Moral foundations tell us why guilt induces unfair allocation in multi-party interactions

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Previous studies have demonstrated that a sense of guilt promotes and maintains social fairness in two-party interactions (Psychological Bulletin, 115, 1994 and 243). However, the situation is much more complex in three-party or multi-party interactions. De Hooge et al. (Journal of Personality and Social Psychology, 100, 2011 and 462) found that guilt could not only induce pro-social behaviour towards the victim, but also have a disadvantageous impact on a third party. In the present study, we attempt to explain how guilt promotes unfair allocations from a moral foundations perspective. We conducted two experiments using a ‘three-party dictator game’ paradigm. Firstly, it was repeatedly verified that guilt could induce unfair allocations in three-party interactions. Secondly, five moral foundations (harm, fairness, ingroup, hierarchy and purity) were measured. Then the moderating and main effects of these five indices on how guilt affects the fair allocation of resources were explored using regression analysis. The results show that competition between harm and fairness in individual traits can explain the disadvantageous effect of guilt on fair allocations: the fairness foundation promoted equality in allocation, while the harm foundation promoted victim compensation.

Key words: fairness, guilt, harm, moral foundations.

A sense of guilt encourages people to care more about victims than themselves, and contributes to people behaving altruistically (Ketelaar & Tung Au, 2003; Haidt, 2003; de Hooge, Nelissen, Breugelmans & Zeelenberg 2011; de Hooge, 2012). Thus, guilt is often portrayed as a good emotion with many beneficial and prosocial functions (Leith & Baumeister, 1998; Trivers, 1971). However, de Hooge et al. (2011) believes it is possible that guilt has a dark side, which might lead to negative influences on non-victim others. For example, in their study, participants who were induced by guilt gave more resources to victims and fewer resources to non-victims. However, the amount of resources participants kept for themselves would never be fewer than the average. De Hooge and her colleagues explain that feelings of guilt led to such a preoccupation with repairing the harm done to victims, it made people temporarily forget the well-being of others (non-victims) in their social surroundings. Nevertheless, guilty individuals never ignored their own interests. Hence guilt is sometimes egoistic.

In general, we believe it is possible for the dark side of guilt to appear in multi-party interactions. However, there are two contentious points in de Hooge’s theory. Firstly, the relationship between guilt and self-interest was not demonstrated consistently or conclusively. We believe self-interest, as a common motivation, is likely to drive people to keep an amount of resources for themselves despite the effect of guilt in de Hooge’s study. In this regard, self-interest seems unnecessarily a function of guilt. In the present study, we focus on the relationship between guilt and unfair allocation. Secondly, theoretical and empirical grounds are not sufficient to claim that guilty individuals would temporarily forget the well-being of non-victimized others in their social surroundings. On the contrary, guilty individuals are more likely to worry about and try to avoid possible loss of social bonds (Baumeister, Stillwell, & Heatherton, 1994); therefore they improbably ignore their impact on the interests of non-victims. In the present study, we propose another mechanism that involves moral foundation theory to explain how guilt induces unfair allocation of resources in multi-party interactions.

Effects of guilt on fair allocation

Guilt is a kind of ‘self-conscious’ moral emotion that can help people monitor and constrain their own behaviour (Haidt, 2003). When people become aware of their transgressions, the consequent guilty feelings will lead them to sacrifice their time, energy and resources to compensate their victims. In this process guilt promotes social
fairness, which is consistent with previous research findings. For example, Baumeister et al. (1994) found that when employees were given a higher salary than they deserved, they experienced guilt and took a lower salary in subsequent work to achieve a fairer allocation. It was also demonstrated that high-power individuals were willing to help low-power individuals because of guilt, and, similarly, that lucky people were willing to help unlucky people as a result of guilty feelings (Baumeister et al., 1994). In another study, even self-punishment took place when guilty individuals had no chance of behaving compensatorily to victims. Thus it seems fair for both the guilty individuals and the victims (Nelissen, 2012; Nelissen & Zeelenberg, 2009). So it is plausible to say that guilt helps maintain fairness in society.

