

Do Social Relationships With Those Who Witness Moral Transgression Affect the Sense of Guilt?

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Abstract

Moral emotion is thought to have evolved to guide our behavior and control our impulse to achieve immediate rewards, thus serving to enforce pro-social behavior. Guilt, one of the moral emotions, is a social, other-oriented emotion that is experienced primarily in interpersonal situations, although it may also be experienced in non-interpersonal situations. We predicted that the intensity of the sense of guilt would differ depending on the relationship between a witness and the person who performed the antisocial behavior because building a good reputation plays an important role in the evolution of reciprocal altruism through indirect reciprocity. Participants were asked to imagine that they had been observed by a third party while committing five kinds of moral transgression based on moral foundation theory, and to describe the intensity of their sense of guilt when witnessed by parents, a cordial friend, a neighbor, or a stranger. The intensity of guilt was significantly lower when the act was witnessed by a stranger regardless of the moral foundation involved. The effects of the kind of witness, however, differed for each moral foundation. The results support the hypothesis that guilt functions to guide our behavior, to achieve cooperation.

Keywords

sense of guilt, moral emotion, indirect reciprocity, reputation, moral transgression, moral foundation theory

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The human moral system is thought to have evolved to enforce cooperative behavior in situations entailing social dilemmas. Moral emotions are, therefore, intimately linked to our relationships with others and facilitate cooperation. Guilt is one such moral emotion. Although guilt is experienced in non-interpersonal situations, such as those involving wastefulness or failures of self-control, it is fundamentally a social and other-oriented emotion that is experienced primarily in interpersonal situations (Baumeister et al., 1994). Frank (1988) suggested that moral emotions such as guilt first evolved to guide our behavior and control our impulse to pursue immediate rewards, thus enforcing pro-social behavior. That is, if one is tempted to choose defect in a one-shot prisoner's dilemma situation, based on a calculating, self-serving motive, the sense of guilt would make one feel bad and thus better able to resist the temptation to cheat, thereby fostering a long-term, reciprocal relationship. Indeed, in a study by Ketelaar and Au (2003), participants who had to share money in economic games gave more when they had been asked to recall an action about which they felt guilty than when asked to recount an ordinary day.

Nelissen et al. (2007) replicated these finding and reported that the induction of guilt motivated cooperation only in self-value oriented individuals, while induction of fear decreased cooperation only in social-value oriented individuals. The effects of guilt on cooperation were also replicated by de Hooge et al. (2007), who found no effects of shame on cooperation.

Another factor inhibiting antisocial behavior and enhancing cooperation has to do with reputational concerns. Theoretical studies indicate that building a good reputation plays an important role in the evolution of reciprocal altruism through indirect reciprocity (e.g., Nowak & Sigmund, 1998). Even if an altruist is not directly rewarded by the recipient, information about his

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or her past behavior can be used by potential partners in making decisions about subsequent interactions. Results from laboratory experiments support this model. People are willing to cooperate when they know their behavior is being observed by others. Furthermore, people choose their partners based on reputation (Barclay, 2004; Milinski et al., 2002a, 2002b; Wedekind & Braithwaite, 2002). A reputation for generosity leads to stable cooperation in large groups. Adaptation of the human cognitive system to this situation can be seen in the watching-eye effect, a phenomenon wherein artificial surveillance cues increase prosocial behavior toward strangers (e.g., Oda et al., 2011). Although facilitation of pro-sociality has been questioned by meta-analyses (Nettle et al., 2013; Northover et al., 2017, but also see Oda, 2019), a robust effect of being watched by others on inhibition of antisocial behavior has been reported (Bateson et al., 2015; Dear et al., 2019; Nettle et al., 2012). If guilt is a proximate factor in pro-social behaviors, others' gaze is likely to influence its intensity.

