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Abstract

This research investigated whether the physical act of enclosing an emotionally laden stimulus can help alleviate the associated negative emotions. Four experiments found support for this claim. In Experiments 1a and 1b, emotional negativity was reduced for participants who placed a written recollection of a regretted past decision or unsatisfied strong desire inside an envelope. However, enclosing a stimulus unrelated to the emotional experience did not have the same effect (Experiment 2). In Experiment 3, we showed that the effect was not driven by participants simply doing something extra with the materials, and that the effect of physical enclosure was mediated by the psychological closure that participants felt toward the event.

Keywords

psychological closure, body experience, emotion regulation

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Negative emotions can be difficult to control and are regarded as adversaries to the self. Although people wish to feel happy and positive, negative emotions are often triggered by the memory of bad experiences. Researchers have found a positive link between the intensity of an emotional reaction and the accessible emotional details of the experience (Beike, Adams, & Wirth-Beaumont, 2007; Beike & Wirth-Beaumont, 2005). Psychological closure has been conceptually linked to a subjective state of having less access to emotional details. The greater the closure that an individual achieves psychologically, the less intensely the individual feels toward the event. How can intrusive memories of negative experiences be minimized?

Memory researchers investigating the concept of cognitive inhibition have found that an explicit instruction to inhibit an unwanted thought may actually increase the accessibility (and hence recall) of the concept (Wegner, Schneider, Carter, & White, 1987). Similarly, the literature on emotion regulation suggests that efforts to intentionally suppress negative emotional reactions can backfire (Gross, 1998; Wegner, Erber, & Zanakos, 1993). Instead of deliberately trying to forget, people often seek a remedy by physically locking things up. For instance, a self-help Web site on how to deal with broken relationships advises readers to “put everything that reminds you of your ex in a box and seal it” (Pant, 2007). Do such behavioral strategies work? Or do they backfire, just as efforts to hide or suppress emotions do?

Our hypothesis, which stems from recent research on embodied cognition and metaphorical thinking, is that the physical enclosure of emotionally laden items helps people attain psychological closure over emotional experiences. There is growing evidence that physical experience and cognitive processes overlap (Boroditsky & Ramscar, 2002; Wilson, 2002). On the one hand, the mind employs abstract concepts to register the movements of the body. On the other hand, because of their direct and concrete nature, bodily movements and the resulting sensorimotor experiences are used by the human mind to understand abstract concepts (Boroditsky & Ramscar, 2002; Lakoff & Johnson, 1980; Niedenthal, 2007; Niedenthal, Winkielman, Mondillon, & Vermeulen, 2009; Zhong & Leonardelli, 2008; Zhong & Liljenquist, 2006).

More relevant to the current discussion is the overlap between psychological states and physical experience found in metaphors used in everyday language about emotions (Johnson, 2007; Lakoff & Johnson, 1980). Emotional events are commonly described as concrete objects that can be manipulated, and the control or suppression of emotions is often described as a process of physically containing an object (e.g., anger is “bottled up,” anxieties are “kept inside,” and sorrows are

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“buried”). These metaphors suggest that referring to physical acts, such as putting things in a container, may help people to understand abstract processes of emotion regulation. Seeing emotionally laden items enveloped may provide psychological relief, or a sense of taking control of one’s emotions. The perception of a physical enclosure around an emotional item may help people attain temporary psychological closure.

We therefore hypothesized that physically enclosing an object associated with a negative emotion provides at least temporary psychological closure, which makes people feel less negative. We report the results of four experiments which showed that the act of sealing an emotionally laden object into an envelope can relieve the related negative emotions.

Experiment 1a

Experiment 1a was conducted in a laboratory setting. Eighty students (33 males, 47 females; ages 18–24) were recruited from the subject pool of a large Asian university and were assigned to one of two conditions. In both conditions, participants were first asked to recall a recent decision that they regretted. In the envelope condition ($n = 40$), participants were instructed to place their written recollection into an envelope before handing it back to the experimenter. In the control condition ($n = 40$), participants were simply asked to return the questionnaire. All participants then received a second questionnaire, which asked them to indicate how they felt, at that moment, about the event they had recalled. Five discrete negative emotions were measured: *regretful*, *guilty*, *sad*, *worried*, and *ashamed*; the rating scale ranged from 1 (*not at all*) to 5 (*extremely*).

Responses to the five emotions were averaged ($\alpha = .80$) to form an index of how negatively participants felt about the event at the moment that the measurement was taken. An analysis of variance (ANOVA) suggested that the effect of condition was not qualified by gender, $F(1, 76) = 0.019, p = .89$, so gender was not included in further analysis. As we predicted, participants who sealed a recollection in the envelope felt less negative ($M = 1.94, SD = 0.81$) about the event than those who simply handed back the questionnaire ($M = 2.40, SD = 1.00$), $t(1, 78) = 2.24, p < .05, \eta^2 = .06$. Thus, participants who enclosed their written recollection experienced some alleviation of their negative emotional state.

