

道徳的態度における個人差 —嫌悪感感受性と非帰結主義的態度的関係について—

Individual Differences in Moral Attitudes: Disgust-Sensitivity Predicts Non-Consequentialistic Responses

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ABSTRACT

日本の大学生237人に3つの道徳的側面（独裁的支配，絶対的忠誠，応報的罰）に基づく9つの教訓話を読ませ，道徳的に望ましい2つの結末（帰結主義の結末，非帰結主義の結末）について評定を求めた。参加者には自身の性格特性についても評定を求めた。認知スタイルや怒り易さではなく，嫌悪感感受性が3つの道徳的側面における非帰結主義的態度を有意に予測した。この結果は，嫌悪感感受性における個人差が，道徳的判断の厳しさだけでなく，非帰結主義的態度も予測することを示唆している。

237 Japanese university-students read nine moral stories based on three moral aspects (absolute rules, absolute loyalty and retributive punishment) and rated which of two endings (one typically consequentialistic and one typically non-consequentialistic) they believed to be morally preferable. Participants also rated themselves on several personality-variables. Disgust-sensitivity, but not cognitive style or anger proneness, significantly predicted non-consequentialistic attitudes in all three aspects. The results suggest that individual differences in disgust-sensitivity not only predict the severity of moral judgments, but also the amount of non-consequentialistic attitudes.

1. Introduction

This study aims to unite two separate branches of contemporary moral psychology. The first branch concerns the distinction between consequentialistic and non-consequentialistic moral judgments. People's attitudes when faced with consequentialistic and non-consequentialistic moral dilemmas change depending on the context. Even subtle situational changes can shift people's moral attitudes from very consequentialistic to very non-consequentialistic. The second branch is the relation between moral attitudes and individual differences. Some rather stable personality traits have been linked to specific moral tendencies and political orientations. In this study, I merge these two branches and investigate if there are any consistent patterns between personality traits and consequentialistic attitudes.

1.1 Consequentialistic & Non-consequentialistic moral attitudes

In this article, moral attitudes are classified as either consequentialistic or non-consequentialistic. Philosophers from the consequentialistic flank judge acts merely on basis of aggregate consequences while their non-consequentialistic colleagues judge moral acts with other standards as well (for example individual rights or specific duties). To further separate the two types of attitudes, I adopt a utilitarian version of consequentialism and equate good consequences with pleasure and bad consequences with suffering. This classification of moral attitudes is not without controversy but has often been used in contemporary moral psychology (Bartels, 2008; Lombrozo, 2007; Uhlman et al. 2009).

The most commonly used dilemma where the two types of attitudes differ is the so-called trolley dilemma and its variations (Greene, 2008; Thomson, 1985). In brief, the dilemma is about whether it is morally acceptable to sacrifice (kill)

one in order to save five? The characteristically consequentialistic answer is that it is acceptable because the total suffering will be less, while non-consequentialistic theories will oppose this, as killing can be seen as breaking an absolute rule or as a forbidden disrespect of the single person's right to life (Thomson, 1985).

When asked, people judge different versions of the dilemma differently. While about 80% believe it to be acceptable to sacrifice one person to save five by pulling a lever, only 15% believe it to be right to do it by pushing the man in front of the train (Cushman, Young & Hauser, 2006; Greene, 2008). This shows that the degree of consequentialism in people's moral attitudes is very context-sensitive. Thanks to recent research, we now know more about which contextual details that "push our moral buttons" and make us positive or negative towards certain acts. Just to mention a few, people will react more negatively towards direct harm than towards indirect harm (Paharia, et al., 2009) and that intentionality (in contrast to an expected side-effect) together with personal force make us judge consequentialistic acts more negatively (Greene et al. 2009).