However, the beneficial nature of guilt to fairness is mostly limited to two-party interactions. In multi-party interactions, the disadvantageous impact of guilt on fairness emerges. We hold that particular reparative acts towards victims would lead to an unfair result. Indirect evidence for this idea is to be found in the results of a series of three-party dictator games in de Hooge et al. (2011), in which participants were asked to divide social resources (tickets) as they wished. The results show that participants who were induced by guilt offered more tickets to victims and fewer tickets to other social partners.

In the present study, we attempt to verify directly the disadvantageous effect of guilt on fairness in multi-party interactions through the ‘three-party dictator game’ paradigm. The dictator game is a classic paradigm in experimental economics and social psychology that is used to explore relationships among fairness, altruism, self-interest, social transmission, etc. The original dictator game is a two-party interaction in which one participant is paired randomly and anonymously with the other, and then one of them is selected to allocate resources as he or she wishes while the other one will have no choice but to accept this decision. Often, the ‘dictators’ are supposed to allocate more resources to themselves than to the other recipient because of their self-interest, and the difference between the amounts of resources allocated to both recipients is deemed to represent the degree of unfairness (Bolton, Katok, & Zwick, 1998; Cason & Mui, 1998). If the dictator feels guilty towards the other recipient beforehand, he or she may allocate more resources to the victim for reparation, because it is indeed a convenient and effective way to eliminate the feeling of guilt (Rebega, Apostol, Benga & Miclea, 2013). On this basis de Hooge et al. (2011) designed a three-party dictator game to explore the effect of guilt on the amount of resources allocated to victims, non-victimized others and the dictators themselves. They tried to verify that within the boundaries of the relationship between transgressor and victim, guilt can clearly be qualified as moral, while beyond the boundaries of the relation between transgressor and victim, even the most exemplary of moral emotions comes with a dark side. One prediction in their studies is that guilty dictators would give the victim more while keeping less for themselves and the non-victims, but instead, guilty dictators would give the victim more but only take away from the non-victims, while keeping the same for themselves. Thus, de Hooge et al. concluded that guilt is accompanied by self-interest. However, we argue that even when there is no self-interest involved, guilty dictators would take from non-victims and give more to victims to relieve their guilt. In order to exclude the effect of avoidance of pure economic loss on allocation in this section, the three-party dictator game paradigm was slightly modified in the present study. Participants were asked to allocate resources to victims and non-victims, but there was no requirement to allocate any resources to themselves. Instead, they would get a fixed income. In this modified three-party dictator game, we were concerned with the resultant unfairness that de Hooge and her colleagues did not concern themselves with. If dictators who are guilt-induced allocate more resources to their victims but fewer resources to non-victims, the negative effect of guilt on fair allocation will be confirmed.

### Moral foundations: competition between harm and fairness

Why does guilt, as a good emotion, induce a bad (unfair) outcome in multi-party interactions? de Hooge et al.’s (2011) interpretation was that guilty participants ignored the interests of non-victims, because the guilty feeling led them to concentrate on their victims. We disagree with this point of view. Guilty individuals are probably sensitive enough to any damage to others, for guilt is linked to a capacity to understand the perspective of other people, or to avoid social exclusion (Baumeister et al., 1994; Leith & Baumeister, 1998). Therefore, we argue that unfair allocation would be a deliberate result that is concerned with both the interests of victims and non-victimized others (supported by (Van Dijk et al., 2004; Walster, Berscheid & Walster, 1973; Zeelenberg, Nelissen, Breugelmans & Pieters, 2008)). We propose a mechanism in these processes based on the complex and multidimensional nature of the moral foundations of guilt. It is widely recognized that guilt, as a typical moral emotion (de Hooge et al., 2011), occurs when an individual realizes that their own behaviour violates moral codes (Cialdini et al., 1973; Tangney & Dearing, 2002). But what kinds of moral codes are related to the emotion of guilt (Shweder et al., 1997)? Haidt and Graham (2007) believe that there are five psychological systems functioning as foundations for moralities around
the world. Each system produces affective reactions of liking or disliking when certain kinds of patterns are perceived in the social world. This moral foundation theory is about the intuitions and emotions that are at work when making a moral judgement (Haidt & Joseph, 2004). And guilt is the feeling that occurs when a person ‘dislikes’ his or her own moral inappropriateness; therefore, guilt should be strongly associated with moral foundations (Haidt, 2007).

