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Cleansing the Soul by Hurting the Flesh: The Guilt-Reducing Effect of Pain

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Pain purifies. History is replete with examples of ritualized or self-inflicted pain aimed at achieving purification (Glucklich, 2001). Some people feel that they can achieve reparation for their sins by simply experiencing pain; this may be why seeking self-punishment is a basic response to feelings of guilt (Freud, 1916/1957; Nelissen & Zeelenberg, 2009).

Why are pain and suffering believed to serve as atonement for sin? One reason may be that the experience of physical pain alleviates feelings of guilt associated with immoral behavior (Tangney, Stuewig, & Mashek, 2007). There has been very little research on the psychological benefits of experiencing pain. We tested two hypotheses relating to when and why people are likely to be motivated to experience pain—that people should be more motivated to subject themselves to a painful experience when they are reminded of their own immoral deeds, and that the experience of pain should reduce feelings of guilt.

Method

In return for \$10, 62 undergraduates (22 men, 40 women; mean age = 22.74 years) participated in a study that they were told focused on mental acuity. They were allocated to one of three conditions. In the pain ($n = 20$) and no-pain ($n = 19$) conditions, participants wrote for 10 to 15 min about a time when they behaved unethically, that is, a time when they “rejected or socially excluded another person.” In the control condition ($n = 23$), participants wrote about “an everyday interaction [they] had with another person yesterday.” All participants subsequently completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which included an item assessing their experience of guilt.

Next, participants were informed that they would participate in a different study on physical acuity. Participants in the pain and control conditions were presented with an ice bucket (0 °C–2 °C) and were instructed by the experimenter to “immerse your nondominant hand, up to your wrist, into the bucket for as long as you can.” Participants in the no-pain condition were instructed to do the same with a bucket of warm water (36 °C–38 °C) for 90 s while also moving paper clips, one at a time, between two boxes. Specifically, they were

instructed to “use your dominant hand to move as many paper clips from one box to another as you can.” The ice-bucket and warm-water tasks were designed to be equivalent in length, perceived purpose (i.e., testing physical acuity), required compliance (i.e., participants were asked to exert effort), and sense of achievement. When finished, participants again completed the PANAS (Watson et al., 1988).

Last, participants rated how much pain they experienced during the ice-bucket or warm-water task, using the Wong-Baker Pain Scale (Wong & Baker, 1988), which ranges from 0 (*no hurt*) to 5 (*hurts worst*). They also scored the morality of their actions in the recalled experience (three items: “I felt like what I did was very immoral,” “my actions were unethical,” “I was immoral”; $\alpha = .95$) on a scale from 1 (*not at all*) to 7 (*very much so*).

Results

Three participants who left their hands submerged in the ice bath for an unusually long period of time (> 3 min, more than 2 *SD* above the mean) were removed from analyses, leaving 21 participants in the control condition, 19 in the pain condition, and 19 in the no-pain condition. A manipulation check revealed that recalling an act of ostracism activated more immoral thoughts about the self ($M = 4.07$, $SE = 0.29$) than recalling an everyday interaction did ($M = 1.28$, $SE = 0.10$), $t(57) = 7.04$, $p < .001$.

An analysis of variance (ANOVA) on the time (in seconds) participants’ hands were submerged in water revealed an effect of condition, $F(2, 56) = 3.30$, $p < .05$, $\eta^2 = .11$. Participants in the pain condition ($M = 86.74$, $SE = 7.92$) held their hands in the ice bath longer than participants in the control condition did ($M = 64.43$, $SE = 7.53$), $p < .05$, but for a duration equivalent to the time limit enforced in the no-pain condition, $p = .772$. An ANOVA on pain ratings also revealed an effect of condition,

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$F(2, 56) = 37.83, p < .001, \eta^2 = .58$. Follow-up comparisons revealed significant differences in pain ratings between all conditions (pain condition: $M = 2.79, SE = 0.22$; control condition: $M = 1.91, SE = 0.21$; no-pain condition: $M = 0.11, SE = 0.22$; $ps < .006$), indicating that participants who wrote about an unethical behavior rated the ice-bucket task as more painful than did participants who wrote about an everyday interaction.

To determine whether pain reduced guilt, we conducted an ANOVA with condition as a between-subjects variable and guilt as repeated measures at Time 1 and Time 2. This analysis revealed a main effect of time, $F(1, 56) = 32.22, p < .001, \eta^2 = .37$. As predicted, this effect was qualified by a Time \times Condition interaction, $F(2, 56) = 6.53, p < .01, \eta^2 = .19$.^{1,2} Comparisons revealed that participants in the pain condition experienced a significant reduction in guilt (Time 1: $M = 2.53, SE = 0.26$; Time 2: $M = 1.11, SE = 0.13$), as did participants in the no-pain condition (Time 1: $M = 2.21, SE = 0.26$; Time 2: $M = 1.53, SE = 0.13$; $ps < .01$). Critically, the magnitude of change was more than twice as large in the pain condition (pain condition: mean difference = 1.42; no-pain condition: mean difference = 0.68). There was no change for participants in the control condition (Time 1: $M = 1.33, SE = 0.25$; Time 2: $M = 1.19, SE = 0.13$). Time 1 guilt was significantly higher in the pain and no-pain conditions compared with the control condition ($ps < .05$), and Time 2 guilt was higher in the no-pain condition compared with the other conditions ($ps < .05$).

Discussion

When reminded of an immoral deed, people are motivated to experience physical pain. Participants who wrote about an unethical behavior not only held their hands in ice water longer but also rated the experience as more painful than did participants who wrote about an everyday interaction. Critically, experiencing pain reduced people's feelings of guilt, and the effect of the painful task on ratings of guilt was greater than the effect of a similar but nonpainful task.

Pain has traditionally been understood as purely physical in nature, but it is more accurate to describe it as the intersection of body, mind, and culture (Morris, 1991). People give meaning to pain, and we argue that people interpret pain within a judicial model of pain as punishment (Glucklich, 2001). Our results suggest that the experience of pain has psychological currency in rebalancing the scales of justice—an interpretation of pain that is analogous to notions of retributive justice (Darley & Pittman, 2003). Interpreted in this way, pain has the capacity to resolve guilt.

People are socialized to understand pain within this judicial framework. Physical pain is employed as a penalty (e.g., spanking children for misbehavior), and unexplained pain is often understood as punishment from God (Gray & Wegner, 2010). The judicial model is explicit in the Latin word for pain, *poena*, which means “to pay the penalty.” Understood this way, pain may be perceived as repayment for sin in three ways. First, pain is the embodiment of atonement. Just as physical cleansing washes away sin (Zhong & Liljenquist,

2006), physical pain is experienced as a penalty, and paying that penalty reestablishes moral purity. Second, subjecting oneself to pain communicates remorse to others (including God) and signals that one has paid for one's sins, and this removes the threat of external punishment. Third, tolerating the punishment of pain is a test of one's virtue, reaffirming one's positive identity to oneself and others.

Previous work has demonstrated that giving meaning to pain affects people's management of that pain (e.g., Morris, 1991). By introducing the judicial model of pain, we emphasize that giving meaning to pain can also affect other psychological processes. Although additional research is needed, our findings demonstrate that experiencing pain as a penalty can cause people to feel that their guilt is resolved and their soul cleansed.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Notes

1. This effect remained significant when we controlled for the length of time participants left their hand in the ice bath.
2. Ratings for other negative emotions did not show an interaction between time and condition, $F(2, 55) = 0.18, p = .835, \eta^2 = .007$.

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