



FlashReport

Moral contagion effects in everyday interpersonal encounters

Kendall J. Eskine^{*}, Ashley Novreske¹, Michelle Richards¹

Loyola University New Orleans, USA

HIGHLIGHTS

- Contact with moral transgressors induces experiences of immorality (i.e., guilt).
- Moral contagion can occur through indirect and direct interpersonal contact.
- Moral contagion is moderated by disgust sensitivity.

ARTICLE INFO

Article history:

Received 14 March 2013

Revised 14 April 2013

Available online 23 April 2013

Keywords:

Contagion

Morality

Disgust sensitivity

Magical thinking

Purity metaphors

ABSTRACT

Are people's essences fully restricted to their physical forms, or can residues of their perceived character be transmitted to others by mere physical contact? The present research investigated the interpersonal effects of contagion in the context of immoral behavior. The findings from two experiments revealed that after participants came into both indirect and direct physical contact with a moral transgressor, they experienced more state guilt. Further, the effect was moderated by disgust sensitivity — namely, after touching an unethical person, those with high disgust sensitivity reported more guilt than those with low disgust sensitivity. This is the first research to demonstrate that physical contact with a morally tainted person can affect one's own immorality (i.e., guilt) and hence provides evidence for “moral transfer.” These findings further highlight disgust sensitivity as an important mechanism undergirding psychological contagion. Implications for daily life and directions for future research are discussed.

© 2013 Elsevier Inc. All rights reserved.

Introduction

Literally speaking, people are touchy. We shake hands to greet others, indicate respect, and conclude deals; hug to express interpersonal warmth and other emotions; and pat others' backs to congratulate or console. But can these incidental and seemingly innocuous encounters transfer unintentional information? For example, can moral transgressors contaminate inanimate objects and transfer immoral residue onto others? The present experiments tested the extent to which (perceived) moral essences in others are physically contagious.

Rozin and Nemeroff (1990) outlined magical thinking and one of its underlying laws: psychological contagion. According to their view, “essences” can be passed between people and objects, wherein “one object, usually of an animate nature, is a *source*; the second object, usually human, is a *target*” (p. 206). For example, it has been observed that students will wear their brilliant romantic partners' sweatshirts while taking exams in order to enhance their own performance (Albas & Albas, 1989; Rushowy, 2000). In this case, one partner's academic brilliance

(an animate source domain) is first passed to the sweatshirt. Second, the sweatshirt itself can now be used to transfer one partner's academic essence to the other partner (the target domain). While people seem to possess folk intuitions about contagion, can these beliefs meaningfully affect their judgments and behaviors?

Some of the first empirical studies on contagion revealed a number of striking findings that helped establish its characteristics and parameters (Nemeroff, Brinkman, & Woodward, 1994; Rozin, Markwith, & Nemeroff, 1992). For example, students preferred sweaters owned, but never worn, by someone with AIDS over sweaters worn, but never owned, by someone with AIDS, even though both sweaters had been washed. Further, these effects were not degraded by time. Silverware used by someone with AIDS is as contaminated 1 year later as it is 1 day later, and this contamination is not dependent on any particular part of the body; fingernails, locks of hair, elbows, etc. are all vehicles for contagion (Nemeroff et al., 1994; Rozin et al., 1992). Likewise, contagion has an enduring temporal quality. Participants are nearly as disinclined towards sweaters worn by people with AIDS for 5 minutes (then washed) as those worn for an entire year (then washed). Thus, the results indicate that psychological contagion requires physical contact, is essentially permanent between source and target domains, is holographic (fingernails are as contagious as other body parts), and is insensitive to dosage (5 minutes \approx 1 year).

^{*} Corresponding author at: Loyola University, 6363 Saint Charles Avenue, Box 194, Department of Psychological Sciences, New Orleans, LA 70118, USA.

E-mail address: kjeskine@loyno.edu (K.J. Eskine).

¹ These authors have equal contributions.

The origins and functions of contagion have also received considerable treatment. Nemeroff and Rozin (1994) argue that “magical thinking might simply be an inevitable result of human development. A principle like “contact causes influence” might be learned from very early experiences, beginning with the infant’s perception that his own grasping, pulling, pushing, and so on have influence on objects...” (p. 160). They also contend that contagion has adaptive functions rooted in biological instincts to protect oneself against “microbial contamination” (p. 161). On their view, contagion provides a mechanism through which people can defend themselves against unwanted foreign substances.

