

## ORIGINAL PAPER

# From guilt to disgust: The moral-emotional profile of obsessions in Turkish and Belgian participants

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### Abstract

Accumulating evidence suggests that obsessive-compulsive disorder is closely linked to morality. However, current psychological models often overlook the role of moral emotions in the etiology and treatment of the disorder. This study examines key moral emotions across different types of obsessions in student samples from two cultures with distinct moral emphases. Students from Turkey ( $N = 362$ ,  $M_{age} = 20.75$ , 86% female) and Belgium ( $N = 247$ ,  $M_{age} = 18.40$ , 84% female) participated in the study. They rated the frequency of seven emotions—shame, guilt, embarrassment, anger, contempt, disgust, and fear—in response to statements representing four obsession domains: aggressive, sexual, contamination, and just-right doubts. Obsession dimensions were assessed using the Revised Leuven Obsessional Intrusions Inventory (LOII-R). Additionally, a novel scale was developed specifically for this study to measure moral emotions. A mixed-design ANOVA revealed that guilt, shame, disgust, and anger were common across obsessions in both cultures, with varying frequencies. Cross-culturally, "just-right" doubts and aggressive obsessions displayed similar patterns, linked to guilt, anger, and fear. However, cultural differences emerged in sexual and contamination obsessions. Turkish participants, reflecting a cultural focus on purity, reported higher disgust levels for both, along with significantly greater shame, guilt, and embarrassment in response to sexual intrusions than Belgians. The findings indicate that obsessions are tied to specific moral emotions, with their intensity varying by obsession type. Cultural differences reflect each culture's moral priorities, especially pronounced in the Turkish sample.

**Keywords:** obsessive-compulsive disorder, obsessions, morality, emotions, moral emotions, culture

### Suçluluktan tiksintiye: Türkiyeli ve Belçikalı katılımcılarda obsesyonların ahlaki-duygusal profili

#### Öz

Son yıllarda artan çalışmalar, obsesif-kompulsif bozukluğun ahlakla yakından ilişkili olduğunu göstermektedir. Ancak mevcut psikolojik modeller, ahlaki duyguların bu bozukluğun etiolojisi ve tedavisindeki rolünü çoğunlukla göz ardı etmektedir. Bu çalışma, farklı ahlaki vurgulara sahip iki kültürde çeşitli obsesyon türlerine ilişkin temel ahlaki duyguları incelemektedir. Araştırmanın örneklemini, Türkiye'den 362 ( $Ort. = 20.75$ , %86 kadın) ve Belçika'dan 247 ( $Ort. = 18.40$ , %84 kadın) üniversite öğrencisi oluşturmuştur. Katılımcılar, dört obsesyon alanına (saldırıcılık, cinsellik, bulaş/kirlenme ve simetri/kesinlik) ilişkin ifadelerle dayalı olarak yedi duygunun—utanç, suçluluk, mahcubiyet, öfke, küçümseme, tikslenme ve korku—deneyimlenme sıklığını değerlendirdiler. Obsesyon boyutları, Leuven Obsesif Düşünceler Envanteri (LOII-R) ile ölçülmüş ve ahlaki duyguları değerlendirmek amacıyla bu çalışma kapsamında yeni bir ölçek geliştirilmiştir. Analizler, suçluluk, utanç, tiksinti ve öfkenin her iki kültürde yaygın olduğunu ancak sıklıklarının farklılık gösterdiğini ortaya koymuştur. Saldırıcılık obsesyonları ve simetri/kesinlik şüpheleri her iki kültürde de suçluluk, öfke ve korku ile ilişkilendirilmiştir. Ancak, cinsel ve bulaş/kirlenme obsesyonlarında kültürel farklılıklar gözlenmiştir. Türk katılımcıların bu obsesyonlara karşı daha yüksek düzeyde tiksinti ifade ettiği ve cinsel obsesyonlar karşısında Belçikalı katılımcılara kıyasla daha fazla utanç, suçluluk ve mahcubiyet hissettikleri bulunmuştur. Bu sonuçlar, özellikle Türk kültüründe kutsallık ve temizlik temelli değerlerin ahlaki sistemde daha merkezi bir rol oynadığını düşündürmektedir. Çalışma genel olarak, obsesyonların belirli ahlaki duygularla nasıl ilişkilendiğini ve bu ilişkinin obsesyon türüne göre farklılık gösterdiğini ortaya koymaktadır. Bulgulardaki kültürel farklılıklar, her kültürün ahlaki önceliklerini yansıtmakta ve bu etkiler özellikle Türk örnekleminde daha belirgin görünmektedir.

**Anahtar Kelimeler:** obsesif-kompulsif bozukluk, obsesyonlar, ahlak, duygular, ahlaki duygular, kültür

## INTRODUCTION

Obsessive-compulsive disorder (OCD) constitutes a persistent and debilitating condition characterized by unwelcome, repetitive, intrusive thoughts, urges, or impulses, and behaviors such as excessive checking, reassurance seeking, and avoidance. These actions are undertaken to counteract the physical or the moral threats posed by obsessions and the negative emotions they induce (American Psychiatric Association [APA], 2022). OCD is a heterogeneous disorder, characterized by diverse symptom profiles (Mataix-Cols et al., 2004; Bloch et al., 2008). Common obsession-related symptoms include intrusive concerns

about aggression, sexuality, religion, contamination, responsibility for harm or mistakes, and distress associated with "just-right" experiences (Abramowitz et al., 2010).

