were examined. Correlations of all variables are reported in Table 2.

In this study, OC tendencies were unrelated to deontological guilt, $\beta = 0.066$, $SE = 0.053$, $z = 1.243$, $p = .214$, *95% CI* [−0.038, 0.169], and altruistic guilt, $\beta = 0.006$, $SE = 0.052$, $z = 0.109$, $p = .913$, *95% CI* [−0.097, 0.108]. Confirming H1, OC tendencies were positively related to instability of morality, $\beta = 0.235$, $SE = 0.048$, $z = 4.874$, $p < .001$, *95% CI* [0.140, 0.329], whereas unrelated to the instability of extraversion, $\beta = 0.064$, $SE = 0.052$, $z = 1.233$, $p = .218$, *95% CI* [−0.038, 0.166]. As predicted by H2, instability of morality was positively related to deontological guilt, $\beta = 0.148$, $SE = 0.062$, $z = 2.383$, $p = .017$, *95% CI* [0.026, 0.270], whereas negatively related to altruistic guilt, $\beta = -0.187$, $SE = 0.057$, $z = -3.260$, $p = .001$, *95% CI* [−0.299, −0.075]. Instability of extraversion was unrelated to deontological guilt, $\beta = 0.046$, $SE = 0.060$, $z = 0.773$, $p = .439$, *95% CI* [−0.071, 0.163], and altruistic guilt, $\beta = -0.085$, $SE = 0.057$, $z = -1.493$, $p = .136$, *95% CI* [−0.196, 0.027]. Thus, as in Study 1, OC tendencies were indirectly and positively related to deontological guilt, $\beta = 0.035$, $SE = 0.017$, $z = 2.065$, $p = .039$, *95% CI* [0.002, 0.068], whereas indirectly and negatively related to altruistic guilt, $\beta = -0.044$, $SE = 0.016$, $z = -2.687$, $p = .007$, *95% CI* [−0.076, −0.012], through instability of morality. Instead, OC tendencies were unrelated to deontological guilt, $\beta = 0.003$, $SE = 0.005$, $z = 0.646$, $p = .518$, *95% CI* [−0.006, 0.012], and altruistic guilt, $\beta = -0.005$, $SE = 0.005$, $z = -1.029$, $p = .304$, *95% CI* [−0.016, 0.005], through the instability of extraversion.

These results (see Fig. 2 for a graphical representation) demonstrated that OC tendencies are associated with higher instability of morality which in turn relates to increased deontological guilt and decreased altruistic guilt. As such, Study 2 confirmed the results of Study 1 that individuals with OC traits are inclined to feel more deontological guilt and less altruistic guilt because of higher instability of morality. By using a different operationalization of instability of morality, the results of Study 2 suggest that the strength of instability of morality prevails even after partializing for instability of extraversion (as a core trait of personality).

4. General discussion

The present research aimed to investigate the association between obsessive-compulsive tendencies, moral instability, and deontological guilt. Findings reported in two studies consistently indicate that moral instability, but not moral status, was associated with OC tendencies. Furthermore, already known association between OC tendencies and deontological guilt (D'Olimpio & Mancini, 2014; Gangemi & Mancini, 2017; Giacomantonio et al., 2019) was better explained by an indirect link through moral instability rather than moral status. It was also found that instability of a nonmoral trait such as extraversion was not related to guilt or OC tendencies thus providing preliminary evidence that instability of the moral sense of self has a distinctive association with the variables considered in the present research. This is particularly notable considering the positive and strong correlation between moral instability and extraversion instability. This indicated that both these variables tap into a more general sense of instability about the self.



Note. ** $p < .01$, *** $p < .001$

Fig. 2. The path analysis model tested in Study 2 ($N = 351$)
Note. **$p < .01$, ***$p < .001$.

Nevertheless, only moral instability showed the predicted associations.

We acknowledge that considering the instability of extraversion does not definitively rule out the possibility that instability of other dimensions of the self may display similar associations with OC and guilt. We chose extraversion because, in addition to being clearly a non-moral dimension, it was easy for participants to describe themselves through such a specific trait. In the alternative, asking more abstract questions about the instability of a general sense of self could have been more problematic to answer for participants and prone to artifacts. The specificity of the instability of the moral dimension could be proficuosly investigated in future studies by considering a more complete set of dimensions in addition to extraversion.

These findings contribute to the existing body of literature in two novel ways. First, by showing for the first time that obsessive tendencies are associated with instability of the moral sense of self. Second, by pointing out that moral instability could be the psychological mechanism underlying the association between deontological guilt and obsessive tendencies. Thus, studying the role of moral instability provides a better understanding of why deontological guilt is a significant emotion for individuals with obsessive tendencies, and, more broadly, it reinforces the importance of considering the moral sense of self in comprehending OCD. According to our reasoning, individuals with obsessive tendencies tend to view their sense of self as morally unstable leading them to emphasize deontological considerations to prevent moral threats or falls. This often results in experiences of deontological guilt.

The present study also significantly contributes to the field of moral psychology. Expanding upon previous research on the malleability of the moral sense of self (Jordan et al., 2015; Monin & Jordan, 2009), we have introduced and operationalized for the first time the concept of instability of the moral sense of self. Our findings demonstrate the potential significance of this novel concept in comprehending a prominent form of psychological suffering, such as obsessive tendencies. This encourages new research to investigate how moral instability could affect clinical, social, and psychological outcomes at large. This reasoning is

Table 2
Correlations for scores on OC tendencies, Moral Instability, Extraversion Instability, Deontological Guilt, and Altruistic Guilt.