The trolley-dilemma is very useful, but it should be noted that it covers only one aspect of the differences between consequentialistic and non-consequentialistic moral theories. I will refer to this as "the absolute rule-aspect". While this aspect is central when distinguishing consequentialistic and non-consequentialistic attitudes, it would be unwarranted to define the difference by exclusively using this characteristic. Consequentialism and non-consequentialism disagree in several moral problems that seem unrelated to the trolley dilemma (Greene, 2008). While several studies use the absolute rule-aspect when investigating consequentialistic attitudes, few studies include other aspects. This might cast doubt on whether the results apply to consequentialism in general or

exclusively on the absolute-rule aspect. The current study does not cover all areas that differentiate consequentialism and non-consequentialism, but at least include two additional aspects that on the surface seem unrelated to the trolley dilemma - absolute loyalty and retributive punishment.

Absolute loyalty (partiality) contradicts the idea of universalism and is therefore incompatible with consequentialism. On the other hand, absolute loyalty is something morally virtuous from an agent-relative non-consequentialist perspective. The most strong and hard-wired form of absolute loyalty is probably the idea of loyalty towards one's kin (Haidt & Kesebir, 2010). Most consequentialists recognize and accept the innate partiality parents feel for their offspring and might even accept some degree of loyalty as an instrumental value in order to reach better consequences. However, while consequentialists see kin-partiality as an inescapable human tendency, non-consequentialists see kin-partiality as a nugget of moral wisdom. In some situations, the typical consequentialistic choice and the typical non-consequentialistic choice will undoubtedly be in sharp contrast to each other (Greene, 2008, Singer, 2005).

Retributive punishment is another aspect where consequentialistic moral theories and (most) non-consequentialistic theories pull in different directions (Greene, 2008). According to consequentialistic theories, no unnecessary suffering for the criminal can be justified and legal punishment should only look forward and focus on degree of deterrence and other social implications (Dolinko, 2005). In sharp contrast, according to non-consequentialistic retributive theories, the punishment should fit the crime. Acts of crime should be punished no matter future consequences, and the criminal should somehow "suffer for his sins" (Ten, 2005).

1.2 Individual differences

Contextual differences are very fascinating and there is still much research to be done in that area. However, even within homogenous populations, it is relatively easy to find individual differences in moral attitudes and behavioural tendencies. Although there exist numerous possible demographic and psychological aspects that could relate to moral attitudes, this study focuses on four variables that have been researched and proven relevant for moral attitudes on the contextual level, but that also can be investigated on the individual trait level.

1.2.1 Cognitive style: Rationality & Intuition

According to modern emotion-based models about causes of our moral judgments (Haidt, 2001, Greene et al., 2001), we are mainly guided by our intuitions when we make moral judgments. These intuitions are quick, strong and motivate us directly via gut-feelings. Sunstein (2005) suggests that these intuitions work as "moral heuristics" and usually help us reach acceptable judgments without using too much energy. However, like non-moral heuristics, the moral heuristics sometimes misfire.

Very much in line with the current article, Greene (2008) suggests that consequentialism and non-consequentialism could reflect two cognitive styles that guide us in decision-making. These systems can roughly be understood as the rational and the intuitive systems respectively (Pacini & Epstein, 1999). In situations with more cognitive load, it takes longer time to reach consequentialistic conclusions and fMRI-studies reveal that damage in parts of the brain connected with emotion causes more consequentialistic judgments (Greene et al., 2008; Koenigs, et al., 2007). As consequentialistic judgments increase with available deliberation-time, and when alternatives are shown jointly (Kogut & Ritov 2005), it seems possible that most people's initial judgments are non-consequentialistic, but

that a situational opportunity together with an intrapersonal ability to reason deliberately makes people more consequentialistic (Greene, 2008).

Several articles have discussed individual differences within rationality and intuition as two cognitive traits. People differ both in ability and preference when it comes to rational and intuitive thinking and interestingly the two variables are orthogonal (Pacini & Epstein, 1999). In the moral realm, a study by Friedrich & McGuire (2010), found that participants with low trait rationality were more likely to donate money in non-consequentialistic ways and in another study intuitive people were more inclined to respond in a deontological (non-consequentialistic) way in “absolute rule”-dilemmas (Bartels, 2008). Based on the situational-level research presented above, the first hypothesis is:

H1) People with a highly rational cognitive style will express more consequentialistic moral attitudes compared to people with low rational cognitive style. In contrast, people with a highly intuitive cognitive style will express less consequentialistic moral attitudes compared to people with low intuitive cognitive style.

