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Disgust Sensitivity Predicts Intuitive Disapproval of Gays

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Two studies demonstrate that a dispositional proneness to disgust ("disgust sensitivity") is associated with intuitive disapproval of gay people. Study 1 was based on previous research showing that people are more likely to describe a behavior as intentional when they see it as morally wrong (see Knobe, 2006, for a review). As predicted, the more disgust sensitive participants were, the more likely they were to describe an agent whose behavior had the side effect of causing gay men to kiss in public as having *intentionally* encouraged gay men to kiss publicly—even though most participants did not explicitly think it wrong to encourage gay men to kiss in public. No such effect occurred when subjects were asked about heterosexual kissing. Study 2 used the Implicit Association Test (IAT; Nosek, Banaji, & Greenwald, 2006) as a dependent measure. The more disgust sensitive participants were, the more they showed unfavorable automatic associations with gay people as opposed to heterosexuals.

Keywords: disgust, disgust sensitivity, moral judgment, homosexuality

> Throughout history, certain disgust properties—sliminess, bad smell, stickiness, decay, foulness—have repeatedly and monotonously been associated with, indeed projected onto, groups by reference to whom privileged groups seek to define their superior human status. Jews, women, homosexuals, untouchables, lower-class people—all of these are imagined as tainted by the dirt of the body.
>
> ——Martha Nussbaum, 2001, p. 347

Disgust is a peculiar emotion. It is readily elicited by a simple smell, sound, sight, or even word: The mere thought of disgust elicitors such as maggots, pus, or putrid meat can turn one's stomach. Although disgust may have evolved to discourage us from ingesting noxious or dangerous substances (Rozin, Haidt, & McCauley, 2000), the emotion has also come to play a powerful role in shaping moral perceptions of specific groups and acts (Bloom, 2004; Hodson & Costello, 2007; Miller, 1997; Nussbaum, 2001). That is, in addition to arising as a consequence of certain moral violations (Rozin, Lowery, Imada, & Haidt, 1999), there is increasing evidence that disgust exerts a causal influence on moral judgments, leading us to be particularly harsh in our moral evaluations. For instance, participants who were hypnotized to feel a flash of disgust while reading descriptions of a mildly immoral behavior rated the behavior as more immoral than did participants who were not disgusted (Wheatley & Haidt, 2005). Similarly, participants making moral judgments at a messy, disgusting desk were more inclined to regard behaviors as morally wrong than those making the same judgments at a clean desk (Schnall, Haidt, Clore, & Jordan, 2008).

It is not surprising, then, that disgust would be effective in persuading people to morally condemn specific individuals or groups. Indeed, as Nussbaum (2001) points out, disgust has historically been associated with outgroups perceived as dangerous or deviant. In particular, Nussbaum notes that one of the most frequent targets in the rhetoric of disgust has been homosexuality. This claim has been borne out by a substantial body of research showing that negative attitudes toward gays are often associated with feelings of disgust (Herek, 1993).

Disgust is thought to be especially important in shaping what have been called *moral intuitions*—moral judgments that arise from psychological processes that are not fully accessible to consciousness. For instance, most people disapprove of consensual adult incest between siblings but are unable to articulate why—they just feel that it is wrong (Haidt, 2001). As opposed to moral reasoning, which is based on conscious deliberation and is often derived from the application of norms or principles, moral intuitions are fast and effortless and are motivated by emotional responses (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Haidt, 2001) or learned associations (Greenwald & Banaji, 1995).

In light of the importance of disgust in intuitive moral judgments generally, and in moral condemnation of gay people in particular, the question arises whether dispositional proneness to experience disgust is associated with negative intuitive moral judgments of gay people. That is, might the disgust sensitive—those people who experience disgust frequently and readily—also intuitively judge homosexuality to be immoral, even if they do not explicitly endorse a view of homosexuality as morally wrong?