OCD is associated with a range of intense negative emotions. Many individuals with the disorder experience significant levels of fear and anxiety that can occur prior to, during, and following their obsessions and compulsions (APA, 2022). For instance, someone with harm-related obsessions may avoid physical contact with loved ones, out of fear that they may accidentally hurt them. Others may engage in excessive washing rituals to cleanse themselves of perceived moral contamination after experiencing a blasphemous intrusive thought. Similarly, indi-

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viduals with "just-right" doubts may feel compelled to act with absolute precision or fairness. When their actions fail to meet these internal standards—despite repeated checking—they may experience a surge of guilt, shame, and even anger (Radomsky et al., 2007). These examples illustrate that distress in OCD is not limited to anxiety alone. A growing body of research highlights that OCD is also characterized by moral emotions, such as guilt, shame and disgust (Fontenelle et al., 2018), which may play an even greater role in influencing certain dimensions of the disorder (Visvalingam et al., 2022). These emotions often emerge when intrusive thoughts are interpreted as indicators of moral failing (Rachman, 1997, 2003).

The moral dimension of OCD has been recognized since the disorder's early conceptualization. Freud (1909) introduced the term "übermorality" to describe the rigid moral mindset often observed in OCD. Later, Rachman and Hodgson (1980) expanded on this idea, suggesting that people with OCD possess a "tender conscience," leading them to perceive ordinary intrusive thoughts as catastrophic personal failings and signs of moral weakness. This heightened sensitivity drives attempts to suppress or avoid such thoughts, which paradoxically intensifies their persistence. The more a thought conflicts with a person's core moral values, the more attention it commands, increasing the likelihood of it becoming obsessive (Rachman, 2003). These initial theories have been supported and refined by empirical studies, which consistently affirm the role of morality in shaping OCD (e.g., Aardema et al., 2019; Bhar et al., 2015; Doron et al., 2012; Kang et al., 2016; Reuven et al., 2014).

While the moral aspects of OCD have been extensively studied, only recently has morality been recognized as a multi-dimensional construct (Graham et al., 2013). Emerging research suggests that individuals with OCD may have a distinct understanding of morality. Preliminary findings indicate that some individuals with OCD experience heightened distress when intrusive thoughts conflict with moral beliefs rooted in the authority of God or the natural order (D'Olimpio & Mancini, 2014; Whitton et al., 2014). This perspective aligns with the concept of *purity morals* in Moral Foundations Theory, where moral behavior is centered on respecting the sacred or natural order and maintaining purity (Graham & Haidt, 2010). Purity morals, along with *loyalty* and *authority* dimensions, are among the *binding foundations* of morality that help maintain group cohesion, preserve tradition, and promote reverence for the sacred. Moral Foundations Theory also distinguishes a second overarching category known as *individualizing foundations*, which prioritize individual rights through moral principles such as *care* and *fairness*.

Research utilizing Moral Foundations Theory has explored the relationship between OCD symptoms and moral domains, particularly focusing on the purity morals dimension. Studies involving non-clinical samples in the United States have found associations between contamination obsessions, unacceptable thoughts, and scrupulosity with purity morals. Additionally, a cross-cultural study linked contamination-related intrusions to binding foundation, including purity morals, in both Turkish and Belgian populations (Ozcanli et al., 2024). Building on this, if

OCD symptoms are closely tied to violations of purity morals, it follows that individuals with OCD may experience heightened levels of disgust because several studies have found that violations within the purity moral domain elicit more disgust than breaches in other moral domains (Horberg et al., 2009; Wagemans et al., 2018). Disgust, in fact, is a well-documented moral emotion in OCD, often triggered by physically or morally repulsive situations or by individuals perceived as dirty or impure. Disgust motivates avoidance and rejection behaviors to prevent contamination of the body and soul (Graham et al., 2009). This frequently leads to compulsions aimed at distancing oneself from the source of perceived contamination, which are often expressed in OCD as excessive cleaning, washing, or ritualized avoidance (Olatunji et al., 2014). While disgust is most commonly associated with contamination symptoms (Deacon & Olatunji, 2007; Knowles et al., 2018; Melli et al., 2017), it has also been linked to sexual and religious obsessions (Ching et al., 2021; Olatunji et al., 2005).

Disgust, however, is not the only moral emotion relevant to OCD; other emotions also play important roles. Guilt, for instance, has been extensively studied in the context of OCD (e.g., D'Olimpio & Mancini, 2014; Foa et al., 2001; Hellberg et al., 2023; Melli et al., 2017). As a self-focused emotion, it arises when individuals believe they have violated a moral standard, centering on the wrongness of their actions. Guilt typically motivates reparative behaviors aimed at correcting or compensating for the perceived wrongdoing (Tangney et al., 2007). In OCD, this can manifest as repetitive compulsions intended to neutralize intrusive thoughts or prevent feared outcomes, thereby alleviating the guilt linked to those thoughts. While guilt was initially considered central to harm-related doubts (Foa et al., 2001), recent studies have demonstrated its relevance to other OCD dimensions, including sexual and aggressive obsessions (Hellberg et al., 2023). These obsessions often involve scenarios where individuals feel morally responsible for potential wrongdoing, whether through action or inaction, consistent with guilt-driven appraisals of moral failure.

Despite clinical indications suggesting otherwise, research on shame has historically received less attention in OCD research. Like guilt, shame is a self-conscious moral emotion evoked in response to individuals' perceived social and moral transgressions (Haidt, 2003). However, while guilt involves a negative evaluation of one's behavior ("I did something bad"), shame entails a broader negative self-evaluation ("I am bad") (Tangney et al., 2007). It also includes a "generalized other" perspective, incorporating perceptions of others' real or imagined negative evaluations (Carpenter et al., 2022). In his seminal work, Rachman (1997) highlights that shame characterizes individuals who mainly suffer from repugnant (sexual, aggressive, and religious) obsessions due to the socially unacceptable content of such thoughts. Conceptualized as an action tendency, shame is associated with a motivation to withdraw, hide, or escape from social exposure (e.g., Tangney et al., 2007), which may help explain why individuals with OCD, particularly those experiencing taboo thoughts, often conceal their symptoms from others (Si-

monds & Thorpe, 2003). To date, evidence linking shame to OCD dimensions is limited. A recent meta-analysis found a significant but weak positive correlation between the degree of shame and the three OCD dimensions: repugnant thoughts, harm, and symmetry (Laving et al., 2023).