1.2.2 Emotional Personality: Anger & Disgust

Moral emotions have been shown to relate to our moral judgments (Hutcherson & Gross, 2011). Moral emotions include emotions of positive and negative valence that has a clear target. Two often-discussed moral emotions are anger and disgust. Even if anger and disgust both have negative valence, most models of emotions see them as distinct from each other (Hucherson & Gross, 2011). For example, while disgust is avoidance-oriented, anger makes us attack the target of the emotion, and is therefore considered approach-oriented (Harmon-Jones & Allen 1998; Oum & Lieberman, 2007).

There is a relationship between anger, moral

attitudes and punitive & harmful behaviour (Tetlock, et al. 2007). For example did anger strongly predict preferred punishment when participants heard about criminal acts while degree of deterrence hardly predicted preferred punishment at all (Kahneman, Schkade & Sunstein 1998). Also, people who were in an angry state made harsher judgments about injustice than calm people (Horberg, et al. 2009). In these studies, anger was induced in people experimentally, but there also exist individual differences in how easily and how intensely people become angry. (Deffenbacher et al., 1995). This individual difference is called anger-proneness. When faced with the same provoking situation, people high in anger-proneness react more strongly compared to people with low anger-proneness. As a higher degree of anger on the situational level predicts at least some aspects of non-consequentialism, the idea is that this pattern will emerge on the individual level as well.

H2) People with high anger-proneness will express less consequentialistic attitudes than people with low anger-proneness

The origin of disgust is evolutionary and disgust was very beneficial in order to give humans an automatic negative response towards harmful substances and counter-evolutional sexual behaviour (Tybur, Lieberman & Griskevicius, 2009). The feeling of disgust has however, evolved, and does now also involve social disgust and disgust towards death (Rozin, Haidt & McCauley, 2008). Disgust has been shown to predict moral judgments. For example, by making a story more disgusting (without changing its content) people become more morally condemning (Haidt & Björklund, 2008). Using hypnosis in order to make people more disgust-sensitive makes them blame more harshly in cases of “harmless wrongdoing” (Wheatley & Haidt 2005), and participants’ moral judgments when they are at a dirty desk are more severe compared to people who are in a clean

setting (Schnall, et al., 2008).

Disgust is often researched as an individual difference factor and is referred to as “disgust-sensitivity” (Olatunji et al. 2007; Olatunji et al, 2009; see also Tybur, Lieberman & Griskevicius, 2009). While some people easily become disgusted by a dirty plate or a drop of blood, others are relatively unaffected. As state-disgust has been shown to make people condemn disgusting but harmless acts more severely (Horberg, et al., 2009), it seems relevant to test this on the trait-level as well.

H3) People with high disgust-sensitivity will express less consequentialistic attitudes than people with low disgust sensitivity.

1.3 Aim of the current study

What brings novelty to the current study is firstly that the focus is on the trait-level rather than the state-level. Instead of manipulating the situation or priming the participants into a specific mindset or emotional state, this study assumes that there are individual differences in cognitive styles, anger-proneness and disgust-sensitivity. Secondly, three quite different aspects of the consequentialism/non-consequentialism distinction are included. If any of the individual differences can predict consequentialistic attitudes in all three of the moral aspects, this would give support to the idea that consequentialistic and non-consequentialistic attitudes mirror differences in personality (Greene, 2008).

2. Method

2.1 Participants

237 (89 male, 148 female) Japanese participants between 18 and 32 years old (mean age 20.73, $SD = 2.20$) were recruited from three different Japanese universities (International Christian University, Ritsumeikan University and St Margarets Junior

College). All participants individually completed a paper and pen questionnaire consisting of the following measurements.

2.2 Moral Stories

Three story categories were created based on the included moral aspects (absolute rules, absolute loyalty and retributive punishment). Three stories in each category described a morally problematic situation and each of the nine stories was followed by two alternative endings (labeled A and B). The endings were written to illustrate two philosophically representative answers – one ending to represent a typically consequentialistic answer and one ending to represent a typically non-consequentialistic answer.¹ For example, the following story represented a story from the retributive punishment category.