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To address this question, we conducted two studies examining the relationship between disgust sensitivity and intuitive evaluations of gay people. In Study 1, we measured people's intuitive moral evaluations of gay people using a novel measure that obscured the fact that a moral evaluation was being made. We expected that while individuals would not make negative explicit moral judgments about gay people, this measure would reveal intuitive disapproval of gay people. Furthermore, we expected that this intuitive disapproval of gay people would be especially strong in individuals who had a greater propensity to experience disgust. Study 2 explored this same issue using a more conventional implicit measure—the Implicit Association Test (IAT).

Study 1

Study 1 utilized a phenomenon first noted by Knobe (2003)—that people are more inclined to say that a behavior was performed intentionally when they regard that behavior as morally wrong (Leslie, Knobe, & Cohen, 2006; Nadelhoffer, 2006; Young, Cushman, Adolphs, Tranel, & Hauser, 2006; see Knobe, 2006, for a review). We constructed a vignette describing an action—encouraging gay men to kiss in public—that we expected liberal North American college students would not explicitly judge to be morally wrong, but which they might nonetheless find objectionable on an intuitive level. We predicted that judgments regarding the intentionality of the acts would serve as an index of this intuitive judgment, especially because judgments of intentionality are not normally perceived as condemnatory. In particular, we predicted that participants highly sensitive to disgust would be especially likely to exhibit implicit disapproval of this behavior, finding it to be more intentional than participants low in disgust sensitivity.

To measure differences in sensitivity to disgust, we used the eight-item short form of the Disgust Sensitivity Scale (DSS; Haidt, McCauley, & Rozin, 1994). The DSS assesses sensitivity to disgust in four domains: core disgust (e.g., feces, rotting meat, bodily secretions); body envelope violations (e.g., blood and gore); death (e.g., corpses); and unusual sexual practices (e.g., incest, zoophilia). Previous research has demonstrated that DSS scores are stable over time and that they predict people's willingness to perform actual disgusting actions (Rozin, Haidt, McCauley, Dunlop, & Ashmore, 1999). As our dependent measure involved moral evaluations of a sexual practice that some might consider "unusual" (i.e., gay kissing), we removed the two items dealing with unusual sexual practices, though neither of them were related to homosexuality.[1]

Method

We tested 44 undergraduates (30 women; ages 18–33 years) at the University of California, Irvine. Participants completed our questionnaire as part of their participation in two mass testing sessions. Half of the participants read our "gay kissing" scenario, in which a director makes a music video that has the effect of encouraging French-kissing in public among gay men. The other 22 participants read a control scenario, which described a director who makes a music video encouraging French kissing in public among couples. (The scenario did not explicitly describe them as heterosexual, but we expected that participants would make this assumption.[2]) In both cases, these effects were described as side effects—the director knew about the effect, but this was not the primary goal of his behavior.

Immediately following the vignette, all subjects were asked the following questions: (1) Did the director intentionally encourage homosexual men [couples] to French kiss in public? (1 = *not at all*, 7 = *definitely*); (2) Is there anything wrong with homosexual men [couples] French kissing in public? (circle: yes or no); (3) Was it wrong of the director to make a video that he knew would encourage homosexual men [couples] to French kiss in public? (1 = *not at all,* 7 = *definitely*). All subjects received the questions in this same order.

Subjects then completed the short-form disgust sensitivity scale (Haidt et al., 1994). The six items unrelated to sexual practices were averaged to form a disgust sensitivity index (Cronbach's $\alpha = .62$).

Results and Discussion

Gender. Men were less disgust sensitive than women, $M_{men} = 14.50$, $M_{women} = 17.97$, $t(42) = 3.34$, $p < .01$, and thus the following analyses include gender as a covariate. There were no interactions involving gender in any analysis.

Explicit moral judgments. The majority of participants (73%) responded that there was nothing wrong with gay men French kissing in public, exceeding the percentage of participants (55%) who said that there was nothing wrong with straight couples French kissing in public, although these percentages did not differ significantly, $\chi^2(1, N = 42) = 1.57$, *ns*.[3] When participants were asked to rate the wrongness of the director's making a video that encouraged this behavior, there was no significant difference between explicit judgments of wrongness in the heterosexual condition ($M = 2.91$) and in the gay kissing condition ($M = 2.68$), and the means in both conditions were well below the scale midpoint of 4, both ts > 3, ps $< .01$.