Anger, like other moral emotions, appears to play a significant role in OCD. Typically, anger arises in response to perceived injustice or obstruction of goals and is associated with action tendencies directed at confronting the source of frustration (Russell & Giner-Sorolla, 2013). However, in individuals with OCD, particularly those with high moral standards or perfectionistic tendencies, this natural response may be suppressed or redirected inward, leading to heightened internal conflict (Rachman, 1993). The paradox of feeling anger while simultaneously believing it must be suppressed is supported by studies reporting both increased levels of self-reported anger and its suppression in clinical and subclinical OCD populations (Moritz et al., 2011; Moscovitch et al., 2008). Recent research further suggests that anger is especially salient for individuals with contamination, sexual, and aggressive obsessions (Jessup et al., 2019; Piacentino et al., 2016).

Together, previous studies suggest that different types of obsessions are associated with specific moral emotions, potentially reflecting distinct underlying moral concerns. While research directly linking moral concerns and emotions in OCD is limited, a recent cross-cultural study indicates that obsessions extend beyond purity morals (Ozcanli et al., 2024). Instead, specific obsessions appear to align with particular moral frameworks; for example, "just-right" doubts are associated with individualizing morals, which emphasize harm/care and fairness/reciprocity. Consequently, different obsession types (and related compulsions) may be linked to specific moral concerns, prompting unique moral emotions.

### The Current Study

Existing research has significantly advanced our understanding of the role of moral emotions in OCD. However, most prior studies have focused on specific emotions in isolation. This study aims to build on and extend this body of work by investigating the range of moral emotions associated with distinct obsession dimensions, with an additional emphasis on cultural variations. Specifically, this study seeks to (1) identify the most prominent moral emotions across distinct obsession dimensions and (2) examine whether these emotions vary among individuals from distinct cultural backgrounds. To this end, we compare university students from Belgium and Turkey—two cultures with differing emphases on moral concerns.

Belgium, a predominantly secular country, emphasizes individualistic values and personal accountability in moral decision-making (Hofstede, 2001). Turkey, while also secular, retains strong religious influences and a blend of collectivist and individualistic values shaping its moral framework (Kagitcibasi & Ataca, 2005). Interpersonal relationships play a key role in Turkish culture, which contrasts with Belgium's more individual-focused morality. Previ-

ous research suggests that Belgian participants tend to endorse individualizing moral foundations (e.g. harm/care, fairness/reciprocity), while Turkish participants are more likely to endorse binding moral foundations (i.e., purity/sanctity, authority/respect, ingroup/loyalty) (Ozcanli et al., 2024). Accordingly, one of our study's aims is to examine whether emotional responses align with these dominant cultural moral values when responding to specific obsession dimensions.

Based on these cultural moral characteristics and findings from prior cross-cultural OCD studies, we hypothesize that contamination obsessions will evoke stronger feelings of disgust among Turkish participants, influenced by binding morals like purity and sanctity. In contrast, "just-right" doubts are expected to elicit self-conscious emotions such as guilt and shame in both cultures, as these doubts align with individualizing morals like fairness and reciprocity. Sexual and aggressive obsessions, which involve a combination of moral concerns such as harm and impurity, may trigger a corresponding mix of moral emotions, including guilt, shame, disgust, and anger. Reflecting Turkey's collectivistic values, we anticipate higher levels of disgust and shame in the Turkish sample, particularly in response to sexual obsessions.

## METHODS

### Participants

A power analysis was conducted to determine the required sample size for the study. The analysis aimed to detect a medium effect size with a significance level of .05 and a desired power of .80. Results indicated that a total sample size of 128 participants would be sufficient to detect the expected effect.

The sample consisted of Turkish and Flemish Belgian university students enrolled in psychology departments at urban universities in İstanbul, Turkey and Leuven, Belgium. The participants in Turkey ( $N = 362$ , 86% female) and Belgium ( $N = 247$ , 84% female) had equal gender composition,  $X^2(1) = .41$ ,  $p = .52$ , but they differed in terms of age,  $F(1, 580) = 277.26$ ,  $p < .001$ . The Turkish participants ( $M_{\text{age}} = 20.75$ ,  $SD = 1.83$ ,  $\text{age range} = 18\text{--}35$ ) were slightly older than the Belgian participants ( $M_{\text{age}} = 18.40$ ,  $SD = 1.43$ ,  $\text{age range} = 17\text{--}31$ ); however, both groups consisted of undergraduate students within a similar developmental range. Given that the constructs under study (e.g., moral emotions, obsessional intrusions) show little variation within this age group in non-clinical populations, the samples were considered comparable for cross-cultural analysis.

Participants were asked whether they had received a psychiatric diagnosis and, if so, to specify it. In the Turkish sample, diagnoses included ADHD ( $n = 2$ ), anxiety disorders ( $n = 4$ ), bipolar disorder ( $n = 1$ ), and eating disorder ( $n = 1$ ). In the Belgian sample, diagnoses included autism spectrum disorder ( $n = 3$ ), psychotic disorder ( $n = 1$ ), personality disorder ( $n = 1$ ), and eating disorder ( $n = 1$ ). Diagnoses were recorded but not used as exclusion criteria, as these participants' scores on the main study variables

did not differ significantly from their cultural group averages.