The five moral foundations are: harm, fairness, ingroup, hierarchy and purity. Harm and fairness involve moralities about interpersonal interactions, while ingroup and hierarchy are associated with moralities around social interactions between individuals and groups. Purity is linked to sanctity, and it is connected with the emotion of disgust. Because the three-party dictator game is a paradigm to simulate actual interpersonal interactions, ingroup, hierarchy and purity are supposed to be unrelated to guilt and fair allocation. According to the nature of guilt, harm to victims triggers guilt, and guilt-induced compensatory behaviour embodies the spirit of fairness, so fairness and harm are vital components of the moral foundations associated with guilt in multi-party interactions. People often feel guilty if they realize they have done harm to others. And then they may try to compensate their victims for violating the harm component of the moral foundations. They will also feel guilty if they realize their violation of the fairness component of moral foundations, and this negative feeling of guilt will prompt them to make up for fairness. In the two-party dictator game, if the dictators do something wrong to damage the interests of their partners beforehand, allocating more resources to the victims will compensate for both the harm foundation and the fairness foundation of morality. However, in the three-party dictator game, allocating more resources to the victims is a convenient way to compensate for the harm foundation of morality, whereas it is a violation of the fairness foundation of morality in the whole situation. Guilty individuals will have to negotiate between harm and fairness in multi-party interactions. So once guilt is triggered in multi-party interactions, the harm foundation of morality promotes unfair allocation on the one hand, but the fairness foundation of morality promotes fair allocation on the other hand.

Haidt and Graham (2007) note that virtues about fairness could easily be overridden by moral concerns from the other four systems, which suggests that, in some cases, there should be competition between harm and fairness. The present study proposes that harm and fairness might explain the negative impact of guilt on the fair allocation of resources in multi-party interactions. To be specific, the harm foundation of morality positively moderates the effect of guilt on unfair allocation, but the fairness foundation of morality negatively moderates the effect of guilt on unfair allocation, which means people who more strongly endorse the harm foundation of morality, when they are made to feel guilty, will be even more likely to make an unfair allocation compared to people who are not made to feel guilty, while people who more strongly endorse the fairness foundation of morality, when they are made to feel guilty, will be more likely to make a fair allocation compared to people who are not made to feel guilty. Haidt and Graham (2007) propose that moral foundation theory is a nativism theory, which means that people vary regarding the values of harm and fairness. When harm and fairness compete against each other, which one of them becomes the prepotent basis for the outcomes of allocation can be deemed as individual differences. We measured the fairness foundation of morality and the harm foundation of morality using the Chinese version of the Moral Foundation Questionnaire (MFQ; Graham, Haidt, & Rimm-Kaufman, 2008; Luo, Li, Peng, & Liu, 2013).

To summarize, the current study was designed to explain the effect of the guilt emotion on fair allocation in multi-party interactions. We developed a series of three-party dictator games in which participants interacted with two different partners – the victim and the non-victim – at the same time but in a different experimental cubicule. We hypothesized that feeling guilty to a certain party probably leads to unfair outcomes of allocation in multi-party interactions, and the moral foundations of guilt may reveal why a ‘good’ emotion brings about a bad result. More specifically, the harm foundation would promote a disadvantageous effect of guilt on fair allocation while the fairness foundation would restrain the disadvantageous effect of guilt on fair allocation in multi-party interactions.

**Ethics statement**

Prior to conducting the experiments, ethical approval was obtained from the Committee of Protection of Subjects at Beijing Normal University. All participants were required to read and approve the informed consent before participating in this research.

**Experiment 1: The effect of guilt in multi-party interactions**

In a three-party dictator game, participants are requested to allocate limited resources to two other partners, and the difference in the amount of allocated resources represents the degree of unfair allocation. In this experiment, half of the participants are made to feel guilty through a cooperative task, while the other half are not. Thus, the effect of guilt on the outcomes of allocation can be explored.
Hypothesis 1: Participants in the guilt group allocate more resources to their victims but fewer resources to non-victims compared to those in the control group. Hence the difference between the amount of allocated resources to two recipients is larger in the guilt group than in the control group.