A biologically-oriented view is corroborated by evidence that people are hesitant to come into contact with actual contaminants like feces or articles of clothing saturated with disease. However, people still feel reluctant towards objects that simply resemble undesirable objects. For example, in some of the earliest research on magical thinking, Rozin, Millman, and Nemeroff (1986) observed that students indicated reservations towards chocolate fudge shaped like “dog doo” relative to round-shaped fudge, fake vomit over similarly sized rubber sink stoppers, and sugar labeled as “cyanide” over regularly labeled sugar. (Importantly, students themselves actually labeled the container of sugar as cyanide and therefore knew it was actual sugar.) Put simply, the similarity between these objects influenced students’ experiences of them.

As Nemeroff and Rozin (1994) pointed out, this occurrence is especially puzzling in contagion situations where people know that the “contaminated” objects have been thoroughly sanitized. Consider another set of findings. As in previous work, Rozin, Markwith, and McCauley (1994) found that students reported reluctance to wear sweaters previously worn (but washed) by people with AIDS or tuberculosis when compared to new sweaters. But what about contagion situations that do not involve microbial contamination? In their research, this effect was also found for a morally tainted target (a convicted murderer). Rozin et al. (1994) explained these findings from a cross-cultural perspective by showing how many descriptions of physical illnesses implicate moral glitches in some form or another. Additional findings from moral psychology, neuroscience, and grounded cognition have further revealed that physical and moral disgust are indeed represented and processed with considerable cognitive and physiological overlap (Chapman, Kim, Susskind, & Anderson, 2009; Eskine, Kaciniuk, & Prinz, 2011). Indeed, one line of research spotlights the relationship between moral transgressions and participants’ desires for cleansing products, suggesting that immoral behavior lends itself to physical contamination and hence leads people to seek physical purification (Lee & Schwarz, 2010, but see also Schnall, Benton, & Harvey, 2008; Zhong, Strejcek, & Sivanathan, 2010).

The extant research has produced many exciting findings that bear on people’s relationships with themselves and objects. Although the interpersonal consequences of psychological contagion have been explored less frequently, they offer important implications for social life given the amount of indirect physical contact (shared use of objects) and direct physical contact (handshakes) people generally experience. Thus, the present research investigated psychological contagion via both types of interpersonal contact. It was hypothesized that indirect and direct physical contact with a moral transgressor would increase participants’ state guilt.

Since the existing literature has focused mainly on aversion to contagion events, the present research’s major contribution is that it measures actual guilt. Recall that Rozin et al. (1994) observed that people were disinclined to touch something that had been morally tainted. However, no research to date has shown that contact with such objects results in an actual experience of immorality (moral guilt). Therefore, this research represents the first empirical demonstration that moral contagion that occurs via direct or indirect physical contact with transgressors affects others’ personal moral emotions, which can be considered a kind of “moral transfer.”

Study 1

All participants were recruited from Loyola’s psychology department participant pool and received course credit for their efforts. Upon entering the experimental room, 54 participants (38 females, $M_{age} = 19.76$) were told that some students were recently caught stealing supplies out of the lab. However, in the contagion condition, participants received the added description that the transgressors were found previously sitting in the same chairs as the current participants. All participants then completed a “personality inventory,” which assessed state guilt, sadness, and anger, among other filler items, that measured how they were feeling “right at this moment” on a scale ranging from 1 (not at all) to 7 (very much) (Marschall, Sanftner, & Tangney, 1994). Fifteen items assessed state guilt (e.g., “I feel bad about something I have done” and “I feel like apologizing, confessing”), which were averaged into a single index (Cronbach’s $\alpha = .906$). Results showed that those who sat in the same chairs as the previous transgressors experienced significantly more guilt ($M = 2.82$, $SD = .66$, $n = 27$) than those in the control condition ($M = 2.28$, $SD = .77$, $n = 27$), $t(52) = -2.77$, $p = .008$, $d = .75$. To show discriminant validity, we performed separate t -tests on other negative emotions (sadness and anger), with results giving null effects, $p_s = ns$. These findings revealed that the perceived moral essence of the target was indeed contagious and thus physically transferable to participants, but only in the context of guilt and not other negative emotions, which suggests moral transfer.

