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Emotional distress and pain tolerance in obsessive-compulsive disorder

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ABSTRACT

Background and objectives: Physical pain can reduce emotional distress, perhaps especially the psychic pain of guilt. This implies that people who continually experience guilt may exhibit greater tolerance for pain relative to people who do not.
Methods: To test this hypothesis, we administered a pressure algometer procedure to assess pain tolerance in patients with obsessive-compulsive disorder (OCD) plagued by moral obsessions (e.g., concerns about harming others, violating religious values), in patients with OCD with non-moral obsessions (e.g., regarding contamination and symmetry), and in healthy comparison subjects.
Results: The results indicated that the OCD groups did not differ in levels of guilt, emotional distress tolerance, or in pain endurance. However, when we collapsed across subtypes, OCD subjects endured pain significantly longer than did healthy subjects.
Limitations: Limitations included small sample size and use of a sample with complex OCD symptoms that were, in some instances, difficult to categorize.
Conclusions: The results suggest that individuals with severe OCD might be willing to endure physical pain as a distraction from emotional distress, an expression of negative self-worth, or as a means to gain control over some aspect of suffering.

1. Introduction

Obsessive-Compulsive Disorder (OCD) is a common and debilitating anxiety disorder characterized by recurrent, unwanted, and intrusive thoughts (obsessions) and repetitive behaviors (compulsions) performed to reduce anxiety (American Psychiatric Association, 2000). A heterogeneous disorder, OCD consists of symptoms that vary greatly from one individual to the next. Symptoms occur in four clusters (Leckman et al., 1997):

(1) aggressive, sexual, and religious obsessions (e.g., fear of killing one's child or having sex with one's child) and related checking compulsions (e.g., replaying events in one's head to make sure no one was harmed);
(2) symmetry obsessions (e.g., preoccupation with objects being aligned in a certain manner) and ordering/repeating/counting compulsions (e.g., repeating an action until it looks or feels "just right");
(3) contamination obsessions (e.g., fear of contracting a disease such as AIDS) and cleaning compulsions (e.g., frequent and excessive hand-washing or cleaning); and
(4) hoarding obsessions (e.g., reluctance to discard items, irrespective of their usefulness or functionality) and compulsions (e.g., accumulation of objects of questionable value).

Individuals with aggressive/sexual/religious obsessions frequently experience uncertainty about whether they might act on their intrusive thoughts. This pathological doubt often results in high levels of guilt, self-criticism, or even self-loathing (Abramowitz, Franklin, Schwartz, & Furr, 2003; Gordon, 2002; Osgood-Hynes, n.d.). Indeed, both guilt and shame have been identified as important factors in the etiology and maintenance of OCD. Some individuals who have intrusive thoughts of harming others or committing a sinful action believe that simply having a bad thought is equivalent to acting on it, a phenomenon known as "moral thought-action fusion" (TAF) (Rachman, 1993; Shafran & Rachman, 2004). People with moral TAF believe their thoughts reflect a flawed moral character, and thus it frequently leads to high levels of guilt, shame, and anxiety (Shafran & Rachman, 2004).

The experience of physical pain may ease the psychic pain of chronic guilt, at least for some people. For example, the Christian flagellant movement, erupting in Perugia in 1260 (Dickson, 1989), dramatically exemplifies how self-inflicted injury may serve penitential motives. Likewise, people who engage in deliberate non-suicidal self-injury may do so to alleviate intense psychological distress (Nock, 2009) and to punish themselves (Lloyd-Richardson,

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Perrine, Dierker, & Kelley, 2007). Many individuals diagnosed with OCD also suffer from Obsessive-Compulsive Spectrum Disorders, including compulsive self-injury (du Toit, van Kradenburg, Niehaus, & Stein, 2001). One study found the prevalence of self-harming behaviors to be as high as 22.4% in a sample of OCD patients (du Toit et al., 2001). However, the relationship between OCD and physical pain remains unstudied.

There are several methods that ascertain a person's subjective sensitivity to a pain-inducing stimulus, such as thermal stress (Leyro, Zvolensky, & Bernstein, 2010) or focal pressure (Hooley, Ho, Slater, & Lockshin, 2010). *Pain threshold* is the time it takes before a person first feels pain in response to an aversive stimulus, whereas *pain tolerance* is the time it takes before the pain becomes intolerable, prompting the person to demand termination of the stimulus (Burns, Bruehl, & Caceres, 2004; Hines & Brown, 1932; Leyro et al., 2010). Finally, *pain endurance* is the amount of time that a person continues to bear the stimulus after he or she first experiences it as painful (i.e., pain tolerance time minus pain threshold time; Hines & Brown, 1932; Leyro et al., 2010). In the present study, we measured pain threshold and pain endurance as our primary dependent variables.