## Measures

**Demographic Information Form** This form included questions about participants' age, gender, education level, country of birth, and diagnostic status.

**Leuven Obsessional Intrusions Inventory Revised (LOII-R)** The LOII-R (Leuven Obsessional Intrusions Inventory – Revised) is a revised and shortened version of the original Leuven Obsessional Intrusions Inventory (The LOII), which initially comprised 50 items (Ozcanli et al., 2019). The original scale was designed to assess a wide spectrum of obsessional intrusions, including sexual, aggressive, and religious obsessions, as well as contamination fears, just-right experiences, and doubts about making mistakes. It was first examined cross-culturally among Turkish and Belgian student samples to establish preliminary measurement invariance. This initial analysis supported metric invariance for a two-factor solution. However, subsequent research using multi-group confirmatory factor analysis found that a four-factor structure—comprising aggression, sexuality, contamination, and just-right experiences—demonstrated scalar invariance, indicating a higher level of cross-cultural equivalence (Ozcanli et al., 2020).

In the present study, obsessional intrusions were measured using the LOII-R (Ozcanli et al., 2020). This self-report measure comprises 20 items and employs a 5-point Likert scale (ranging from 0 'never' to 4 'very often') to assess the frequency of obsessional intrusions. The LOII-R has demonstrated robust psychometric properties, including strong reliability (with Cronbach's alpha coefficients ranging from .74 to .84 across subscales in the Turkish sample and from .79 to .84 in the Belgian sample) as well as evidence of convergent and divergent validity in non-clinical populations from both Turkish and Flemish-Belgian cultural contexts (Ozcanli et al., 2020, 2024).

**Moral Emotions in Obsessions Scale (MEOS)** To assess moral emotions, a new scale was developed specifically for the purposes of this study. The development process began with an extensive review of the literature on moral emotions to inform item generation and ensure theoretical grounding (e.g., Fischer & Roseman, 2007; Frijda et al., 1989; Haidt, 2003; Keltner & Buswell, 1997; Moors et al., 2013; Tangney et al., 2007; Tracy & Robins, 2004; van Overveld et al., 2010). Based on this review, six moral emotions were selected for inclusion: three from the self-conscious category (guilt, shame, embarrassment) and three from the other-condemning category (anger, contempt, disgust). These emotions were chosen due to their theoretical relevance and empirical associations with OCD symptoms in prior research. Additionally, fear was included as a control emotion, given its well-established link to OCD and broader anxiety pathology.

Informed by appraisal theories of emotion, item development considered the cognitive appraisals, somatic components, and motivational or behavioral responses char-

acteristic of each emotion (Frijda et al., 1989; Moors et al., 2013). Attention was also given to subtle distinctions between related emotions (e.g., shame and embarrassment). This process resulted in the generation of 38 items representing the seven target emotions. The full item set was reviewed for face validity by two independent experts in the field of emotion research. These items were developed in English and then were translated into Turkish and Flemish Dutch by bilingual researchers. A back-translation procedure was employed to ensure cross-linguistic equivalence across versions.

A preliminary study was conducted with Turkish and Belgian students ( $N_{TR} = 281$ ,  $N_{BE} = 249$ ). A simultaneous component analysis (SCA) was performed to simultaneously reduce the dataset to a more manageable subset for both cultural groups (De Roover et al., 2012). A seven-component structure was identified: shame, guilt, embarrassment, anger, disgust, contempt, and fear. The three highest-loaded items per emotion domain, consistent in Turkey and Belgium, were selected, reducing the total number of items to 21. Items were measured on a five-point Likert scale (1 'not at all' to 5 'extremely'). Internal consistency coefficients ranged from .71 to .93 in the Belgian sample and .69 to .91 in the Turkish sample. The 21-item emotions scale is available in the Supplementary material.

## Procedure

For the research, ethical approval was first obtained from the KU Leuven Social Ethics Committee (G-2014.11.097), and then by the MEF University Social Ethics Committee on 28/12/2022 with the registration number E-47749665-050.01.04-157. Both groups completed an online questionnaire using Qualtrics. Data collection was conducted via the Sona Systems participant management platform at each university, which is accessible only to registered students. This ensured that participants were enrolled at the respective institutions while maintaining full anonymity throughout the process.

Participants first read a consent form. They then completed the demographic questionnaire. Next, each obsession dimension was presented with a brief description and three sample items from the LOII-R. These items were selected based on their high factor loadings in previous validations of the scale and were intended to clearly represent the core features of each dimension. Rather than completing the full LOII-R, participants rated how frequently they generally experience thoughts with similar content, using the same rating scale as the original measure. If a sample item did not fully reflect their experience, they were instructed to reflect on a personally relevant thought of a similar nature. Following this, participants were asked to focus on the most personally relevant of these thoughts and rate the degree of association with seven emotions specific to that obsession domain. The detailed instructions provided to participants are included in the Supplementary material. All students who initiated the survey received course credit through the Sona system.

## Data Analysis

First, the means and standard deviations of the endorsement rates for intrusion dimensions were calculated by country. Then, to address the main aim of the study—examining the emotional profiles specific to each dimension of obsessions—mixed ANOVAs were conducted for each obsession dimension, with moral emotions as the within-subject factor and culture as the between-subject factor. Significant culture-by-emotion interactions were further examined using post-hoc tests (one-way ANOVAs with Bonferroni corrections).

## RESULTS

### Descriptive Statistics

Table 1 displays the means and standard deviations for all obsession dimensions per country, based on participants' general frequency ratings of prototypical obsessional thoughts derived from the LOII-R. Cross-culturally, just-right doubts were reported as the most common obsessional intrusion, followed by contamination obsessions. Turkish and Belgian students differed regarding contamination obsessions  $F(1, 581) = 82.01, p < .001, \eta^2 = .12$ , with Turkish students reporting higher contamination concerns. Aggressive and sexual intrusions were the least common types, and no cultural variations were observed ( $p_s > .05$ ).