Yumi is working as a judge in the court. Recently a man who has repeatedly sexually abused and tortured a 10-year old girl has been convicted to life-time in prison. He will without doubt sit in jail for the rest of his life. Yumi however can decide in which prison he will serve his time. Both prisons cost the same amount of tax-money and are considered very hard to escape from. The only difference is that at prison A the prisoners generally are happy and feel good (thanks to therapy and medication), while prison B is a traditional prison where sexual criminals will be treated very badly and probably suffer.

A: Yumi sends the man to prison A, and the man spends the rest of life in prison but feels pretty good.

B: Yumi thinks the man deserves to suffer so she sends him to prison B, and the man spends the rest of life in prison and feels very bad

After each story and the two alternative endings,

participants answered which of the two endings they think would be “preferable”. The responses were marked on a 7-point Likert Scale (1 = A is much better than B; 4 = A and B are equally good/equally bad; 7 = B is much better than A). This response represents the participant’s moral attitude.²

The stories were written in English by the author, translated into natural Japanese and then back-translated by bilingual students. Unclear parts were later adjusted by bilingual psychology scholars. The moral stories and alternative endings (English or Japanese) can be obtained by the author upon request.

2.3 Individual Differences

The participants then completed a questionnaire that measured the participant’s cognitive style and emotional personality. Cognitive Style was measured with the Information Processing Style Inventory (IPSI, Naito, Suzuki & Sakamoto, 2004). IPSI is based on the Rational-experimental inventory (REI, Pacini & Epstein, 1999), measures rationality and intuition as two independent variables and consists of 24 questions. IPSI is written in Japanese and validated using a Japanese student sample.

In addition, five items that measured anger-proneness and five items that measured disgust-sensitivity were included. The anger items were constructed by the author while the disgust items were based on items that first appeared in the Disgust Scale by Haidt, McCauley & Rozin (1994). As the Disgust Scale cover a wide array of different forms of disgust, and the aim was to focus on non-moral disgust, I only included items that dealt with disgust concerning death and body envelope violations (touching corpses or seeing a man with his intestines exposed, Rozin et al, 2008; Tybur et al, 2009). Some of the items from each aspect were reversed. The emotional personality items were translated into Japanese and then back-translated by

professional translators and checked for accuracy by Japanese scholars. All responses were marked on a 5-point Likert Scale (1 = does not apply to me at all; 5 = does apply to me very much).³

3. RESULTS

In the actual questionnaire, a higher response number sometimes illustrated a consequentialistic and sometimes illustrated a non-consequentialistic attitude. However, in order to simplify interpretation of the results, the data reported in this section is adjusted so that a higher score illustrates more consequentialistic attitudes and a lower score illustrates more non-consequentialistic attitudes.

The data was scanned for potential outliers. One participant had a z-score of -3.35 on the disgust-sensitivity variable and was considered a statistical outlier and removed from further analysis (Tabachnick & Fidell, 2007). Principal component analyses showed that eight of the nine stories robustly loaded well on their expected factors. One loyalty-story (nr 8) did not load well on any factor and was therefore removed. The remaining stories was aggregated to measure one absolute-rule category (story 1, 4 and 7), one loyalty category (story 2 and 5) and one retribution category (story 3, 6 and 9). Attitudes towards loyalty and retribution correlated weakly ($r = .16, p = .017$) while the other category inter-correlations were non-significant. Means and alpha-values for the moral categories as well as the independent variables can be seen in Table 1.

Starting with binary correlations of the included variables, Rationality and Intuition were uncorrelated ($r = 0$) confirming the predictions by Pacini and Epstein (1999). Interestingly, disgust-sensitivity had weak but significant negative correlations with both rationality ($r = -.162, p = .013$) and intuition ($r = -.142, p = .040$). In contrary to the hypotheses, neither rationality nor intuition

Table 1
Means and α for included variables (range in parenthesis)

	Mean (SD)	α
Absolute Rule (1-7)	3.11 (1.33)	.58
Absolute Loyalty (1-7)	4.38 (1.39)	.55
Retributive Punishment (1-7)	3.81 (1.69)	.80
Rational cognitive style (1-5)	3.40 (0.69)	.87
Intuitive cognitive style (1-5)	3.11 (0.64)	.83
Anger-proneness (1-5)	2.67 (0.84)	.71
Disgust-sensitivity (1-5)	3.57 (0.75)	.61

had any correlation with any of the moral categories (see table 2).