Study 2

Study 1 found that perceived moral essences are indirectly contagious. To replicate and extend these findings to direct physical contact, 48 participants (32 females, $M_{age} = 20.15$) were randomly assigned to wear a rubber glove ($n = 26$) or simply look at a glove ($n = 22$) while they evaluated it for an ostensible consumer rating study. The glove manipulation was used to provide a physical barrier between participants’ skin and an unethical individual to be described momentarily. While participants were wearing their gloves (or not) during the consumer rating portion of the study, a confederate entered the room and introduced himself as running for student government. He apologized for interrupting the session and proceeded to shake everyone’s hand in the room as he asked for their support for his candidacy. After the candidate left the room, a second confederate (the research assistant who was helping the experimenter administer materials) explained to the participants that this student was known to cheat on his exams, plagiarize his essays, and lie to both faculty and students to enhance his credentials.

All participants then completed the same personality inventory as in Study 1 but with an added measure of disgust sensitivity (Haidt, McCauley, & Rozin, 1994, modified by Olatunji et al., 2007), which we hypothesized to be a potential underlying mechanism of contagion. To this end, recent research has shown that high disgust-sensitive individuals are better at detecting physical impurity low disgust-sensitive individuals (Sherman, Haidt, & Clore, 2012), and hence we predicted that high disgust-sensitive participants would be more likely to experience psychological contagion effects than low disgust-sensitive participants.

We regressed state guilt on one categorical predictor (glove vs. bare hand), one continuous predictor (disgust sensitivity), and their interaction. Using a two-step model that first tests the two main effects and then adds the interaction term in the second step, results revealed a main effect of the glove/hand condition ($b = 1.076$, $SE = .170$, $p < .001$) and, more critically, an interaction ($b = .634$, $SE = .222$, $p = .006$, see Fig. 1), indicating that the relationship between the glove/hand condition and state guilt depended on one’s disgust sensitivity. Second, we tested the simple slopes between high- and low-disgust participants (see Aiken & West, 1991). Results showed that while the low-disgust participants showed the effect ($b = .301$, $SE = .115$, $p = .012$), it was stronger in high-disgust participants

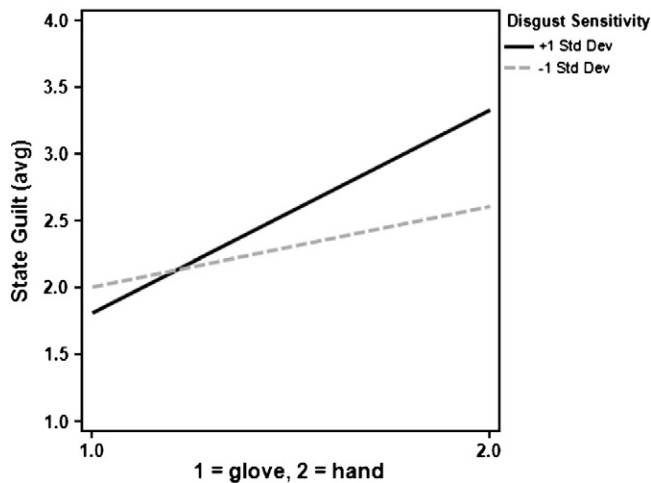


Fig. 1. Participants' mean state guilt scores as a function of the glove/hand manipulation (categorical) and mean-centered disgust sensitivity (continuous).

($b = .757, SE = .110, p < .001$), thus further confirming the hypothesis that disgust sensitivity moderates contagion effects. As in Study 1, there was no effect of the manipulation (or disgust sensitivity) on other negatively valenced emotions (sadness and anger gave $p_s = ns$).

Discussion

Can a simple handshake transfer one person's perceived moral essence to another? The present research aimed to make a few significant contributions by 1) going beyond contagion aversion assessments and actually measuring the extent to which coming into contact with a morally tainted person affects people's own immorality (i.e., felt guilt); 2) investigating whether such moral transfers can causally occur through indirect and direct interpersonal contact; and 3) observing the degree to which disgust sensitivity governs such moral transfer effects. Findings from two studies revealed that while moral essences can be transmitted both indirectly (via chairs) and directly (via handshakes), it also depends on recipients' disgust sensitivity, with high disgust sensitivity predicting enhanced psychological contagion. Disgust sensitivity might therefore be an important underlying mechanism of psychological contagion, particularly in contamination events.