**Table 1. Means and Standard Deviations for Obsession Dimensions by Country**

	Sex.	Agg.	Cont.	Just.
Turkey	1.80(.92) N = 347	1.62(.85) N = 344	2.79(1.17) N = 345	3.17(.94) N = 345
Belgium	1.87(.93) N = 129	1.67(.94) N = 239	1.95(1.05) N = 238	3.08(.87) N = 233

**Note.** The results represent the averages for participants who reported experiencing intrusions of these four types at least occasionally. Ratings were based on descriptive prompts and sample items adapted from the LOII-R. Sex = Sexual, Agg = Aggressive, Cont = Contamination, Just = Just-right.

### Obsession Dimensions and Moral Emotions in the Two Cultures

Below, the results of the mixed ANOVAs conducted for each obsession dimension are presented separately. These results are also illustrated graphically in Figure 1, and the corresponding emotion ratings for each obsession dimension are provided in Table 2.

#### Sexual Obsessions

The analysis revealed a significant main effect of culture on emotions for sexual obsessions,  $F(1, 262) = 11.80, p < .01, \eta_p^2 = .04$ . Overall, the Turkish sample ( $M = 2.31, SE = .05$ ) reported more frequent emotional responses compared to Belgian participants ( $M = 1.93, SE = .09$ ). There was also a significant main effect for emotion on sexual obsessions,  $F(6, 1572) = 52.00, p < .001, \eta_p^2 = .16$ . Contrasts revealed that guilt, shame, embarrassment, and

disgust were the most reported moral emotions. However, an examination of culture by emotion interaction yielded a significant effect,  $F(6, 1572) = 14.34, p < .001, \eta_p^2 = .05$ . Post-hoc tests revealed that Turkish participants had higher levels of guilt, shame, embarrassment, and disgust compared to the Belgian sample ( $p_s < .01$ ).

#### Aggressive Obsessions

The analysis revealed no significant main effect of culture on emotions for aggressive obsessions. Overall, the Turkish ( $M = 2.19, SE = .06$ ) and Belgian samples ( $M = 2.20, SE = .07$ ) reported similar levels of emotional responses. There was a significant primary effect of emotion on aggressive obsessions  $F(6, 1548) = 46.58, p < .001, \eta_p^2 = .15$ . Contrasts revealed that guilt, anger, and fear were the most reported moral emotions. There was also a small but significant interaction effect of culture by emotion,  $F(6, 1548) = 7.24, p < .001, \eta_p^2 = .03$ . Guilt was more prevalent in the Turkish sample, while disgust was more prevalent in the Belgian sample.

#### Contamination Obsessions

The analysis revealed no significant main effect of culture on emotions for contamination obsessions. Overall, the Turkish ( $M = 1.72, SE = .03$ ) and Belgian samples ( $M = 1.64, SE = .04$ ) reported similar levels of emotional responses. There was a significant main effect of emotion on contamination obsessions  $F(6, 2628) = 237.41, p < .001, \eta_p^2 = .35$ . Contrasts revealed that disgust was the most prevalent emotion, followed by anger and fear. However, there was also a significant interaction effect of culture by emotion,  $F(6, 2628) = 39.67, p < .001, \eta_p^2 = .08$ . As Figure 1 shows, the most significant difference was observed regarding disgust, which was significantly higher in the Turkish sample. A smaller difference was shown in fear, which was more prevalent in the Belgian sample.

#### Just-right Doubts

There was a significant main effect of culture on emotions for just-right doubts,  $F(1, 578) = 34.27, p < .001, \eta_p^2 = .05$ . The Turkish sample reported more frequent emotions overall ( $M = 2.13, SE = .03$ ) compared to the Belgian sample ( $M = 1.81, SE = .04$ ). There was a significant primary effect emotion on just-right doubts  $F(6, 3468) = 208.74, p < .001, \eta_p^2 = .26$ . Guilt, anger, and fear were the most reported moral emotions in both cultural groups. Although there was a significant interaction effect of culture by emotion,  $F(6, 3468) = 5.31, p < .001, \eta_p^2 = .009$ , the effect size was relatively small.

