



Supporting Online Material for

Washing Away Your Sins: Threatened Morality and Physical Cleansing

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Supporting Online Materials

Materials and Methods

Study 1: Mental Accessibility of Cleansing Related Words

Method

Participants

Sixty undergraduate students at Northwestern University participated in this study.

Design and Procedure

Participants were randomly assigned to the cells of a 2-level single factor (Recall: ethical vs. unethical), between-participants design. They were led to separate breakout rooms upon arrival and were told that the researcher was interested in studying the differences in memories associated with ethical or unethical behaviors. In the *ethical condition*, participants were asked to describe in detail an ethical thing that they had done in the past and to describe any feelings or emotions they experienced. In the *unethical condition*, they were asked to describe an unethical deed and any emotions they experienced. This manipulation was adapted from a recall task in previous research (1).

After the recall, participants engaged in a seemingly unrelated word completion task, in which they filled in blank spaces within word fragments to convert them into meaningful words. There were six word fragments, three of them (i.e., *W _ _ H*, *SH _ _ ER*, and *S _ _ P*) could be completed as either cleansing-related (i.e., *wash*, *shower*, and *soap*) or unrelated words (e.g., *wish*, *shaker*, and *step*). We summed the number of cleansing-related word fragments participants completed to form a composite measure of mental accessibility to cleansing-related

concepts and submitted this measure to a one-way ANOVA. This measure and analysis have been used in many previous studies on mental accessibility (2, 3).

Study 2: Out, Damn Spot, Out!

Method

Participants

Twenty-seven undergraduate students at Northwestern University participated in this study.

Design and Procedure

Participants were randomly assigned to the cells of a 2-level single factor (Prime: ethical versus unethical), between-participants design. They were led to individual breakout rooms upon arrival and engaged in multiple seemingly unrelated tasks. Instead of using the behavior recall task as in Study 1, we used an implicit manipulation for the ethical vs. unethical prime. In this manipulation, participants hand copied a short story written in the first person. They were told that the researcher was interested in studying the association between handwriting and personality. Participants in the *ethical prime condition* hand-copied the following story about an honest office worker:

Two years ago, when I was a junior partner at a prestigious law firm, I was coming up for promotion against another junior partner, Chris. For several months, Chris had been working on a major case for the city that would make or break his career at the firm. However, he could not locate a key zoning document, without which, it was unlikely that he would have sufficient evidence to successfully argue his case. Late one evening, as I was rummaging through a corner filing cabinet, I happened to come across the zoning document that Chris was in desperate need of. I pulled it from the cabinet and placed it

without a note on Chris' desk, knowing that he would be so relieved when he arrived to work the next morning.

Those in the *unethical prime condition* hand-copied the same story except that this time the office worker in the story decided to hide the critical document and sabotage the career of his or her competitor (the last sentence was replaced with, "*I pulled it from the cabinet and walked over to the office shredder, knowing that my promotion would now be secured*").

After completing the hand-copying task, participants engaged in a marketing task and rated the desirability of various products on a seven-point scale (1 = completely undesirable, 7 = completely desirable). Some of the products were cleansing products, including *Dove shower soap*, *Crest toothpaste*, *Windex cleaner*, *Lysol disinfectant*, and *Tide detergent*; other products included *Post-it Notes*, *Nantucket Nectars juice*, *Energizer batteries*, *Sony CD cases*, and *Snickers bars*. The desirability rating served as the dependent measure because participants who have a need for bodily cleansing should express greater desire towards cleansing related products. None of the participants suspected the link between the manipulation and the product rating task.

Study 3: Antiseptic Wipe or Pencil?

Method

Participants

Thirty-two undergraduate students at Northwestern University participated in this study.

Design and Procedure

Participants were randomly assigned to the cells of a 2-level single factor (Recall: ethical vs. unethical), between-participants design. They were led to individual breakout rooms upon arrival and engaged in the same memory recall task (i.e., the ethical vs. unethical recall) as in Study 1. They were then approached individually by the experimenter during the break and asked whether they would like to have an antiseptic cleansing wipe or an American pencil as a

free gift (both items were visible in the experimenter's hands). They were told that those materials were left over from a previous study and the experimenter would like to give them away as free gifts. Their choice between the pencil and wipe served as the dependent variable.

The gifts were tested to make sure that they were equally desirable on an independent sample with 15 undergraduate students. These participants went through a similar but non-moral recall task (unrelated to ethics or cleanliness) and were then asked to choose between the wipes and pencils. Results confirmed equal desirability: 53% took the wipe and 47% took the pencil.