There are many implications for daily life, with the results suggesting that incidental physical contact with others can transmit their perceived essences and shape people's own self-perceptions and felt emotions. Going beyond moral events, contagion also has important implication for consumer research. For example, Argo, Dahl, and Morales (2006) found that participants liked products less when they were believed to have been touched by other shoppers. In particular, the more physical contact, and hence contamination, the product was believed to have (a shirt on a shopping rack – i.e., relatively untouched – compared to a shirt in a dressing room – i.e., touched), the less likely participants were to buy it. These results are in line with previous findings that participants refuse products that even suggest contamination, yet they are unable to explain why (Rozin et al., 1986).

However, this research is not without its limitations. Due to the especially heavy-handed, staged nature of the cover stories, we must acknowledge the possibility that demand characteristics played a role. Although it seems unlikely that demand characteristics would bias participants' responses in the direction reported here, it is worth noting that these effects should be replicated in less contrived settings. We also did not directly assess participants' disgust responses, and it would have been conceptually motivated, interesting, and informative to demonstrate that indirect and direct contact with moral transgressors increased participants' experienced disgust. However, other

studies speak to this kind of effect. For example, Eskine, Kaciniak, and Webster (2012) observed that after reading about moral vice, moral virtue, or a control event, participants perceived the same beverage to be disgusting, delicious, or neutral tasting, respectively. In a similar vein, Ritter and Preston (2011) showed that Christians were significantly more likely to rate a neutral tasting beverage (a solution of lemon water) as disgusting after copying a passage from Richard Dawkins' *The God Delusion* or the Qur'an when compared to a control text. However, in another study, the effect was removed by directing participants who processed rejected religious beliefs to subsequently wash their hands. Together, these results indicate that processing moral transgressions increases contamination and physical disgust and further corroborates evidence of moral purity metaphors found elsewhere (Schnall et al., 2008; Zhong & Liljenquist, 2006), which were suggested by Rozin and colleagues' earlier works (Rozin & Nemeroff, 1990; Rozin et al., 1986) as well as by conceptual metaphor theory (Lakoff & Johnson, 1980).

While the present studies inform our understanding of psychological contagion, they also suggest additional lines of research. For example, to what extent does this physical transference also affect the source domain? Would a transgressor feel less guilty about their own moral indiscretions after coming into physical contact with others? If essences are as physical as Rozin and Nemeroff (1990) originally suggested, then continued physical contact should *de jure* degrade the purity of the essence in the source domain. Future research should also explore the extent to which (perceived) positively valenced essences can be also passed between people and objects (e.g., shaking hands with a religious figure might relieve guilt). While some research indicates that positive emotional states like happiness are quite contagious (Fowler & Christakis, 2008), Rozin and Royzman (2001) offered several principled arguments indicating a "negativity bias" in contagion. However, there are some documented instances of positive transfer in the domains of gambling and luck (e.g., Wohl & Enzle, 2002; Xu, Zwick, & Schwarz, 2011). To date, no research has explicitly investigated the (potential) contrast effects of positive and negative states in contagion in the context of multiple contagion encounters and "net contagion effects," so to speak, which might better mirror daily interactions and reveal the temporal nature of contagion in more complex social systems in which good and evil are juxtaposed with each other.

