

# **Just Because it's Disgusting *Does* Make it More Wrong: Level of Disgust Affects Moral Judgment**

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Three experiments were conducted to investigate the impact of affect on moral judgment. Participants read stories describing morally questionable actions and made judgments of wrongness. Judgments were affected by morally irrelevant disgust, and the effect was moderated by individual differences in disgust sensitivity and preferred processing mode. More specifically, the effect was stronger for participants high in disgust sensitivity, particularly when low in self-reported use of systematic reasoning. Furthermore, the effect was stronger for participants high in use of intuition. As opposed to the usual focus in moral psychology on reasoning and its causal role for moral judgment, the findings are interpreted in terms of a dual process framework and the importance of individual difference variables in moral judgment research is emphasized.

*Key words:* Moral judgment, intuition, disgust, affect, cognition

As a consequence of the entire field following the lead of Lawrence Kohlberg's (e.g. 1984) pioneering cognitive-developmental paradigm, with its emphasis on how people solve hypothetical dilemmas concerning justice-related issues, most research in moral psychology has been concerned with the development of moral reasoning. In much of this research people are portrayed as explicitly weighing issues of harm and justice in order to come to a conclusion regarding the moral status of an action or a person. Emotions are considered to be capable of affecting the way we reason, but not to affect moral judgments directly. However, this perspective has been challenged recently. For example, in Haidt's (2001) social

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intuitionist model judgment and reasoning are seen as two separate processes, where judgment (based on intuition) generally comes first and reasoning provides a post-hoc justification of it. In one study testing the model (Haidt, Björklund, & Murphy, 2004) it was hypothesized that if intuition determines moral judgment people will trust their gut feelings even when they lack supporting reasons. This was indeed found to be the case. When asked to make moral judgments of scenarios describing taboo-related behavior such as incest but where nobody was harmed in any way (consensual, two forms of birth control) most participants made strongly condemning judgments. But when asked to justify their judgments to an experimenter that challenged every argument, participants dropped most arguments they put forward, frequently made unsupported declarations (“it’s just wrong!”), and admitted to not being able to find reasons for their judgments in spite of having a strong feeling that their judgment was correct. Apparently moral judgments can be held in the absence of reasoning. Rather they may be based on moral intuitions, defined as the quick and automatic evaluation of an act or a person that results in the sudden appearance in consciousness of a moral judgment, without any conscious awareness of having gone through steps of searching, weighing evidence, or making inferences.

But in order to show that intuition plays a causal role in moral judgment, experimental manipulation is required. Basically, judgment strength should vary as a consequence of the strength of the underlying intuition, so that an increase in intuition strength leads to a strengthening of the subsequent judgment. This should hold true even if the cause of the increased strength is morally irrelevant. In fact, the current study uses morally irrelevant affect as a means of increasing intuition strength. This idea may not be as awkward as it first seems. For research concerning the affect-as-information hypothesis (e.g. Clore, Gasper, & Garvin, 2001) shows that in some cases in life we may experience a particular feeling but have little or no idea about what caused us to have it, and that such feelings are used as information in the forming of judgments concerning unrelated issues. It may be argued that if such a feeling is attributed to a morally relevant act, it constitutes an implicit evaluation of the act and may be called a moral intuition. The feeling is then a basis for a moral judgment, even though the actual cause of it is morally irrelevant. So in cases like this feeling is used as a piece of information in the moral evaluation of a situation, and we run the risk of making different moral judgments of the same situation depending on how we happen to feel at the moment.

If people rely primarily on systematic reasoning when making moral judgments, irrelevant affect should have little influence on the judgment. The irrelevant feelings should

be discounted from the judgment. But if intuition drives moral judgment such affect may very well influence the judgment, in the direction of the valence of the feeling. A negative affective state, such as feeling disgusted, should lead to more harsh moral judgments.

## Experiment 1

### *Method*

#### *Participants*

Participants were 62 volunteering university students, 32 women and 30 men.

#### *Materials and design*

The stimulus materials consisted of vignettes. Each vignette was written in two versions, one with a “plain ending” where the details were not highlighted and another with a “vivid ending” where the details were vividly described. Efforts were made to keep all other factors constant, so that the only thing that differed between the two versions was how vividly particular situational features were described. There were three different kinds of vignettes. The six “main vignettes” described situations where a moral norm was violated and where disgusting features were present, described more or less vividly depending on experimental condition (plain vs. vivid). It was predicted that vivid endings would lead to more condemning judgments.