Several studies suggest a connection between pain tolerance and sensitivity and emotional distress, including guilt (Bastian, Jetten, & Fasoli, 2011; Leyro et al., 2010). Research suggests that people who engage in self-harming behaviors have higher pain thresholds and greater pain endurance than do individuals who do not engage in such behaviors. In a population of individuals who practice nonsuicidal self-injury (NSSI), Hooley et al. (2010) found that increased pain endurance was predicted most strongly by negative beliefs about one's self-worth. The authors concluded that "the more people considered themselves to be worthless or inferior, the more willing they were to endure pain" (p. 176) and that "beliefs about the self as being bad and deserving of punishment" (p. 177) might be an important moderating variable for why some people choose NSSI to regulate their negative emotions while others do not. Similarly, a different study suggested that high rates of non-verbal shame behaviors predicted a higher incidence of self-injury in a study of women with Borderline Personality Disorder (Brown, Linehan, Comtois, Murray, & Chapman, 2009). These findings suggest that negative self-thoughts of low self-worth may motivate NSSI.

Likewise, Bastian et al. (2011) documented a link between feelings of guilt and pain endurance in college students. Study participants asked to recall instances of past immoral behavior (defined as excluding another person in a social situation) had higher rates of guilt and negative mood than did those asked to write about an "everyday interaction" they had with someone the day prior to the experiment. Furthermore, individuals in the former group not only kept their hands submerged in ice water longer than did those in the latter group, but also rated the pain they experienced as more severe. Yet after experiencing this pain, their feelings of guilt declined. Hence, guilt may motivate people to endure increased pain, which, in turn, may diminish guilt.

The relationship between psychopathology and the self-referential emotions of shame and guilt has been studied widely (Tangney & Dearing, 2003). The State Shame and Guilt Scale (SSGS) is one of several measures that assess the moral, self-referential emotions of shame, guilt, and pride (Marschall, Sanftner, & Tangney, 1994). Subjects are asked to rate the extent to which they agree or disagree with statements such as "I feel remorse, regret," "I feel like I am a bad person," and "I feel humiliated, disgraced." We used the SSGS to evaluate subjects' feelings of badness or worthlessness in our study. We hypothesized that individuals diagnosed with OCD should experience higher levels of guilt and shame and lower levels of pride than should those in the psychiatrically healthy comparison group. Furthermore, specifically within the OCD sample, we expected that people with moral obsessions should display higher levels of negative self-referential emotions than should those with non-moral obsessions.

In addition, we tested whether OCD patients whose obsessions had moral content involving aggressive, sexual, or religious themes exhibit greater pain tolerance relative to OCD patients whose obsessions do not involve moral content and healthy comparison participants. Exemplifying patients in the moral group are a mother who fears she will stab her infant; a man who experiences disturbing images of fondling a young child; and a teenager who fears she has offended God. These patients presumably have more feelings of negative self-worth and feel more deserving of punishment and hence will have a higher physical pain tolerance than will patients who do not have prominent moral obsessions (i.e., symptoms that are primarily concerned with contamination obsessions/cleaning compulsions or symmetry/ordering obsessions and compulsions, etc.). Alternatively, if physical pain endurance is related to greater psychic relief of emotional distress in general, we would expect OCD subjects, irrespective of the symptom subtype, to endure pain for longer than do the healthy subjects. One might expect that people with OCD would have a lower pain tolerance than do healthy people, given the disorder's strong association with neuroticism, a trait associated with harm avoidance (Paulus, Rogalsky, Simmons, Feinstein, & Stein, 2003). However, we expect that OCD subjects' intolerance of emotional distress will be so strong as to override this effect, and instead cause them to endure the pain longer than do their healthy peers.

2. Materials and method

2.1. Subjects

OCD patients were recruited from the residential and intensive outpatient units of the Obsessive-Compulsive Disorder Center at Rogers Hospital in Oconomowoc, Wisconsin where they participated in the study. To qualify for the study, OCD patients had to be between the ages of 18 and 65, not to have taken any pain medication within 24 h, and had to have a chart diagnosis of OCD. Patients with Major Depressive Disorder (MDD) or other comorbid disorders still qualified.

Using the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) and Symptom Checklist, the first author classified OCD patients into one of two groups: (1) those with prominent obsessions concerning moral themes (e.g., harm to others, sexuality, religion), and (2) those with no prominent moral obsessions (e.g., contamination, symmetry). The third author independently classified these patients after reviewing the OC Checklist and related chart notes on each patient. The third author agreed with the first author's classification of 18 of 20 cases, yielding a Kappa of .80, $p < .001$. Following discussion between the authors, we reclassified one patient. Thus, eight patients (3 men, 5 women; mean age = 26.5 years [SD = 10.1]) were assigned to the moral group and 12 patients (6 men, 6 women; mean age = 24.8 years [SD = 7.5]) were assigned to the non-moral group. Comparison subjects were recruited in Cambridge, Massachusetts via an advertisement on craigslist.com. Participation as a healthy subject was limited to men and women between the ages of 18 and 65 who had never met criteria for OCD or MDD and who did not have a history of self-harming behavior. Subjects did not take any over-the-counter pain medication (ibuprofen, aspirin, etc.) within 24 h of their visit, nor were they taking any prescription pain medication. Comorbidity data were available for 19 of the 20 OCD subjects. Only one of these 19 did not have a comorbid psychiatric illness, with the remaining sample averaging 1.5 (SD = 1.07) comorbidities per person. The most