	OC tendencies	Moral Instability	Extraversion Instability	Deontological Guilt	Altruistic Guilt
OC tendencies	1				
Moral Instability	.24***	1			
Extraversion Instability	.06	.36***	1		
Deontological Guilt	.10†	.18***	.10†	1	
Altruistic Guilt	−.04	−.22***	−.15**	.15**	1

Note. Study 2 ($N = 351$); †$p = .05$, **$p < .01$, ***$p < .001$.

supported by the present set of findings, and it could effectively inform new research questions. For example, instability of the moral sense of self could increase sensitivity to any event that is associated with degradation on the chain of being such as material and moral contaminations. This would be consistent with previous work indicating a link between OCD and disgust which is the emotion associated with contamination (Ottaviani et al., 2019; Shapira et al., 2003; Sprengelmeyer et al., 1997). Ideally, further research could examine whether instability of the moral self is associated with more sensitivity to contamination and proneness to disgust.

An unexpected negative correlation between moral instability and altruistic guilt was observed in both studies. Moreover, altruistic guilt was found to be positively associated with moral status. Although this pattern was not initially predicted, it is not inconsistent with our theoretical framework. When an individual is preoccupied with maintaining a precarious moral position, concerns for others may take a back seat. Pursuing a stable sense of self is more aligned with embracing deontological considerations and maintaining a positive self-view in terms of moral worthiness rather than helping others in need or, more in general, with utilitarian considerations (see Everett et al., 2016; Mancini, 2016; Reynolds et al., 2019; Rom et al., 2017). From the perspective of someone with an unstable sense of self, deontological and altruistic concerns may be seen as contradictory. Further research is necessary to delve deeper into these findings and gain a more comprehensive understanding of the underlying dynamics.

Our reasoning and findings are consistent with existing literature that delves into the concept of self in explaining OC symptoms, specifically focusing on the "feared self" (Aardema & Wong, 2020; Ferrier & Brewin, 2005; see also Khosravani et al., 2023; Sharifi Bastan et al., 2023). These studies demonstrate a strong connection between obsessive tendencies and aspects of the self that individuals fear. Notably, Aardema et al. (2021) found that fears about having a corrupted self, that is fearing that one might be impure, tainted, immoral, and bad, are stronger predictors of OC symptoms than fears about being culpable (e.g., negligent, careless, inattentive) or malformed (e.g., ugly, unattractive). We think that the instability of one's moral compass might contribute to making the feared self appear closer, more influential, and more credible. It is also possible that having intense fears of being corrupted might increase the instability of the moral sense of self. Future research is called to examine the associations between feared self, moral instability, and OCD. At the moment, it is interesting to note how both the current study and previous work by Aardema et al. (2021) contribute to the field by converging in underscoring the central role of moral dimensions in understanding the workings of OCD. One potential limitation of the present work resides in its correlational design and in the impossibility of drawing causal inferences from the studies we conducted. It should be noted, however, that in the present work, we were interested more in establishing paths between OC and guilt rather than causal effects. Identifying the most suitable direct or indirect path for elucidating the connections among various variables is a crucial operation in discerning and evaluating potential underlying mechanisms of the phenomenon under investigation. As such, it can be regarded as an important goal that can be achieved even if causal influences are not established. Consistently, we found that the indirect path through moral status was not significant while the one through moral instability was but only with deontological guilt. In our view, this is already a newsworthy pattern that will benefit from further experimental research in which, for example, moral instability will be directly manipulated.

Focusing on moral instability can provide valuable insights into understanding the potential impact of specific early life experiences, such as parenting hypercriticism, disproportionate responsibility, and rigid codes of conduct, on the development of obsessive-compulsive disorder. These experiences may influence the construction of one's moral self by posing threats to stability rather than moral status. For instance, following rigid codes of conduct can potentially enhance an individual's moral status, but it can also create a sense that a moral "fall" is highly probable and deserving of condemnation. Exploring these dynamics can help shed light on how early life experiences shape the perception and maintenance of moral stability, thereby contributing to our understanding of OCD onset.

On a similar note, if future research further supports the notion that moral instability plays a crucial role in OCD, it opens possibilities for developing targeted interventions that address how individuals construe their moral selves. This could present a new opportunity to design effective therapeutic strategies that complement existing treatment approaches. By focusing on the specific aspect of moral instability, therapists and researchers can explore novel techniques to help individuals with OCD navigate and manage their moral concerns thus increasing tolerance to guilt and responsibility. This approach may enhance the overall effectiveness of OCD treatment and offer individuals new avenues for addressing their symptoms and improving their well-being.

5. Conclusion

Two correlational studies examined whether and how the perceived instability of morality could serve as the underlying mechanism of the association between OC tendencies and deontological (vs. altruistic) guilt. As predicted, the results of path analysis models showed a positive indirect relation between OC tendencies and deontological guilt through the perceived instability of morality but not through the perceived status of morality (Study 1) and instability of extraversion (Study 2). Also, we found a negative indirect relation between OC tendencies and altruistic guilt through the perceived instability of morality but not through the perceived status of morality (Study 1) and instability of extraversion (Study 2). These results support the key role of moral instability in explaining the OC tendencies-guilt relation. Future additional research on the association between OCD, morality, and guilt is encouraged.

Consent for publication

The manuscript has been seen and reviewed by all authors, and all authors agree to the submission of the manuscript in its current form. We formally declare that the manuscript has not been previously published in any form. It is neither under consideration nor in press with another publication.

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

CRediT authorship contribution statement

Mauro Giacomantonio: Writing – review & editing, Writing – original draft, Conceptualization. **Valeria De Cristofaro:** Writing – original draft, Formal analysis, Data curation. **Francesco Mancini:** Supervision, Conceptualization.

Declaration of competing interest

The authors have no financial or non-financial interests to disclose.

Data availability

Data can be obtained at: https://osf.io/g8kdc/?

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