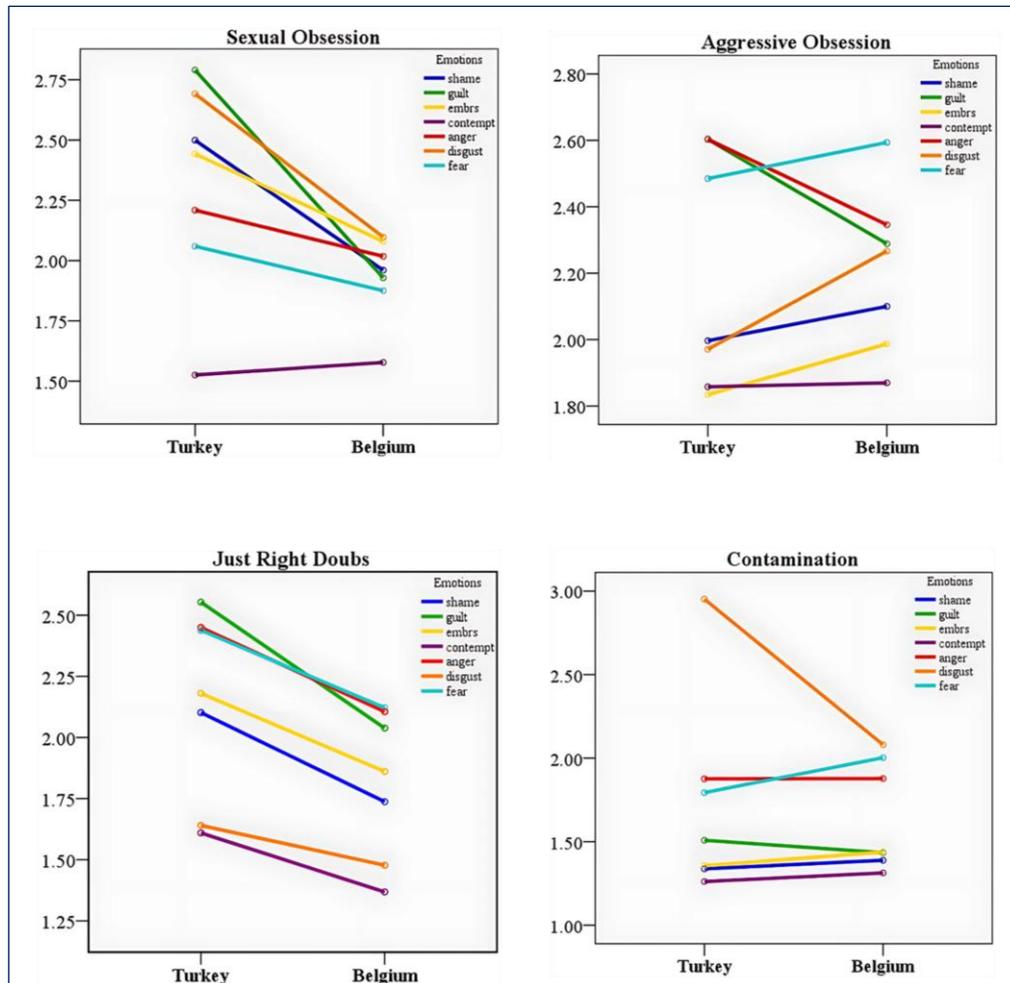
## DISCUSSION

Recent research increasingly suggests that morality plays a more extensive role in the obsessive-compulsive spectrum than previously recognized (e.g., Kang et al., 2016; Ozcanli et al., 2024). Emerging evidence indicates that different types of obsessions may activate distinct domains of

**Table 2. Mean Emotional Ratings and Standard Errors by Obsession Type and Culture**

Emotion	Turkey				Belgium			
	Sex.	Agg.	Cont.	Just.	Sex.	Agg.	Cont.	Just.
Shame	2.49 (.07)	1.99 (.07)	1.33 (.03)	2.10 (.04)	1.96 (.11)	2.10 (.09)	1.38 (.05)	1.73 (.05)
Guilt	2.79 (.07)	2.60 (.08)	1.50 (.04)	2.55 (.04)	1.92 (.12)	2.28 (.10)	1.43 (.06)	2.03 (.05)
Embarrassment	2.44 (.06)	1.83 (.07)	1.35 (.03)	2.18 (.04)	2.08 (.10)	1.98 (.08)	1.43 (.05)	1.86 (.05)
Contempt	1.52 (.05)	1.85 (.07)	1.26 (.03)	1.60 (.03)	1.57 (.08)	1.86 (.09)	1.31 (.05)	1.36 (.04)
Anger	2.20 (.07)	2.60 (.08)	1.87 (.04)	2.44 (.05)	2.01 (.12)	2.34 (.10)	1.87 (.07)	2.10 (.06)
Disgust	2.69 (.08)	1.97 (.07)	2.95 (.05)	1.64 (.04)	2.09 (.13)	2.26 (.09)	2.08 (.08)	1.47 (.04)
Fear	2.05 (.06)	2.48 (.08)	1.79 (.05)	2.43 (.05)	1.87 (.10)	2.59 (.10)	2.00 (.07)	2.12 (.05)

Sex = Sexual, Agg = Aggressive, Cont = Contamination, Just = Just-right.



**Figure 1. Emotions and Obsessions in Turkish and Belgian Samples**

moral concern, reflecting the multidimensional nature of morality. These variations in moral focus can elicit different emotional responses, depending on which moral values are perceived to be threatened. The present study examined the spectrum of moral emotions associated with obsession dimensions and extended this investigation across two cultures that differ in their predominant moral emphases. The findings indicate that obsessions are linked to a variety of moral emotions, each logically connected to specific underlying moral concerns. While both cultural samples largely reported similarities in moral emotions, notable cultural differences also emerged. Below, we discuss the findings for each obsession dimension and their cultural relevance.

Contamination intrusions were reported at higher levels in the Turkish sample compared to the Belgian sample, and consistent with the predictions, these intrusions were related to greater levels of disgust. This pattern aligns with

previous findings indicating elevated contamination-related concern and disgust sensitivity in Turkish samples (Inozu et al., 2014, Ozcanli et al., 2024). Such higher susceptibility to contamination and disgust could be attributed to cultural values emphasizing purity and sanctity. These morals connote a profound importance placed on maintaining physical and spiritual cleanliness, which is deeply embedded in Turkish cultural and religious practices (Tepe et al., 2016). These findings suggest that in cultures like Turkey, where contamination concerns are more prominent, clinicians may benefit from targeting rigid beliefs about impurity. Therapeutic efforts could focus on helping individuals develop more flexible standards around what is considered impure or disgusting, whether physical, moral, or symbolic.