Study 4: Can You Really Wash Away Your Sins?

Method

Participants

Forty-five undergraduate students at Northwestern University participated in this study.

Design and Procedure

Participants were randomly assigned to the cells of a 2-level single factor (Intervention: cleansed vs. not-cleansed), between-participants design. They were led to separate breakout rooms upon arrival and told that they were going to engage in a computer task and a paper task. Participants were first asked to describe an unethical deed from their past via a computer program – the same task as in Study 1. They were then randomly assigned to one of two conditions. In the *cleansed condition*, participants were told that the Research Protection Board had recommended that we provide participants with hand-wipes after using public computers, and they were given an antiseptic cleansing wipe to use at that point. Those in the *not-cleansed condition*, however, were simply told that they had finished the computer task and could move on to the paper-based task.

After the cleansing manipulation, participants in both conditions were given a paper-and-pencil task in which they assessed their current emotional state, including disgust, happiness, amusement, guilt, embarrassment, regret, calm, shame, confidence, excitement, distress, and anger.

Finally, right before the end of the experiment, participants were solicited to volunteer to participate in a research study. They were told that a graduate student was looking for volunteers to help with one of her dissertation studies. The participation would be unpaid because the graduate student had no financial support yet desperately needed more data to complete her dissertation. Presumably, after participants recalled an unethical behavior from their past, they would be motivated to offer help to compensate for their wrongdoings. In contrast, participants who had cleansed their hands before being solicited for help would be less motivated to volunteer because the sanitation wipes had already washed away their moral stains and restored a suitable moral self.

Factor analysis on emotional assessments

Means and SEMs of the 12 emotional states were listed in Table S1. These emotions were entered into a principal-components factor analysis with varimax rotation. A scree test clearly indicated that little added variance was explained beyond a two-factor solution, which accounted for 54.58% of the total variance. The first rotated factor (accounted for 35.94% of the total variance) included disgust, guilt, regret, embarrassment, shame, and anger. Although the moral relevance of individual emotions in this category may be debatable (e.g., embarrassment), together they clearly represent emotions that are typically considered to have moral connotations. The second factor (accounted for 18.64% of the total variance) included calm, confidence, distress, and excitement (4). These emotions are clearly less morally relevant. All emotions

loaded above .50 on their respective factors (Table S2). Two unrelated emotions, happiness and amusement, did not load on either factor, hence were not included in subsequent ANOVA tests.

References and Notes

1. A. D. Galinsky, D. H. Gruenfeld, J. C. Magee, *J. Pers. Soc. Psychol.* **85**, 453 (2003).
2. L. C. Edwards, S. A. Pearce, *J. of Abnorm. Psychol.* **103**, 379 (1994).
3. J. Schimel, J. Greenberg, A. Martens, *Pers. Soc. Psychol. Bull.* **29**, 969 (2003).
4. Based on the factor loadings, distress and excitement were reverse coded for ANOVA tests.

Table S1. Mean and SEM (in parentheses) of Emotional States in the Cleansed and Not-Cleansed Conditions.

Emotions	Cleansed (n=22)	Not-Cleansed (n=23)
Calm	5.68 (.29)	5.00 (.29)
Guilt	2.18 (.27)	2.52 (.34)
Happy	4.45 (.23)	4.09 (.31)
Embarrassment	2.05 (.32)	2.22 (.29)
Amusement	3.18 (.28)	2.96 (.35)
Distress	2.55 (.30)	2.70 (.39)
Regret	2.09 (.31)	2.83 (.34)
Disgust	1.14 (.07)	1.91 (.30)
Confidence	4.77 (.28)	4.52 (.31)
Excitement	2.64 (.27)	3.17 (.33)
Shame	1.82 (.28)	2.26 (.37)
Angry	1.23 (.11)	1.65 (.20)

Table S2. Factor Loading of Moral and Non-moral Emotions in Study 4.

Emotions	Factor	
	Moral Emotion	Non-moral emotion
Shame	.905	
Guilt	.883	
Embarrassment	.825	
Regret	.765	.185
Disgust	.754	.349
Anger	.679	.491
Happiness	-.316	-.154
Calm	-.222	-.856
Distress	.218	.692
Confidence	-.418	-.552
Excitement	-.220	.523
Amusement		-.118
Eigenvalue	4.88	1.67

Note. N = 45. Values in boldface type indicate the highest factor loading for each item and loadings below .10 has been suppressed.