Anger-proneness and disgust-sensitivity were uncorrelated ($r = .09$, ns) confirming that they did not measure an underlying single construct. Anger-proneness was unrelated to attitudes about absolute rules and absolute loyalty. However, the correlation between anger-proneness and retributive (non-consequentialistic) attitudes reached significance in the expected direction ($r = -.13$, $p = .047$), indicating that trait-angry people tend to be more positive towards retributive punishment.

Disgust-sensitivity correlated negatively with consequentialistic attitudes in the absolute-rule category ($r = -.19$, $p = .003$), absolute loyalty category ($r = -.17$, $p = .008$), and the retributive punishment category ($r = -.28$, $p < .001$). This suggests that people with higher disgust-sensitivity are more likely to be positive towards absolute rules, absolute loyalty and retributive punishment

compared to people low on disgust-sensitivity.

Next, I conducted three multiple regression analyses. I used the response in each of the moral categories as the outcome variable in the three analyses respectively. The included predictor variables in all analyses were rationality, intuition, anger-proneness, disgust sensitivity and sex of the participant.

Using the enter method in the absolute rule category, a significant model emerged: $F(5,231) = 2.27$, $p = .048$. Adjusted R^2 was .026 meaning that 2.6 % of the variance is explained by the model. As can be seen in table 3, only disgust-sensitivity was a significant predictor.

Using the enter model in the loyalty category, a borderline significant model emerged $F(5,231) = 2.21$, $p = .054$, adjusted $R^2 = .025$. Among the included predictor variables, only disgust-sensitivity was a significant predictor.

Using the enter model in the retribution category, a significant model emerged $F(5,231) = 4.10$, $p = .001$, adjusted $R^2 = .062$. Among the included predictor variables, only disgust-sensitivity was a significant predictor.

4. DISCUSSION

Until now, much research on moral attitudes has shown that disgust make us moralize (i.e. make our already negative judgments more severe, make us punish criminals harder etc.). The current study indicates that disgust does not merely predict the

Table 2
Pearson two-tailed correlations between consequentialistic moral responses and individual differences

	Absolute Rule	Absolute Loyalty	Retributive Punishment
Rational cognitive style	.050	.122	.063
Intuitive cognitive style	-.041	.036	-.052
Anger-proneness	-.091	-.012	-.129*
Disgust-sensitivity	-.194**	-.173**	-.283***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3
Unstandardized and standardized regression coefficients for the variables entered into the respective models.

		Absolute Rule	Absolute Loyalty	Retributive Punishment
Rational cognitive style	B	.038	.243	.001
	SE.B	.129	.135	.160
	β	.019	.120	.000
Intuitive cognitive style	B	-.151	.017	-.224
	SE.B	.136	.142	.168
	β	-.072	.008	-.092
Anger-proneness	B	-.117	.015	-.208
	SE.B	.102	.106	.126
	β	-.074	.009	-.104
Disgust-sensitivity	B	-.351	-.301	-.641
	SE.B	.118	.122	.145
	β	-.197**	-.162*	-.284***
Sex	B	.106	.331	-.122
	SE.B	.181	.189	.224
	β	.038	.116	-.035

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

degree but also the direction of moral attitudes. Disgust-sensitivity significantly correlated with non-consequentialistic moral attitudes and this pattern was consistent in all three included aspects (absolute rules, absolute loyalty and retributive punishment).