In addition, regression analyses showed that condition, disgust sensitivity, and their interaction predicted neither dichotomous judgments of whether the described behavior was wrong nor ratings of the wrongness of the director's action (all ps $> .20$).

Intuitive judgments. To test the hypothesis that individuals who are sensitive to disgust would be especially likely to intuitively condemn public gay kissing, thus reporting the director's action as more intentional, we regressed intentionality judgments on condition, disgust sensitivity, and their interaction. Indeed, participants viewed the director's action as more intentional when he encouraged public gay kissing ($M = 4.36$) than when he encouraged public straight kissing ($M = 2.91$), $\beta = .41$, $t(39) = 3.39$, $p < .01$.

[1] Results were nearly identical with these two items included. Specifically, all statistically significant results remained significant with the full eight-item scale.

[2] All participants also read two other scenarios that were not relevant to the research reported here. These will not be discussed further.

[3] It is surprising that so high a percentage of participants saw public French kissing between straight couples as wrong. This may reflect poor phrasing of the question—one might say that there's "something wrong" with public French kissing (e.g., because it's rude or tacky) without viewing it as morally wrong.

Disgust sensitivity. There was a main effect of disgust sensitivity on intentionality judgments: participants high in disgust sensitivity saw the director's actions as more intentional, $\beta = .29$, $t(39) = 2.07$, $p < .05$. However, as predicted, this effect was qualified by a Disgust sensitivity × Condition interaction, $\beta = .37$, $t(39) = 3.06$, $p < .01$. Specifically, in the gay kissing condition, disgust sensitivity was associated with stronger judgments of intentionality, $\beta = .79$, $t(19) = 4.49$, $p < .001$, while in the control condition, disgust sensitivity did not predict intentionality judgments, $\beta = -.20$, $t(19) = -.88$, *ns* (see Figure 1).

In sum, we find that disgust sensitivity predicts implicit moral responses to male-male sexual contact—as measured through intentionality judgments—though it does not predict explicit responses. As well as demonstrating the relationship between disgust sensitivity and intuitive moral condemnation of gays, the present study is the first to use intentionality judgments as a measure of intuitive moral judgments. Future work might use this measure to further investigate the relationship between intuitive and reasoned moral judgments.

Study 2

Study 1 demonstrated a relationship between disgust sensitivity and intuitive condemnation of gays using a measure that, though widely used, is novel as a measure of intuitive moral judgments. Thus, we thought it important to conceptually replicate Study 1 using a more extensively validated dependent measure. The Implicit Association Test, or IAT, is a computer task in which participants are asked to pair exemplars from one of two target categories (e.g., gay and straight) with strongly positively or negatively valenced words (e.g., wonderful and horrible). To the extent that a participant is quicker to pair gay with horrible and straight with wonderful, he or she can be said to have a negative implicit association with the concept of gay as opposed to straight. The IAT has been employed to assess implicit positive and negative associations with a large variety of concepts and groups, including gay people (Banse, Seise, & Zerbes, 2001; Gabriel, Banse, & Hug, 2007).

Accordingly, in this study we employed a version of the IAT designed to measure participants' implicit associations with gay people as compared to heterosexuals (Nosek et al., 2006). We predicted that, just as in Study 1, participants would show intuitive disapproval of gays, and that this would be especially true of those participants who were more sensitive to disgust.

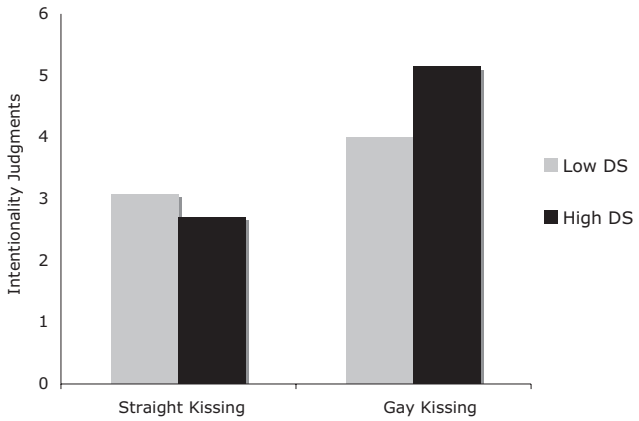

Figure 1. Judgments of director's intentionality by condition; participants are classified as high or low in disgust sensitivity (DS) by median split.