Acknowledgments

The authors are grateful to Jim Sherman, Paul Rozin, Yoel Inbar, Janet Ruscher, Lysann Zander, Charles Nichols, Nick Holtzman, and two anonymous reviewers for their thoughtful feedback on this article.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Albas, D., & Albas, C. (1989). Modern magic: The case of examinations. *The Sociological Quarterly*, 30, 603–613.
- Argo, J. J., Dahl, D. W., & Morales, A. C. (2006). Consumer contamination: How consumers react to products touched by others. *Journal of Marketing*, 70, 81–94.
- Chapman, H. A., Kim, D. A., Susskind, J. M., & Anderson, A. K. (2009). In bad taste: Evidence for the oral origins of moral disgust. *Science*, 323, 1222–1226.
- Eskine, K. J., Kaciniak, N. A., & Prinz, J. J. (2011). A bad taste in the mouth: Gustatory disgust influences moral judgment. *Psychological Science*, 22, 295–299.
- Eskine, K. J., Kaciniak, N. A., & Webster, G. D. (2012). The bitter truth about morality: Virtue, not vice, makes a bland beverage taste nice. *PLoS One*, 7(7), e41159. <http://dx.doi.org/10.1371/journal.pone.0041159>.
- Fowler, J. H., & Christakis, N. A. (2008). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years in the Framingham Heart Study. *British Medical Journal*, 337, a2338.
- Haidt, J., McCauley, C., & Rozin, P. (1994). Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. *Personality and Individual Differences*, 16, 701–713.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.
- Lee, S. W. S., & Schwarz, N. (2010). Dirty hands and dirty mouths: Embodiment of the moral-purity metaphor is specific to the motor modality involved in moral transgression. *Psychological Science*, 21, 1423–1425.

- Marschall, D., Sanftner, J., & Tangney, J. P. (1994). *The state shame and guilt scale*. Fairfax, VA: George Mason University.
- Nemeroff, C., Brinkman, A., & Woodward, C. (1994). Magical cognitions about AIDS in a college population. *AIDS Education and Prevention*, 6, 249–265.
- Nemeroff, C., & Rozin, P. (1994). The contagion concept in adult thinking in the United States: Transmission of germs and of interpersonal influence. *Ethos*, 22, 158–186.
- Olatunji, B. O., Williams, N. L., Tolin, D. F., Sawchuck, C. N., Abramowitz, J. S., Lohr, J. M., et al. (2007). The disgust scale: Item analysis, factor structure, and suggestions for refinement. *Psychological Assessment*, 19, 281–297.
- Ritter, R. S., & Preston, J. L. (2011). Gross gods and icky atheism: Disgust responses to rejected religious beliefs. *Journal of Experimental Social Psychology*, 47, 1225–1230.
- Rozin, P., Markwith, M., & McCauley, C. R. (1994). Sensitivity to indirect contacts with other persons: AIDS aversion as a composite of aversion to strangers, infection, moral taint and misfortune. *Journal of Abnormal Psychology*, 103, 495–504.
- Rozin, P., Markwith, M., & Nemeroff, C. (1992). Magical contagion beliefs and fear of AIDS. *Journal of Applied Social Psychology*, 22, 1081–1092.
- Rozin, P., Millman, L., & Nemeroff, C. (1986). Operation of the laws of sympathetic magic in disgust and other domains. *Journal of Personality and Social Psychology*, 50, 703–712.
- Rozin, P., & Nemeroff, C. J. (1990). The laws of sympathetic magic: A psychological analysis of similarity and contagion. In J. Stigler, G. Herdt, & R. A. Shweder (Eds.), *Cultural psychology: Essays on comparative human development* (pp. 205–232). Cambridge, England: Cambridge.
- Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5, 296–320.
- Rushowy, K. (January 3). Students use “magic” to get through exams: They use everything from lucky pens to prayer to deal with all that stress. *Edmonton Journal*, C5.
- Schnall, S., Benton, J., & Harvey, S. (2008). With a clean conscience: Cleanliness reduces the severity of moral judgments. *Psychological Science*, 19, 1219–1222.
- Sherman, G. D., Haidt, J., & Clore, G. L. (2012). The faintest speck of dirt: Disgust enhances the detection of impurity. *Psychological Science*, 23, 1506–1514.
- Wohl, M. J. A., & Enzle, M. E. (2002). The deployment of personal luck: Sympathetic magic and illusory control in games of pure chance. *Personality and Social Psychology Bulletin*, 28, 1388–1397.
- Xu, A. J., Zwick, R., & Schwarz, N. (2011). Washing away your (good or bad) luck: Physical cleansing affects risk-taking behavior. *Journal of Experimental Psychology. General*, 141, 26–30.
- Zhong, C. -B., & Liljenquist, K. (2006). Washing away your sins: Threatened morality and physical cleansing. *Science*, 313, 1451–1452.
- Zhong, C. -B., Strejcek, B., & Sivanathan, N. (2010). A clean self can render harsh moral judgment. *Journal of Experimental Social Psychology*, 46, 859–862.