In addition to disgust, fear and anger emerged as common emotional responses to contamination in both cultural groups, while self-conscious emotions were the least

prevalent. The association between fear and contamination obsessions is well-documented (Deacon & Olatunji, 2007; Knowles et al., 2018; Rachman, 2004), but there is comparatively limited research supporting the link with anger (Piacentino et al., 2016). Contamination obsessions often center around a perceived threatening environment, such as germs, toxins or pollutants, and the individual's heightened sensitivity to potential harm. In this context, disgust, anger, and fear function as other-condemning emotions, oriented toward distancing the self from these external threats and signal a desire to restore safety and purity. Anger may reflect both a response to external threats appraised as unjust or overwhelming, and a reaction to the internal frustration of repeatedly failing to achieve certainty and control. Despite efforts to manage contamination through compulsive behaviors, relief is usually temporary, with doubts quickly resurfacing. This ongoing cycle may provoke anger directed outward at the environment or inward at the self. In contrast, self-conscious emotions were the least frequently reported emotions. This finding mirrors previous research (Hellberg et al., 2023; Laving et al., 2023) and suggests that moral self-evaluation is less central to contamination-related concerns compared to other OCD domains. It also aligns with the conceptualization of contamination obsessions as *reactive* (Lee & Kwon, 2003) or *bad-outcome obsessions* (Ozcanli et al., 2019), those that are primarily focused on external threats rather than on internally directed concerns about being morally flawed.

Emotions associated with just-right doubts showed remarkable similarity across both cultures, with guilt, anger, and fear being the most common, followed by shame and embarrassment. Just-right doubts are often linked to feelings of incompleteness or imperfection, which drive compulsive checking and correcting behaviors (Coles et al., 2003; Melli et al., 2020). Unlike contamination obsessions, where the primary motivation seems to involve maintaining purity and protecting self from external pollutants, just right doubts appear to be driven by individualizing moral values (Ozcanli et al., 2024). These values emphasize principles of justice, fairness, and equitable treatment (Graham et al., 2013). People with just-right doubts may be driven by a moral obligation to ensure tasks are done "perfectly" because they feel responsible for maintaining fairness both for themselves and others. This perceived duty can lead to a range of self-conscious emotions, including guilt, shame, and embarrassment, particularly when individuals perceive themselves as falling short of these high standards. These emotions, in turn, can motivate compulsive checking or correction behaviors aimed at achieving a sense of completeness. Supporting previous studies, we also found that individuals with just-right doubts may experience heightened anger. This anger can stem from the persistent frustration that their actions never feel sufficient, and their doubts remain unresolved despite repeated efforts to fix or check things (Radomsky et al., 2007).

Aggressive obsessions were mainly associated with guilt, anger, and fear in both Turkish and Belgian samples, with Turkish participants reporting higher levels of guilt. These emotions align with the phenomenology of aggres-

sive obsessions, often labelled as taboo or repugnant thoughts due to their objectionable content (Rachman, 1997, 2003). Studies indicate that individuals with aggressive obsessions often fear that these intrusions may reveal a hidden, dangerous aspect of themselves, such as being violent, unpredictable or morally corrupt (Aardema & O'Connor, 2007; Aardema et al., 2019). This fear of a morally flawed "true self" helps explain the reported experiences of guilt and fear that we found in our study. These emotions often give rise to harsh self-judgments. Therefore, whenever an aggressive intrusion occurs, the mere presence of the thought can be taken as evidence of personal failing. In response, individuals may engage in compulsive acts aimed at restoring their moral self-images such as mental neutralization, confessing, or seeking reassurance from others that they are not dangerous. In some cases, these responses can also take the form of self-punishment, reinforcing the need to prove, both to themselves and to others, that they are not the person they fear becoming. Similarly, anger is relevant within this moral-self framework. Some accounts suggest that "obsessional" people conceal their anger even from themselves because they perceive their anger as confirming the dreaded aspects of their character (Kempke & Luyten, 2007). This aligns with recent findings linking anger to aggressive obsessions in clinical samples (Piacentino et al., 2016).

The Turkish sample reported higher levels of disgust and all three self-conscious emotions in response to sexual intrusions compared to the Belgian sample, where emotional responses showed less variation. Phenomenologically, sexual obsessions have been linked to aggressive obsessions, as both challenge one's ideal self-perceptions by portraying an immoral self-image (Rachman, 1997). The heightened guilt observed in both types of obsessions may stem from this perceived self-failure. In fact, a recent study found guilt sensitivity to be the strongest predictor of sexual and aggressive obsessions (Hellberg et al., 2023). In cultures with strong social norms and significant religious values, such as Turkey, sexual intrusions may provoke additional self-focused emotions like shame. Unlike guilt, which typically involves a negative evaluation of one's own actions, shame arises from real or imagined judgements from others (Carpenter et al., 2022). As a result, shame often motivates self-concealment and withdrawal. Given that Turkish society is collectivist in nature, and others' evaluations play significant role in regulating one's behavior, Turkish patients with sexual obsessions may be more likely to conceal their sexual obsessions from other people and suffer silently (see also Simonds & Thorpe, 2003). This tendency may be further exacerbated by disgust, which aligns with conservative moral values related to social norm violations and concerns about bodily contamination (Inozu et al., 2014, 2017). Disgust is often experienced in response to bodily moral violations, that is, actions perceived as transgressing deeply held norms about what is permissible to do with the body, such as certain sexual expressions. In the Turkish context, such bodily taboos remain culturally salient, likely contributing to stronger disgust reactions to sexual intrusions (Russell & Giner-Sorolla, 2013). In contrast, the Belgian sample did not exhibit a pronounced pattern of moral emotions

related to sexual intrusions. Fewer participants reported experiencing these types of obsessions, and among those who did, body-related violations may not carry the same moral weight. As a result, sexual obsessions in this cultural context may be perceived as less morally threatening and evoke fewer moral emotions.