An adult brother and sister were on vacation together in France. One evening, after sharing a bottle of wine, they began to kiss, and they found themselves in bed together. They were surprised to find that they enjoyed being physically intimate, and they continued to have sexual relations (while using two forms of birth control) for the remaining two weeks of their vacation.

*Plain ending:* They traveled all over France, beginning in Paris, and then West to Bretagne. But their favorite part of France was the South, the region that so many famous painters had immortalized.

*Vivid ending:* They used a variety of sexual positions, but their favorite was when the brother took the sister from behind. They also enjoyed kissing and making love in the shower, where they could see and touch all parts of each others’ naked bodies.

There were also two kinds of control vignettes. The two “non-disgusting” vignettes described a situation where a moral norm was violated but where no disgust-evoking features were present. For these vignettes the “plain” and “vivid” endings concerned the level of detail in the non-disgusting descriptions of the situation. The purpose was to see if vividness itself has an impact on moral judgment, regardless of disgust.

Jeff needed money, and he didn't want to get a boring job, so he decided to start shoplifting. He found a large electronics store and stole two portable CD players.

*Plain ending:* He found the store by looking through the yellow pages. There were several stores listed, so he took one that was in a neighborhood that he had been to a few times.

*Vivid ending:* He walked into the store carrying a large red shopping bag from another store. When nobody was looking, he pushed the CD players into his bag, and then continued browsing along the aisles.

In the second kind of control vignettes, “nonmoral” there was no moral norm involved at all. They were simply descriptions of situations where something disgusting happened, and the disgusting aspects were described in either a plain or a vivid fashion depending on experimental condition. There were two such vignettes and the purpose was to see whether disgust per se has an impact on moral judgment, regardless of whether there is something in the situation that is relevant to condemn or not.

Sally loved to try new foods, and she particularly liked to explore new ethnic restaurants. One day she took her best friend out to a new Malaysian restaurant with a very extensive menu. Her friend, who was not nearly so adventurous, ordered a dish similar to Chinese chicken fried rice. But Sally went right to the back of the menu and ordered a few things at random, even though she could not pronounce or understand what she was ordering. It turns out she ordered fried squid-eye.

*Plain ending:* Malaysian cuisine is extremely diverse, including many influences from China and from other countries in South-East Asia. Malaysian cuisine is generally quite spicy.

*Vivid ending:* A squid's eye is like a large black tennis ball full of jelly when raw, but when cooked the interior of the eyeball hardens to a rubbery consistency, and it must be cut with a sharp knife.

The vignettes were pretested in order to make sure that the “plain” and “vivid” versions actually differed in how disgusting they were to the participants. 40 university students were asked to rate on a Likert-scale ranging from 1 (*not disgusting at all*) to 7 (*extremely disgusting*) how disgusting the main vignettes were, in a between groups design where half of the participants got the vignettes with the plain ending and the other half the vignettes with the vivid ending. As expected the vignettes with the plain ending were rated as less disgusting than the ones with the vivid ending ( $M = 4.74$  vs.  $5.23$ ,  $t = -2.07$ ,  $p < .05$ ).

### *Procedure*

Participants were randomly assigned to either the vivid or the plain condition, and seated in front of Windows based PCs running SuperLab Pro software. They were instructed

to read the vignettes and make judgments concerning the main character's behavior using the scale presented at the bottom of the screen. They were also told to press the space bar on the computer keyboard every 10 seconds. Unbeknownst to the participants, this was a mental load for blocking their attempts to reflect on their judgments and discount the feelings of disgust.

Vignettes were presented one at a time on the computer screen. All vignettes were first rated for wrongness and then for the extent to which any harm was caused. Ratings were made on Likert scales ranging from 1 (*not at all wrong/harmful*) to 7 (*extremely wrong/harmful*). To avoid carryover effects vignettes were presented randomly within each rating block (wrongness/harm). The experiment ended with a funneled debriefing procedure (Bargh & Chartrand, 2000), serving the purpose of thorough debriefing but also enabling identification of participants that had figured out the purpose of the study. Based on the results of two independent raters' analyses of the responses, two female participants were excluded from further analysis since they had guessed the hypothesis behind the study.