Method

Eighty-two Cornell students (52 women; ages 18–45 years) participated in exchange for course credit or $3 cash. Participants completed the IAT and Disgust Sensitivity Scale in counterbalanced order. In an effort to increase reliability, we used the full 32-item Disgust Sensitivity Scale, version 2 (Haidt, 2004). As before, we removed those items referring to sexual practices, even though none of them were related to homosexuality. The reliability of the resulting 24-item scale was acceptable ($\alpha = .71$).[4] Participants also completed several unrelated measures, which will not be discussed further here.

IAT materials and design. Materials consisted of a set of images representing the categories "gay" and "straight" obtained from the Project Implicit Web site (Nosek et al., 2006). These were four pictures of same-sex and opposite-sex couples (two different opposite-sex couples, one male-male couple, and one female-female couple); three "bathroom sign" style pictograms depicting two men, two women, or a man and a woman; two "male signs" together, two "female signs" together, and a "male sign" and a "female sign" together; and four "cake topper" wedding figures (two different opposite sex couples, one male-male couple, and one female-female couple). Stimuli also included the words "gay," "lesbian," "straight," and "homosexual." The categories "pleasant" and "unpleasant" were represented by eight positive words (e.g., "wonderful") and eight negative words (e.g., "horrible").

The IAT consisted of five practice blocks and two critical blocks. In the first practice block, participants used two response keys to sort stimuli representing gay and straight people into the categories "straight people" and "gay people," in the second they used the same two keys to sort valenced words as "pleasant" or "unpleasant," and in the third practice block they used the two keys to sort stimuli representing gay and straight people and valenced words simultaneously. Half of participants were told to categorize the concepts "gay" and "pleasant" together using one key and the concepts "straight" and "unpleasant" together using the other, and the other half were told the reverse. Immediately after the third practice block, participants encountered the first critical block, which was identical to the practice block they had just completed except for being longer (40 trials vs. 24). Following the first critical block, key assignments were changed such that the key previously used to indicate the category gay people now indicated straight people and vice versa. Participants were given one practice block in which they sorted stimuli representing gay and straight people in order to learn the new key assignments, and then a final practice block in which they simultaneously sorted valenced words and stimuli representing gay and straight people, in the opposite combination as before (e.g., if a participant had previously been told to use one key to categorize "gay people" and

[4] Results were nearly identical using the full 32-item scale.

"pleasant" together, he or she was now told to use one key to categorize "gay people" and "unpleasant" together). This final practice block was followed immediately by the second critical block, which was identical except for being longer (40 trials).

Results

Gender. Men were less disgust sensitive than women (M_{men} = 48.60, M_{women} = 59.49, $t(80) = 4.79$, $p < .0001$, and thus, the main analysis included gender as a covariate. There were no interactions involving gender.

Sexual orientation. Participants were asked to indicate their sexual orientation by selecting from "Straight," "Gay," "Bisexual," and "Other/Decline to State." Two participants identified as gay, two as bisexual, and two as "other." Although results did not differ significantly if these participants were omitted, we chose to include all participants in the analyses reported below.

Implicit evaluations of homosexuals. IAT scores were computed as recommended by Greenwald, Nosek, and Banaji (2003) to produce an IAT D score for each participant; higher IAT D scores indicate more favorable implicit evaluations of gay people relative to straight people.[5] Overall, participants implicitly evaluated gay people negatively compared to straight people, as indicated by a mean IAT D score which was significantly below zero, $M_{IAT\ D} = -.37$, $t(81) = -7.85$, $p < .0001$. This was especially true for participants who were particularly sensitive to disgust: Regressing IAT D scores on disgust sensitivity showed that the more disgust sensitive participants were, the less favorably they implicitly evaluated gay people, $\beta = -.30$, $t(79) = -2.44$, $p < .01$.