According to multilevel selection theory, positive assortment derives from the Price equation, which establishes the conditions for increasing the frequency of genes involved in altruistic behaviors (Price, 1970). Rather than randomly forming groups comprising altruistic and non-altruistic individuals in a given population, if similar individuals can somehow come together to form a group, altruistic behavior will increase. That is, if altruistic and non-altruistic individuals are mixed together, it is natural for the non-altruistic individuals to have a unilateral advantage and thus to increase their fitness. However, if altruistic individuals can come together and exclude the non-altruistic individuals, the average fitness of genes involved in altruistic behavior can be increased (Hamilton, 1970; Kay et al., 2020). Thus, the evolution of altruism depends on the relationship between an actor and a recipient. From this principle, we can predict that the intensity of guilt will differ depending on the relationship between a witness and a person who performs an antisocial behavior. Specifically, the negative reputational impact of an antisocial behavior is stronger when witnessed by someone with whom one has a reciprocal relationship than by someone with whom one does not interact on a daily basis. Therefore, it is expected that restraint of such behavior will be much more important when witnessed by an intimate other, and a stronger sense of guilt will emerge.

In this study, we asked participants to imagine that a third party had witnessed them committing a moral transgression and to describe the intensity of their sense of guilt when witnessed by parents, a cordial friend, a neighbor, or a stranger. Parents were kin, and all others were non-kin. Non-kin included people with whom one has a long-term and mutually beneficial relationship, those with whom one is acquainted but does not have an intimate relationship, and those with whom one has no daily relationship. Except for the relationship with parents, reciprocal relationships were set to become progressively weaker. If guilt is a social and other-oriented emotion, it was expected that they would experience a stronger sense of guilt if witnessed by someone with whom they had a higher level of social interaction.

The effect of the witness is also considered to depend on the nature of the moral transgression. If guilt is about maintaining one's reputation, then the effects of the relationship with the witness would be more pronounced for social moral violations compared to non-social ones. This would be especially true for moral violations related to reciprocity. To develop hypothetical situations of moral transgression, we adopted moral foundation theory, which explains the origins of, and variation in, human moral reasoning based on innate, modular foundations (Graham et al., 2011). Haidt (2012) argued that humans are equipped by the evolutionary process with a set of automatic moral intuitions, but these can be altered by social and cultural influences. Moral foundation theory posits that moral behavior can best be described in terms of five general moral values: 1) harm/care (refers to the virtues of warmheartedness, humanness, and nurturance, which evolved to elicit caring and sensitive responses required to help those in need); 2) fairness/reciprocity (refers to ideas of justice, rights, and impartiality, which evolved in response to the adaptive threat of being exploited by cheaters, and increases one's chances of receiving the benefits of cooperation); 3) ingroup/loyalty (refers to fidelity, patriotism, and self-abnegation in favor of other group members, which evolved to maintain group cohesion by making an individual aware of others who may want to hurt or ostracize members of the group); 4) authority/respect (refers to respect for legitimate power, authority, and tradition, which evolved in response to the need to maintain and respect social hierarchies); and 5) purity/sanctity (refers to abhorrence of disgusting things and contamination, which evolved in response to the danger of pathogens and parasites). Each foundation has an adaptive basis, and the impact on other people of one's violating each foundation varies.

Moral foundation theory proposes a specific prototypical emotion for each moral foundation, triggered when the respective moral principle is violated (Haidt & Joseph, 2004, 2008). Specifically, care violations should elicit compassion, fairness violations should elicit anger, authority violations should elicit resentment, loyalty violations should elicit rage, and purity violations should elicit disgust in the observer of the violation. Landmann and Hess (2018) asked participants to rate their emotions in response to moral violation of the five foundations, and concluded that there are two sets of moral foundations: one set is rooted in specific emotional systems (i.e., care-compassion, purity-disgust) and the other set, which elicits unspecific emotional reactions (i.e., fairness, authority, loyalty). However, the study did not take into account the relationship between the observer and the transgressor, and this could be the reason why emotional responses to fairness, authority, and loyalty could not be determined. Although this was a study of emotional reactions of the observer of moral violations, the type of violation and the relationship with observers might also have affected the guilt of the transgressor because of the anticipation of the observer's reaction. Fairness, which is most strongly related to reciprocity, is expected to be strongly influenced by the relationship with the witness. On the other hand, purity is less related to sociality, and there are more individual

Table 1. Mean \pm Standard Deviation of Sense of Guilt for Each Combination of Vignettes and Witnesses.