### *Results*

As expected, the wrongness ratings for the main vignettes were higher in the vivid condition ( $M = 5.38$ ,  $SD = 0.99$ ) than in the plain condition ( $M = 4.84$ ,  $SD = 1.02$ ), a  $t$ -test for independent groups showing the difference to be significant  $t(58) = 2.05$ ,  $p < .05$ . Further  $t$ -tests on wrongness ratings revealed no difference between the vividness conditions for either the non-moral vignettes ( $M = 1.73$  vs.  $1.58$ ),  $t(58) = 0.57$ ,  $p = .57$  or the non-disgusting vignettes ( $M = 5.93$  vs.  $5.88$ ),  $t(58) = 0.15$ ,  $p = .88$ . In line with the expectations neither disgust vividness per se (no violation of a moral norm involved) nor vividness per se (a norm is violated but no disgust is involved) led to harsher moral judgments.

To check whether the effect of vividness on judged wrongness in the main vignettes could be due to differences in perceived harm, a  $t$ -test for independent groups on harm ratings was performed. No significant difference was found between the vivid ( $M = 4.01$ ,  $SD = 0.85$ ) and the plain ( $M = 3.89$ ,  $SD = 0.97$ ) condition,  $t(58) = 0.60$ ,  $p = .55$ .

Finally, a Pearson correlation of  $r = .04$  showed the mean strength of moral wrongness ratings to be unrelated to the mean time it took for participants to make the judgments (measured from when a vignette was presented on the computer screen to when a response was made). It had been expected that the response time measure would show a negative relationship with wrongness ratings, such that the stronger the condemnation the shorter the response time. Shorter response times can be taken to indicate a relative reliance on intuitive as opposed to systematic processing, which is considered to be more time-consuming.

## Experiment 2

Experiment 1 is inconclusive as to whether mental load is a necessary condition for the effect of disgust-vividness on moral judgment to occur. Therefore, a second experiment was run, this time with no mental load. Another shortcoming of Experiment 1 was the way response time was operationalized. A single response time measure included both the time it took for the participant to read a vignette and the time of coming to a judgment. In Experiment 2 attempts were made to make the response time measure more sensitive. Instead of measuring the time from the simultaneous presentation of a vignette and a judgment scale on the computer screen to the time a response was made, the presentation of the vignette was separated from the presentation of the judgment scale. Participants were presented with a vignette on the computer screen, pressed a key on the computer keyboard when finished reading, and were then immediately presented with the judgment scale in question. Thus, the response time was the time from the presentation of the judgment scale to the participant's response. In order for the separation of vignette reading and judgment making to be effective, the participant should not expect to be asked to make a moral judgment after reading each vignette. Knowing in advance that one is to make a moral judgment after reading may affect attention and information processing such that the judgment is made more or less immediately after the relevant information is presented. Therefore Experiment 2 included an additional set of vignettes where participants were asked to make judgments regarding whether what the protagonist did was irresponsible or unprofessional. When presented with a particular vignette participants did not know what kind of judgment they were going to be asked to make when finished reading.

The effect of disgust vividness on moral judgment from the previous experiment was expected to be replicated in Experiment 2. Furthermore Björklund and Hursti's (2004) Swedish version of the Disgust scale (Haidt, McCauley, & Rozin, 1994), an individual difference measure of disgust sensitivity, was included. It was predicted that participants rating themselves as high in disgust sensitivity would make stronger wrongness ratings than participants rating themselves as low in disgust sensitivity.

### *Method*

#### *Participants*

Participants were 77 volunteering university students, 43 women and 34 men.

### *Materials and design*

In addition to the vignettes from Experiment 1, which require a moral wrongness rating of the relevant action, there were six new vignettes describing actions that may elicit disgust and be judged as morally wrong but were followed by questions of how irresponsible or unprofessional they were. The responses to the latter type of vignette were not used in the analysis. Vignettes were presented one at a time on the computer screen, in a new randomized order for each participant.

### *Procedure*

Participants were randomly assigned to either the vivid or the plain condition. The basic procedure was the same as in the previous experiment, the three main differences being that there was no cognitive load, that participants were asked to press the “0” key to proceed to the judgment scale after having read a vignette, and that each vignette was rated only once (not for harmfulness this time). After the computerized presentation of the vignettes the Disgust scale and the funneled debriefing procedure from Experiment 1 were administered. Two independent raters analyzed the responses to the debriefing questions and concluded that no participants had to be excluded from the analysis.