Experiment 1b

In Experiment 1b, we aimed to replicate the findings of Experiment 1a using a different kind of emotional experience. Forty female college students were recruited in their own dormitories to complete two surveys. In the first survey, all participants were given 10 min to write about a strong personal desire that had not been satisfied. Half of them were given an envelope in which to return their completed response; the other half simply handed the survey to the experimenter. Finally, all participants were given the second survey, on which they indicated how the

recalled event made them feel. In pretesting, we identified four emotions that were affected by recall of an unsatisfied desire: *anxious*, *disappointed*, *sad*, and *unsatisfied*. Participants in Experiment 1b rated their current experience of each of these emotions on a scale ranging from 1 (*not at all*) to 5 (*extremely*; $\alpha = .88$). These scores were averaged to form an index of how negative the participants felt. In addition, the questionnaire included two items that have been shown to be associated with the psychological state of lacking closure—*disruptive* and *unsettling* (Beike & Wirth-Beaumont, 2005). The rating scales ranged from 1 (*not at all*) to 5 (*extremely*; $\alpha = .71$). Scores on these items were averaged to form an index of mental disturbance.

Participants who enclosed their questionnaires in envelopes felt much less negative ($M = 2.25, SD = 0.91$) than the control group ($M = 3.38, SD = 1.16$), $t(38) = 3.40, p < .01, \eta^2 = .23$. In addition, they reported less mental disturbance ($M = 1.90, SD = 0.79$, vs. $M = 2.65, SD = 0.95$), $t(38) = 2.72, p = .01, \eta^2 = .16$. Moreover, the effect of physical enclosure on negative emotion was mediated by mental disturbance (Sobel test = 2.75, $p < .01$). This suggested that physical enclosure soothed the participants’ emotions by helping them attain psychological closure.

Experiment 2

The first set of two experiments demonstrated that the act of placing emotionally laden material into an envelope helped relieve negative emotions. However, it remained unclear whether this effect was due to the act of enclosing in general (regardless of what was enclosed) or the specific act of enclosing the stimulus associated with the negative emotion. We explored this issue in Experiment 2.

Eighty college students (25 males, 55 females) from a large Asian university participated in this experiment. In all three conditions, participants completed three tasks in the same sequence. The first task involved news comprehension; participants were asked to read a recent news story on a baby’s tragic death and then answer two questions that measured their focus when they read the story. The second task included questions unrelated to the news story; for example, participants were asked what they planned to do over the weekend. In the third task, participants were asked to report how the story made them feel with respect to three discrete emotions (*sad*, *shocked*, and *angry*; $\alpha = .90$); responses were made on scales ranging from 1 (*not at all*) to 9 (*extremely*). Participants then completed a set of true-or-false questions as a surprise test of their memory of the news story.

In all conditions, after each task, the completed surveys were collected from participants’ desks before the next survey was distributed. Participants in the enclosed-related condition were given an envelope after completing the first task and instructed to enclose the news story along with their responses in the envelope. In the enclosed-unrelated condition, participants were also given an envelope, but only after they had completed the second task; the envelope was intended to

enclose the second questionnaire. For these participants, the material being enclosed was unrelated to the emotion induced by the stimulus. In the control condition, no envelope was provided.

We measured both emotional responses and recall performance to test the effects of physical enclosure. Scores for the three emotional states (sad, shocked, and angry) were averaged to indicate how negative the story made participants feel. The results from linear contrasts (enclosed-related: 2, enclosed-unrelated: -1, and control: -1) showed that participants who had placed the emotionally laden material in the envelope ($M = 2.90$, $SD = 1.86$; $n = 27$) felt significantly less negative than those in the other two conditions, $F(1, 77) = 5.39$, $p < .05$, $\eta^2 = .07$. However, there was no reliable difference between the reported emotional states of participants in the control condition ($M = 4.28$, $SD = 2.36$; $n = 19$) and those in the enclosed-unrelated condition ($M = 4.10$, $SD = 2.63$; $n = 34$), $F(1, 77) = 0.32$, $p > .80$. Further comparisons showed that there was a marginally significant reduction in negative emotions in the enclosed-related condition compared with both the control condition, $F(1, 77) = 3.90$, $p = .052$, $\eta^2 = .05$, and the enclosed-unrelated condition, $F(1, 77) = 4.01$, $p < .05$, $\eta^2 = .05$.

Moreover, past research on psychological closure has shown that memories containing less emotional detail suggest better closure over an event (Beike & Wirth-Beaumont, 2005). We tested participants' memories of the emotional details of the news story with seven true-or-false questions (four true, three false), all pertaining to information that could elicit the measured emotions (e.g., Baby P. received a fatal blow to his mouth that knocked two teeth out). Results supported our prediction. The enclosed-related group (accuracy rate: $M = 76\%$, $SD = 0.22$), who physically sealed the story, performed worse than the other two groups did (enclosed-unrelated group: $M = 85\%$, $SD = 0.14$; control group: $M = 86\%$, $SD = 0.15$), $F_s(1, 77) > 4.40$, $p_s < .05$, $\eta^2_s > .05$.