Vignette	Witness				Mean
	Parents	Cordial Friend	Neighbor	Stranger	
Fairness	2.17 \pm 0.95	2.61 \pm 0.96	2.31 \pm 0.93	1.91 \pm 0.85	2.25 \pm 0.96
Purity	2.35 \pm 1.04	2.46 \pm 1.02	2.56 \pm 0.99	2.31 \pm 0.98	2.42 \pm 1.01
Ingroup	3.39 \pm 0.81	3.31 \pm 0.84	3.20 \pm 0.85	2.94 \pm 0.91	3.21 \pm 0.87
Harm	3.37 \pm 0.80	3.37 \pm 0.81	3.32 \pm 0.80	3.03 \pm 0.99	3.27 \pm 0.86
Authority	2.35 \pm 1.00	2.35 \pm 0.96	2.31 \pm 0.94	2.08 \pm 0.94	2.27 \pm 0.97
Mean	2.72 \pm 1.07	2.82 \pm 1.02	2.74 \pm 1.00	2.45 \pm 1.04	

variations in the perceptions of what is sacred or pure. Therefore, purity would not be affected by the relationship as much.

Method

Participants

A total of 190 Japanese adults (113 females, 75 males, two unknown; mean age: 31.9 years, range: 20–39 years) were recruited through Cross Marketing, Inc. (Tokyo, Japan), a research agency that maintains a panel of more than 2,000,000 individuals who have agreed and consented to participate in web-based online surveys. Only participants under the age of 40 were recruited because one of the vignettes treated older people as objects of respect.

Questionnaire

We prepared five vignettes based on the moral foundation theory (see Appendix). Each vignette corresponded to a moral foundation. Participants were asked to imagine committing a moral violation and being seen doing so by someone else: 1. They worked with colleagues, but only they received a reward (fairness/reciprocity); 2. They were walking around shrine grounds and spat at the ground (purity/sanctity); 3. They posted things on social media that would undermine the credibility of the company (ingroup/loyalty); 4. They did not help someone who suddenly fell down (harm/care); 5. They did not give up their seat to older people on the train (authority/respect). The vignettes were presented to participants in this order for all the participants. We set up four social relationships between the witnesses and the person who committed the moral transgression; the witness might be described as 1. one's parents; 2. a cordial friend; 3. an acquaintance in the neighborhood; or 4. a stranger. Participants were asked to indicate how guilty they would feel if they were seen by each of these witnesses. The witnesses were arranged for participants in the order in which they are mentioned previously. The sense of guilt was measured by asking them to rate three types of feelings using a 4-point scale with anchors of 1 (not feel at all) and 4 (strongly feel). The emotions were "apologetic," "guilty," and "regretful." This study design was approved by the Institute's Ethics Committee.

Table 2. Multiple Comparison of Sense of Guilt Among the Vignettes.

	Purity	Ingroup	Harm	Authority
Fairness	3.61** 0.17	20.34*** 1.05	21.64*** 1.12	0.52 0.03
Purity		16.72*** 0.84	18.03*** 0.91	3.09** 0.15
Ingroup			1.31 0.07	19.82*** 1.02
Harm				21.12*** 1.09
Authority				—

Note. Upper value in each cell is *t* and lower one is Cohen's *d*. *df* = 3780.

p* < .01, *p* < .001.

Statistical Analyses

Means of the three emotion scales were analyzed using two-way analysis of variance (ANOVA). Although the study was designed to measure a within-subject variables for the five vignettes and the four kinds of witnesses, the order of presentation was remained the same for all the participants, so both variables were analyzed as between-subject to moderate bias due to the fixed order. Power analysis using G*Power 3.1 showed that a sample of 196 participants was required for an effect size of 0.25 (medium), power of .80, and an alpha of .05. Our sample size, if not sufficient, was adequate for the analyses performed.