### *Results*

A median split was made on the Disgust scale ratings so that two groups were formed, one with participants that had rated themselves as high in disgust sensitivity and another with participants that had rated themselves as low in disgust sensitivity. A 2 (disgust sensitivity: high vs. low) x 2 (vividness condition: vivid vs. plain) ANOVA revealed main effects for both disgust sensitivity  $F(1, 73) = 9.24, p < .01$ , and vividness condition  $F(1, 73) = 4.14, p < .05$ , but no significant interaction effect,  $F(1, 73) = 1.92, p < .17$ .

Table 1

*Mean wrongness ratings across disgust sensitivity group and vividness condition*

<i>Disgust sensitivity</i>	<i>Ending</i>	
	<i>Vivid</i>	<i>Plain</i>
High	6.56 (0.32)	5.98 (0.72)
Low	5.81 (0.76)	5.71 (0.99)

As can be seen in Table 1, both effects were in the predicted direction, with high disgust sensitivity and vivid descriptions leading to the strongest wrongness ratings.

Finally, a Pearson correlation analysis revealed a negative relationship between wrongness ratings and the improved measure of response time. Stronger wrongness ratings were made more quickly ( $r = -.31, p < .01$ ).

### Experiment 3

The effect of disgust sensitivity on moral judgment from Experiment 2 inspired to a closer look at the role of individual differences in Experiment 3. The purpose was to investigate the influence of disgust sensitivity and processing mode (intuition/reasoning) simultaneously, predicting people high in disgust sensitivity and low in self-reported use of reasoning to make the strongest moral judgments. Similarly, people high in self-reported use of intuition should make stronger moral judgments than those low in use of intuition, particularly when high in disgust sensitivity.

#### *Method*

##### *Participants*

Participants were 66 volunteering university students, 50 women and 16 men.

##### *Materials and procedure*

Only the vignettes with vivid disgust were used. Apparatus, instructions and debriefing were the same as in the previous experiments. After having made their moral judgments participants completed the Disgust scale and Pacini & Epstein's (1999) REI-40, a self-report measure of the use of reasoning and intuition (preference/ability for rationality and experientiality in Epstein's terminology). As in Epstein's previous research the rationality scale and the experientiality scale were orthogonal to one another ( $r = .02$ ).

#### *Results*

A 2 (reasoning: high vs. low) x 2 (disgust sensitivity: high vs. low) ANOVA on the wrongness ratings revealed no main effect of reasoning level  $F(1, 62) = 0.56, p = .46$ . As can be seen in Table 2 participants high in reasoning did not differ as an effect of their being high

or low in disgust sensitivity, whereas those low in reasoning showed a substantial difference, those high in disgust sensitivity making the strongest wrongness ratings.

Table 2

*Mean wrongness ratings across self-reported disgust sensitivity and processing mode*

<i>Processing mode</i>	<i>Disgust sensitivity</i>	
	High	Low
High reasoning	5.43 (0.87)	5.44 (0.94)
Low reasoning	6.07 (0.61)	5.14 (1.16)
High intuition	6.01 (0.72)	5.66 (0.94)
Low intuition	5.33 (0.81)	5.01 (1.03)

The role of self-reported use of intuition was analyzed in a 2 (intuition: high vs. low) x 2 (disgust sensitivity: high vs. low) ANOVA. In addition to the effect of disgust sensitivity there was a main effect of intuition  $F(1, 62) = 6.60, p < .05$ , wrongness means as expected being higher for the high group than the low group, but there was no interaction between intuition and disgust sensitivity  $F(1, 62) = 0.16, p = .69$ .

### General Discussion

The experiments presented here provided results that call into question models in which moral judgment is seen as solely produced by moral reasoning. Intuitions, here manipulated by disgust evoking descriptions of morally questionable actions, play a role too. Participants were presented with vignettes that described actions that were disgusting and involved breaking of norms, but where nobody was harmed. This caused participants to have intuitions that the actions were morally wrong, and the strength of the judgment was increased by means of the morally irrelevant disgust. Presumably this occurred with little or no awareness of the misattribution that led to the exaggerated wrongness judgment; the disgusting features affected the moral judgment implicitly. Therefore the judgment could not be corrected for the irrelevant disgust, as would have been the case if it were based solely on reasoning. The most obvious alternative explanations of the finding that level of disgust affects moral judgment, such as the confounding of disgust and perceived harm, were accounted for in the study.