Discussion

Across two studies (and using two different methods to test moral intuitions), we demonstrated that individuals high in disgust sensitivity showed more negative intuitive moral evaluations of gay people and same-gender sexual behavior.

Of note, in Study 1, when participants were explicitly asked about the moral wrongness of encouraging gay kissing in public, their moral judgments were unrelated to their sensitivity to disgust, indicating a dissociation between "intuitive" judgments and deliberative judgments that is consistent with recent dual process accounts of moral judgment (Greene et al., 2001), as well as dual process accounts of social attitudes more generally (Devine, 1989). That is, although individuals may at some level evaluate these practices as "wrong," they are able to consciously override these intuitions when asked to make an explicit judgment.

But why are intuitive moral evaluations of gays more negative in those individuals prone to experiencing disgust? For one, we know that feeling disgust can lead to harsher judgments across a variety of moral domains (Wheatley & Haidt, 2005; Schnall, Haidt, Clore, & Jordan, 2008). Chronically experiencing disgust may simply do the same thing— it may make individuals chronically harsh moral judges. However, this still does not explain the specific link between intuitive attitudes toward gays and disgust sensitivity.

One possible explanation may lie in the role that disgust has played in the perceptions of outgroups that are seen as violating cultural norms, especially norms related to food preparation, cleanliness, and sexual behavior. Schaller and colleagues (Faulkner, Schaller, Park, & Duncan, 2004; Park, Faulkner, & Schaller, 2003; Schaller & Duncan, 2007) have argued that over the course of human evolution, people developed a "behavioral immune system" that functioned to shield them from exposure to novel pathogens or parasites. Individuals belonging to unfamiliar groups, especially those who engaged in unusual practices regarding food, cleanliness, and sex, posed a higher risk of carrying novel (and therefore particularly dangerous) infectious agents. Perceiving such individuals would thus activate the behavioral immune system and cause avoidance behavior and the accompanying emotion of disgust. It is important to note that this argument does not assume that all or even most of these outgroups actually did pose a risk of infection. But because risks of failing to detect a contagious individual (serious illness and possibly premature death) greatly outweighed the cost of wrongly identifying a harmless individual as contagious, one would expect the behavioral immune system to display hypervigilance (Schaller & Duncan, 2007). This hypervigilance may be especially acute in those individuals who are especially sensitive to disgust, the emotion that drives the behavioral avoidance system. Because gay people almost by definition engage in "unusual" sexual behavior, one would expect more negative reactions to this outgroup on the part of those who are particularly disgust sensitive.

It also makes good sense that a "bias" in the tendency to experience an emotion would affect intuitive moral judgments more powerfully than explicit moral judgments (as evidenced by the dissociation observed in Study 1). This is consistent with the prevailing view that implicit attitudes are affectively based, and (at least sometimes) subject to effortful correction (Gawronski & Bodenhausen, 2006). Of course, individuals need not correct for their moral intuitions. In fact, in more politically conservative individuals, disgust sensitivity appears to be related to a willingness to explicitly endorse anti-gay attitudes (Inbar, Pizarro, & Bloom, in press). It so happens that our fairly liberal sample of college students may be strongly motivated to reject initial intuitive judgments in certain domains because of a conflict with their conscious views on egalitarianism.

The results reported here do not allow us to examine whether disgust sensitivity might be more strongly related to negative implicit attitudes toward gay men as opposed to lesbians (or vice versa), and future research should investigate this possibility. However, the current results do point to a more general conclusion—that the content of our moral intuitions is related to an emotional tendency that differs reliably across individuals. That these intuitive moral notions are related to stable emotional differences may shed light on the nature of the development of moral beliefs, and perhaps more importantly, shed light on the foundations of moral disagreement.

[5] Following the recommendation of Greenwald, Nosek, and Banaji (2003), this D score includes trials from practice pairing blocks (blocks 3 and 6), as well as critical blocks (blocks 4 and 7).

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