Results

Levels of sense of guilt for each combination of vignettes and witnesses are presented in Table 1. We found significant main effects of the vignettes ($F(4, 189) = 235.03, p < .001, \eta^2 = 0.194$). Results of a multiple comparison analysis revealed that participants felt significantly more guilt related to the vignettes involving ingroup/loyalty and harm/care compared to the other three vignettes, while there was no significant difference between the vignettes involved ingroup/loyalty and that involved harm/care (Table 2). The degree of guilt related to the vignettes that involved purity/sanctity was greater than that related to the vignette that involved fairness/reciprocity or authority/respect, while there was no

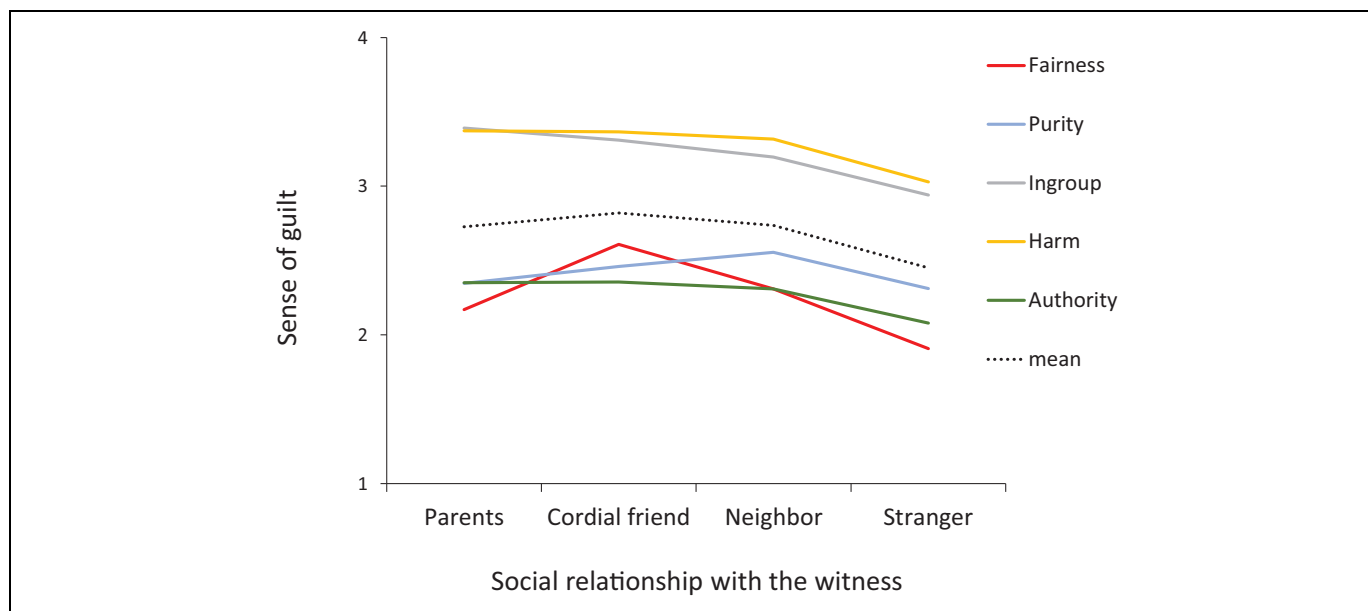


Figure 1. Sense of guilt on five kinds of moral transgression different by the relationship between a witness and a person who witnessed the transgression.

Table 3. Multiple Comparison of Sense of Guilt Among the Witnesses.

	Cordial friend	Neighbor	Stranger
Parents	2.20 0.09	0.25 0.01	6.44*** 0.26
Cordial friend		1.94 0.08	8.64*** 0.36
Neighbor			6.70*** 0.28
Stranger			—

Note. Upper value in each cell is *t* and lower one is Cohen's *d*. *df* = 3780.

*** *p* < .001.

Table 4. Simple Effect for the Interaction.