However, this is not to say that the mechanisms of moral judgment are now properly understood. Intuition is notoriously difficult to operationalize and measure, and the current study relied on the fact that wrongness judgments were strengthened by irrelevant disgust and the fact that stronger judgments were made more quickly as markers of intuition. Furthermore, although the results of Experiment 2 indicate that it is not the case that a mental load or some other distraction is required for the effect of disgust on judgment to occur, it would have been more convincing if load was manipulated within instead of across experiments. But making the expected findings in such a study would not be sufficient, nor would in fact a study that increases systematic reasoning. For interestingly enough, making participants engage in systematic reasoning may not itself lead to discounting of irrelevant disgust. Whereas it may be predicted from standard dual-process models in social psychology that systematic reasoning leads to discounting of irrelevant affect, Haidt's social intuitionist model (2001) suggests that if a moral judgment has been based on intuition it is almost never altered unless explicitly challenged. Mere systematic reasoning will result in post-hoc justifications of the judgment but not alter it. These conflicting hypotheses could be tested in a simple experiment where participants are first asked make quick judgments of a set of vignettes of the type used in the current study, and are then asked to make judgments of the same vignettes again but with new instructions. For this second judgment task, half of the participants are instructed to reason as rationally and analytically as possible, whereas the other half is asked to consider whether somebody was harmed and if something is really wrong just because it's disgusting. If the standard dual-process perspective is correct, the new judgments will be more lenient for both groups. If the social intuitionist model is correct the new judgments will be more lenient only for the second group, since only their judgments are explicitly challenged.

It seems clear that the way we construe situations involving disgust and norm-violation may affect moral judgment intuitively. It is however less clear to what extent this finding applies to the moral domain in general. As yet, there is little knowledge concerning the antecedents of intuition and reasoning in moral judgment. Of course, the use of intuition or simple heuristics has some advantages to systematic reasoning, such as being quick and practically effortless. In fact, social cognitive research indicates that systematic reasoning is used only when people give an issue full consideration in terms of both attention and intention (Wegner & Bargh, 1998). This is likely to be the case in situations in where one is strongly motivated to make a good impression, be accurate, to defend an important attitude or value, or to preserve self-esteem (Chaiken, Liberman, & Eagly, 1989; Chen & Chaiken, 1999; Petty &

Cacioppo, 1986). But there are many situations in life where such motivations are not present and where intuition can be assumed to be the default processing mode, at least regarding issues where one has previous experience and where one does not have conflicting intuitions. But what exactly makes us experience an intuition? One way in which intuitions are thought to be elicited is by specific cues in the situation, providing automatic access to associated knowledge or affective reactions stored in memory (Sloman, 1996). Information that has been repeatedly linked to a cue in the past is automatically brought to mind whenever we perceive or think about it again, and may affect both judgment and behavior. Patterns of information are according to some theorists stored in a separate memory system that can learn entire sets of characteristics that co-occur frequently, and then retrieve or reconstruct them even when only parts are perceived (Schachter & Tulving, 1994). Since different contexts provide different cues, intuition should be context-sensitive.

But other research shows that processing mode is not simply a matter of the issue at hand. Situational circumstances such as time-pressure and factors that increase mental load may force us to rely on intuition (Smith & DeCoster, 1999). Systematic reasoning is more easily disrupted by distraction or interference than intuition is. In real life, the judgments we make when busy or distracted are therefore likely to have been processed intuitively or perhaps heuristically. If systematic reasoning requires motivation, it should be more likely to occur in situations with possible harmful consequences, such as moral dilemmas.

In addition to effects of situational circumstances and the issue at hand, there are individual differences in how moral judgments are made. As found in Experiment 3, people high in disgust sensitivity are prone to make strong moral judgments of disgusting norm violations, particularly if they are inclined to engage in intuition or disinclined to engage in systematic reasoning. So for a full understanding of how moral judgments are made at the level of the individual, differences in disgust sensitivity and processing mode should be taken into account. A similar claim can be made regarding research on moral judgment in general, where both intuition and reasoning should be studied rather than simply the latter, as has been the case to date.

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