Several features of this study limit our conclusions. First, it is important to note that while the obsession dimensions and item wording were based on the structure of the LOII-R, the original LOII-R was not administered in full. Instead, participants responded to representative items for each dimension, indicating the general frequency of such intrusions. Although this approach may encourage participants to focus on their most personally salient intrusive thought, thus potentially leading to more authentic reporting of associated moral emotions, it also presents a methodological limitation. Specifically, it does not guarantee that participants' selected intrusive thought strictly aligns with the intended dimension. In some cases, intrusive thoughts may blend features from multiple domains (e.g., aggressive and sexual content), making it difficult to clearly categorize the thought under a single dimension. Additionally, the results regarding cultural differences may also be influenced by the unequal sample sizes of the cultural groups. For instance, regarding sexual obsessions, the Belgian sample had a smaller sample size. Consequently, given the larger number of participants, some cultural differences could disappear. Furthermore, participants in this study were from non-clinical samples. Although current models of OCD suggest a continuum of symptoms between non-clinical and clinical groups (Abramowitz et al., 2014), only cross-cultural studies with clinical samples can determine whether the relationships found in this study will hold in clinical settings. Lastly, moral emotions were assessed as responses to specific intrusion dimensions, but the relationship between emotions and obsessions is bidirectional. The emotional reactions elicited by an intrusive thought can differ from the initial emotion that triggered the intrusive thought. For instance, contempt was the least experienced emotion across all obsession dimensions in both cultural groups. However, contempt might exist as a more underlying moralizing emotion in individuals with OCD. Thus, further research is needed to determine if the emotions identified in this study also initiate the obsessional thinking process.

An intriguing finding of the current study is the elevated frequency of anger reported across various obsessions in both cultural groups. It remains unclear whether this anger was experienced as a moral emotion or as general annoyance. On the one hand, its presence as a moral emotion aligns with existing literature on implicit anger in OCD (Moritz et al., 2011; Rachman, 2003). Some researchers suggest that individuals with OCD often experience ambivalent feelings toward loved ones, suppressing anger due to its perceived unacceptability. To compensate, they may adopt an exaggerated moral stance, leading to heightened guilt (Kempke & Luyten, 2007). Supporting this perspective, previous studies indicate that high levels of anger and responsibility can coexist in individuals with OCD (Moritz et al., 2009, 2011). These results underscore

the need for further research on the role of anger in OCD, particularly its potential function as a moral emotion.

## Conclusions

This study was a preliminary exploration of the moral-emotional profile of non-clinical obsessions. The results indicate that obsessions are associated with specific moral emotions, and people with different obsessional concerns may experience certain moral emotions more intensely, potentially reflecting their moral sensitivity. The observed differences across obsession dimensions and cultures, as well as the range of emotions, provide valuable insights into the phenomenology of obsessions and offer a foundation for future research. Subsequent studies should integrate emotion theories to better investigate the specific mechanisms through which moral emotions shape the experience of OCD. This includes examining their moral antecedents, implications for self-evaluation, and associated behavioral responses. For example, shame and disgust often lead to withdrawal, anger motivates confrontation, and guilt drives reparative actions. Incorporating these emotion-driven action tendencies into clinical models of OCD can not only clarify the links between obsessional beliefs and the functional role of moral emotions but also open up novel conceptual pathways that may have previously gone unrecognized.

## DECLARATIONS

**Ethics Committee Approval:** The required permissions were obtained from the KU Leuven Social Ethics Committee (G-2014.11.097), and then by the MEF University Social Ethics Committee on 28/12/2022 with the registration number E-47749665-050.01.04-157.

**Conflict of Interest:** The author declares no conflict of interest.

**Informed Consent:** Informed consent was obtained from all participants included in the study.

**Project/Funding:** The study has no financial support.

**Data Sharing/Availability:** The authors of this study declare that they will share the data set used in the study upon request, provided that a suitable justification is given.

**Authors' Contributions:** N/A

**Use of Artificial Intelligence:** AI was used solely for grammar and spell-checking purposes.

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## **APPENDICES**

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### **Moral Emotions in Obsessions Scale (MEOS)**

You will be presented with the same thoughts you saw in the previous section. Now, we would like you to read the examples below and answer how frequently you experience the same or similar content of thoughts in general. Not all the examples necessarily fit you, in that case you can try to think of a particular thought of your own that you experience frequently, and which fits the given example.

Please then answer the following questions according to this particular thought that you experience the most.

Examples (just-right doubts):

1. After having talked to someone, doubts about whether I expressed myself in the right way
2. Doubts that my words or acts will be interpreted as hurtful
3. After having done things, doubts about whether I actually carried them out

When you have this kind of a thought, how does the thought make you usually feel like? Please remember the particular thought that matters to you most.

Please use this scale while giving your responses:

0 = not at all, 1 = a little, 2 = moderately, 3 = a lot, 4 = extremely

1. It makes me fearful (fear)
2. It makes me feel disgusted (disgust)
3. It makes me feel guilty (guilt)
4. It makes me feel frustrated (anger)
5. It makes me feel ashamed (shame)
6. It makes me feel contempt towards someone (contempt)
7. It makes me feel embarrassed (embarrassment)
8. It makes me feel nauseated (disgust)
9. It makes me feel not respectable (shame)
10. It makes me feel worried that something bad would happen (fear)
11. It makes me feel reserved (embarrassment)
12. It makes me feel regret, sorry about what I did (guilt)
13. It makes me feel angry (anger)
14. It makes me feel despising someone (contempt)
15. It makes me feel ridiculous (embarrassment)
16. It makes me feel annoyed (anger)
17. It makes me feel remorse (guilt)
18. It makes me feel panicked (fear)
19. It makes me feel inferior/unworthy (shame)
20. It makes me feel grossed out (disgust)
21. It makes me feel looking down on someone (contempt)