	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Vignette				
Parents	4	81.42	<.001	0.067
Cordial friend	4	51.93	<.001	0.043
Neighbor	4	53.03	<.001	0.044
Stranger	4	57.58	<.001	0.048
Witness				
Fairness	3	19.03	<.001	0.012
Purity	3	2.81	0.038	0.002
Ingroup	3	8.53	<.001	0.005
Harm	3	5.97	<.001	0.004
Authority	3	3.85	0.009	0.002

significant difference between the vignettes that involved fairness/reciprocity and that involved authority/respect (Figure 1). The main effect of the kind of witness was also significant ($F(3, 189) = 28.28, p < .001, \eta^2 = 0.018$). Results of a multiple comparison analysis revealed that the sense of

guilt significantly decreased when transgressions were seen by a stranger relative to the other types of witnesses, while there were no significant differences among the other three kinds of witnesses (Table 3).

The interaction between the two factors was also significant ($F(12, 189) = 2.98, p < .001, \eta^2 = 0.007$). The simple effects were significant for all combinations of vignettes and witnesses (Table 4). Table 5 summarizes the results of the pairwise tests for witnesses in each vignette to determine the variation in guilt based on the kind of witness. One item for which the pattern of witnesses differed was the fairness/reciprocity scenario. In this case, the sense of guilt was significantly stronger when the guilty party was seen by a cordial friend than when seen by other types of witnesses (Figure 1). The other item that differed was the purity/sanctity. In the ingroup/loyalty, harm/care and authority/respect scenarios, the sense of guilt did not significantly differ when the act was witnessed by parents, a cordial friend, or a neighbor, but it decreased when the witness was a stranger. In the purity/sanctity scenario, however, the degree of guilt did not significantly decrease when the transgression was witnessed by a stranger (Figure 1).

Discussion

The results revealed that the intensity of guilt depended on one's moral values. Participants felt greater guilt in the vignettes depicting ingroup/loyalty and harm/care, compared to the other three values. The intensity of guilt also depended on the social relationships with witnesses. Results clearly showed that the intensity of guilt was significantly lower when the act was witnessed by a stranger. Although there were no significant differences among the other three kinds of witnesses, the

Table 5. Multiple Comparison of Sense of Guilt Among Witnesses at Each Vignette.

	Vignette														
	Fairness			Purity			Ingroup			Harm			Authority		
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
Parents	4.63*** 0.46	1.46 0.15	2.78* 0.29	1.21 0.11	2.24 0.21	0.35 0.03	0.86 0.10	2.07 0.24	4.74*** 0.52	0.09 0.01	0.60 0.07	3.64** 0.38	0.03 0.00	0.47 0.05	2.89* 0.28
Cordial friend		3.16** 0.32	7.41*** 0.77		1.03 0.10	1.56 0.15		1.21 0.14	3.88*** 0.42		0.51 0.06	3.55** 0.37		0.50 0.05	2.91* 0.29
Neighbor			4.24*** 0.45			2.59 0.25			2.68* 0.29			3.05** 0.32			2.41* 0.24
Stranger						-			-			-			-

Note. Upper value in each cell is *t* and under one is Cohen's *d*. *df* = 3780.

p* < .05, *p* < .01, *** *p* < .001.

interactions between the type of witness and the moral foundation were significant. This means that the effects of the social relationship with the witness were different for each kind of moral transgression.

One of the reasons why the participants felt strong guilt in the vignettes depicting ingroup/loyalty and harm/care might be that the consequences of these transgressions (threats to life and damage to the company's reputation) were more serious. For further research, it might be necessary to use a vignette with adjusted seriousness of consequences, or to use multiple scenarios for each moral foundation. Despite these differences, there was an overall tendency for lesser guilt when witnessed by a stranger. On the other hand, there were no significant differences in guilt when the witnesses were parents, a cordial friend, or a neighbor. This suggests that the intensity of guilt depends on whether the transgressor is aware of being identified by the witness. This supports the idea that intensity of guilt is determined by the relationship between the witness and the transgressor, which has a social function.