Experiment 3

Experiment 3 was conducted to show that the earlier results were specifically due to enclosing the unpleasant materials rather than simply doing something extra to them (e.g., stapling or organizing the materials). In addition, we measured psychological closure to directly test our proposition that physical enclosure brought mental closure.

Like Experiment 1a, Experiment 3 required participants (27 males, 20 females) to recall an event about which they felt regretful. After the recollection task, they reported how clear and detailed their memory of the event was, on a scale from 1 (*not at all*) to 7 (*extremely*). In the enclosing condition, participants were asked to place their written recollection and the survey on memory clarity in an envelope before returning these materials to the experimenter. In the control condition, participants used paper clips to attach the two surveys together before the experimenter collected them. In a third survey, participants then reported how they felt about the event they had just recalled. Following past literature on regretful events, we

assessed the intensity of two discrete emotions, namely, *regretful* and *disappointed* (Beike & Crone, 2008); both were rated on a scale from 1 (*not at all*) to 5 (*extremely*). The next page of the survey included three items that measured the psychological closure participants felt toward the event (e.g., "I have put the event behind me completely"; $\alpha = .86$; adapted from Beike et al., 2007). The rating scales ranged from 1 (*strongly agree*) to 7 (*strongly disagree*).

Results revealed that before the manipulation, participants' event memories did not differ in clarity and detail (control condition: $M = 5.48$, $SD = 0.92$; enclosing condition: $M = 5.52$, $SD = 1.03$), $t(45) = 0.15$, $p > .88$. However, after the key manipulation, the physical process of enclosing made people feel less negative ($M = 2.90$, $SD = 1.18$; $n = 24$) than simply clipping the pages together did ($M = 3.78$, $SD = 0.95$; $n = 23$), $t(45) = 2.83$, $p < .01$, $\eta^2 = .15$. Moreover, the enclosing group also reported greater psychological closure over the event they recalled ($M = 4.22$, $SD = 1.50$) than the control group did ($M = 3.16$, $SD = 1.47$), $t(45) = 2.45$, $p < .05$, $\eta^2 = .12$. Regression analyses showed that felt closure over the recalled event was a predictor of emotional intensity, $t(45) = 3.92$, $p < .01$, and psychological closure mediated the effect of physical enclosure on the intensity of the participants' feelings (Sobel test = 1.95, $p = .05$).

General Discussion

In the first two experiments, we showed that the simple act of enclosing related materials in an envelope made participants feel less negative about emotional events (Experiments 1a and 1b). Experiment 2 found that enclosing unrelated material did not have the same effect of soothing negative emotions as enclosing emotionally laden material did. In Experiment 3, we showed that simply doing something extra could not explain the effect of physical closure on negative emotion, and the effect of physical enclosure was mediated by the psychological closure that participants felt toward the event. Although all the stimuli were negative, the stimuli used in different experiments evoked different kinds of emotional response.

It is known that the body is closely tied to the processing of emotional information (Niedenthal et al., 2009). Therefore, it is reasonable to expect that bodily experiences may play a pivotal role in soothing emotions. Our results show that the process of alleviating negative emotions can be facilitated by physically sealing emotionally laden materials. The experiments demonstrate that abstract mental states, such as psychological closure over a negative event, appear to rely on the sensorimotor experiences brought about by the simple act of enclosing. Moreover, we have shown that the metaphorical act of enclosing and sealing influences the memory, in the sense that the recollection of the emotional details of an event becomes weaker. This seems to suggest that physical experiences interfere with cognitive entities such as memory and retrieval. Finally, the experiments provide scientific evidence of the effectiveness of metaphor therapy for emotional healing

(Hypknowsis.com, n.d.). An effective way to relieve distress may be for the distressed person to seal an object related to his or her emotions in a package.

However, many questions remain to be answered by future research. For instance, it is not clear whether people need to actually go through the process of physical enclosure to attain the effect of psychological closure. It is also likely that merely observing other people doing the enclosing on one's behalf is sufficient to sooth one's emotions. Future study is required to determine whether the activity itself or its consequence (i.e., the emotionally laden item being sealed up) is essential for mitigation of negative emotions.

In addition, we did not explicitly instruct participants to try to gain closure over the negative events. In theory, or in self-help practice, people may do so consciously. Once the enclosing becomes a conscious effort, it may become less effective in creating closure, given the ironic consequences of cognitive suppression (Wegner et al., 1987). However, the placebo effect could lead to a more robust result. Further investigation is necessary to determine which of these two effects will dominate in the physical enclosure process when there is conscious intention to forget.

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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.

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