The moralizing effect of disgust has been shown previously. Disgusting details affect harsher condemnation of otherwise identical moral situations (Haidt & Björklund, 2008), and both disgustingly dirty desks and repugnant smells, make participants judge situations as morally worse (Schnall, et al., 2008). Disgust is not like other avoidance-focused negative emotions, but influences people differently than sadness or fear (Schnall, et al., 2008). The link between contaminating disgust and moral disgust has also proven rather strong; hand-washing make disgusted peoples moral judgments less severe (Schnall, Benton & Harvey, 2008), and moral transgressions

evoke the same facial expressions as the consumption of bitter drinks (Champman, et al., 2009).

On the trait-level, high disgust-sensitivity has been shown to predict higher perceived threat of crime and guilty verdicts in mock juries (Jones & Fitness, 2008), implicit negative attitudes towards gay men (Inbar, et al., 2009), and towards extreme sexual behavior (Haidt & Hersh, 2001). In a moral foundation theory-framework (Graham, Haidt & Nosek, 2009), disgust sensitivity seems to primarily relate to the purity/sanctity foundation while other foundations (such as harm and justice) are relatively unrelated (Horberg, et al., 2009).

One possible explanation for the discovered pattern might be evolution (Greene, 2008, Singer, 2005). Disgust evolved in humans in order to keep us away from tainted food, sibling-incest, and other genetically harmful things, and then extended into social and moral domains (Rozin, et al., 2008;

Tybur et al., 2009). It might be possible that the categorical aversion towards active killing (an absolute rule), the preference towards kin (loyalty) and the aversion towards unpunished wrongdoings (retribution) are part of our evolutionary history and conveyed to us mainly by basic emotions such as disgust. The cost-benefit calculus that consequentialism relies on does not have the same evolutionary history, and in cases in which we are faced with a situation that elicits strong disgust, the cost-benefit calculation will rarely even begin before an emotionally based moral judgment is made (Haidt & Björklund, 2008). Plausibly, this would be more obvious in people who are more reactive towards disgust and less obvious in people with low disgust-sensitivity.

The consistent pattern discovered in this study was found despite the conscious choice to limit disgust-sensitivity towards disgust felt towards death and body envelope violations. These aspects of disgust are part of the pathogen domain using the classification by Tybur et al (2009), and hence not as interpersonal as sexual disgust or moral disgust. While moral disgust usually correlates positively with anger (Hutcherson & Gross 2011), the disgust-sensitivity measured in this study did not correlate with anger-proneness. Future studies about disgust-sensitivity and moral attitudes should investigate if different disgust-domains relate to specific attitudes.

The correlations between anger-proneness and consequentialism were negative in all three aspects, but generally non-significant. Surprisingly, neither rational nor intuitive cognitive style had any correlation with moral attitudes in this study. This might be because the emotional gut-feeling is the default when faced with serious moral dilemmas (Haidt, 2001).

There are some obvious limitations of this study. Firstly, as illustrated by the low α -values, the included moral aspect-categories are not yet optimal. As the stories were constructed with

philosophical face-validity and generalizability in mind, internal reliability was somehow sacrificed. Likewise, the anger and disgust measurements used in this study have room for improvement and expansion.

Effect-sizes in this study were generally low. One reason for this might be the methodological problems discussed above. However, even with improved measurements, it is unlikely that individual differences will predict the majority of variance in moral attitudes. Nonetheless, this study found a consistent negative relationship between a trait (non-moral disgust-sensitivity) and a moral tendency (consequentialism) and this relation was not limited to a single situation but found in three very different aspects of consequentialism.

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Endnotes

- 1 To label one answer consequentialistic and the other non-consequentialistic is naturally difficult and this definition should be seen as instrumental. Like Greene (2008) I admit that it is possible to reach a typical non-consequentialistic decision via consequentialistic reasoning or vice versa. Hence a "consequentialistic response" merely illustrates a moral attitude that is comparably easier to justify with consequentialistic arguments while a "non-consequentialistic response" illustrate an attitude that is easier to justify with non-consequentialistic arguments.
- 2 Participants responded to three other questions as well (such as own expected behavior, majority attitudes/behavior, perceived harm, perceived naturalness etc.). In the current study, the focus is on moral attitudes and therefore I only report results for this variable.
- 3 To avoid hypothesis detection, five filler items were also included.

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