Differences in the intensity of guilt when the witnesses were parents, a cordial friend, or a neighbor depended on the context of moral transgression. The interaction that most differed from the others was the interaction of the sense of guilt with fairness/reciprocity, which was noticeably stronger when witnessed by a cordial friend. Because a cordial friend is the most likely partner in a reciprocal exchange, the impact of behaving unfairly could be the most serious. In addition, for fairness/reciprocity, a decline in the sense of guilt from neighbor to stranger is greater than for the other moral foundations. Hence, of the five moral foundations tested, the relationship with witnesses had the greatest effect on guilt in fairness/reciprocity. On the other hand, the sense of guilt with purity/sanctity, which was more intense than that in fairness/reciprocity, was not affected by the relationship with the witness. The purity/sanctity foundation is thought to have evolved in response to the dangers of pathogens and parasites, and was not strongly associated with reciprocity. These

results support the hypothesis that sense of guilt functions to guide our behavior to achieve cooperation.

A recent study on the adaptive significance of emotions argues that self-conscious emotions have evolved for social valuation. Sznycer (2019) proposed that guilt serves to increase one's valuation of the other person. For example, people reevaluate costs to the other based on the guilt they felt for the other as the mediator to recalibrate the social valuation. In Sznycer's study, the subject was the relationship with the person who is annoyed by the transgression. That is, guilt functions as a meter for evaluating others. However, this reevaluation is a mutual process in which people are evaluated by others as well as evaluate others, and the person being evaluated also needs to have certain strategies. Our study dealt with guilt as a restraint on one's own behavior and the subject was the relationship with an observer of the transgression, rather than that with the person who is annoyed by the transgressor, which was differed from Sznycer's viewpoint. The results that sense of guilt depends on the relationship with the witnesses is, however, consistent with Sznycer's claim that emotions have evolved for social valuation (Sznycer et al., 2021).

A limitation of this study was that it did not evaluate guilt when the participants were not aware of being seen by anyone. Another limitation was that possible effects of the trait guilt, defined as a continuing sense of guilt beyond immediate circumstances, of participants did not examined (Kugler & Jones, 1992; Tignor & Colvin, 2019). Moreover, as for the relationship with the witness, there could be a factor of whether it was a potential mate or not because people find pro-sociality attractive and desire to appear attractive to potential mates (e.g., Bhogal et al., 2019). It would be too complicated, however, to include all these factors in this analysis, and further studies would be required to determine their effects. As shown by many studies on the watching-eye effect, awareness of being watched by others promotes pro-social behavior. Our study suggests that the nature of one's social relationship with the watcher is also an important factor.

Appendix

Vignette 1 (fairness/reciprocity)

Suppose that you were asked to help with a job along with some other people. When the work was done and the others gone, the client gave you a secret reward, which you accepted. Then, you suddenly realized that someone else (not a person you worked with) was watching you.

(The following is the same for other vignettes)

You turn your eyes toward the person and see that it is:

1. Your parents
2. A cordial friend
3. An acquaintance in the neighborhood
4. A stranger

Vignette 2 (purity/sanctity)

Suppose that you are walking in the grounds of a shrine. Suddenly, you feel a bug fly into your mouth, so you spit it on the ground, and only then realize that someone is watching you.

Vignette 3 (ingroup/loyalty)

Suppose that at work, you took a video of an annoying act among your colleagues that could seriously betray the company's reputation and cause damage. The video shows your face, but you find the content interesting, so you post it on a social networking site. Then you realize that someone is reading your post.

Vignette 4 (harm/care)

Suppose you are walking down the street when the person walking in front of you suddenly collapses. There is no one around, and you feel that the person is in danger. However, you have an important appointment coming up, so you leave the scene as if you were running away. Then suddenly, you realize that someone is watching you.

Vignette 5 (authority/respect)

Suppose that you are sitting in a train seat and you notice an elderly person standing in front of you. From the way the person is dressed, you judge that the person is returning from a hike and looks healthy, so you do not give up your seat. Then, you realize that someone is watching you.

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