**Method**

**Participants and design.** A total of 62 Beijing Normal University students (33 women; $M_{age} = 19.50$, $SD = 2.32$) were recruited from the campus BBS. Two individuals were excluded due to their failure to understand the experimental instructions. Participants were randomly assigned to two groups: a guilt group and a control group.\(^1\) Experiment 1 involved a laboratory manipulation of guilt and a behavioural measure. Specifically, the guilt emotion was triggered in the guilt group but not in the control group. Finally, the difference in the number of gambling chips distributed to the two people in the three-party dictator game was used to represent the degree of unfair allocation as the dependent variable. For example, when a participant gave 120 chips to the victim and 80 chips to the non-victim, the value of the dependent variable was 40.

**Procedure.** Three participants (two real participants and one experiment confederate) at a time entered the laboratory room and sat down in separate cubicles. They were told that during the session they would complete a series of tasks and earn gambling chips. The chips could be used later in a poker game (which did not actually happen because it was just a target task) and, as a reward, could be cashed in at the end of the experiment. Then, the session started with a cooperative task.

The cooperative task—The cooperative task (adapted from de Hooge et al., 2011) was designed to trigger the guilt emotion. During the task, the participant was instructed to take a partner and a rival (namely, the experiment confederate), and complete two rounds of an online counting task. Each round contained nine questions. In each question, dozens of words flashed by on the screen, and the participant nominated how many of the words belonged to a given category by pressing the corresponding number on the keyboard. A sample question was: ‘How many names below belong to American Presidents before 1980?’ Words included: ‘George Washington, John Adams, Barack Obama, George Walker Bush, etc.’ The participant’s total accuracy scores were recorded and feedback was given after nine questions. The participant was informed that in the first round they could earn 10 chips as a reward if both their and their partner’s average accuracy were higher than their rival’s; otherwise the rival would win the reward. In the second round, if their and their partner’s average accuracy were higher than their rival’s, the partner would win 10 chips; otherwise their rival would win the 10 chips. In fact, the given categories were either too ambiguous or too difficult to answer in a few seconds, and this was how we manipulated the results of the performances. After the first round of the counting task, all the participants received bogus feedback that they successfully earned 10 chips for their and their partners’ good performance. After the second round, however, for participants in the guilt group, the feedback was that they lost the round due to their bad performance. As a result, the participants in the guilt group would feel guilt towards their partners because they contributed to their partners losing potential rewards. However, for the participants in the control group, the feedback after the second round was that their partners had won the 10 chips. So the participants in the control group wouldn’t feel guilt towards their partners.

Then, the three participants participated in a three-party dictator game.

The three-party dictator game—This game was designed to measure the degree of unfair allocation. In this game, the participants were still seated in separate compartments at the laboratory. Each participant was informed that one of them would have a chance to allocate the chips to the other two people at his/her discretion. The other two people would have no say in this division. The participant was ostensibly selected at random to divide 200 chips and was told that the other two participants did not know the total number of chips. At the end of the game, the participant could get 100 chips as a reward for this resource allocation.

In addition, as a manipulation check, on a scale ranging from 1 (not at all) to 7 (very strongly), the participant indicated how much guilt, disappointment, sadness, fear, anger or dissatisfaction he/she felt during the cooperative task.

Finally, the three participants were thanked and thoroughly debriefed, and then the experiment moved on to the next three participants.

**Results and discussion**

Emotion-manipulation check. The participants in the guilt group ($M = 4.50$, $SD = 1.66$) reported more guilt than did the participants in the control group ($M = 2.00$, $SD = 1.44$), $t_{58} = 6.24$, $p < .001$. The participants in the guilt group reported more guilt than other emotions, all $t_{59} > 2.94$, $ps < .050$. For the other emotions, there were no significant differences in both groups. Therefore the manipulation was effective.
In order to explain why guilt, as a good emotion, promotes an unfair outcome of allocation in multi-party interactions, we used the cooperative task to induce the sense of guilt as in Experiment 1, and we measured five moral foundations using the Chinese version of the Moral Foundation Questionnaire (MFQ; Graham et al., 2008; Luo et al., 2013). We proposed that only harm and the fairness foundation of morality would moderate the effect of guilt on unfair allocation.

**Experiment 2: Effects of moral foundations as individual differences**

In order to explain why guilt, as a good emotion, promotes an unfair outcome of allocation in multi-party interactions, we used the cooperative task to induce the sense of guilt as in Experiment 1, and we measured five moral foundations using the Chinese version of the Moral Foundation Questionnaire (MFQ; Graham et al., 2008; Luo et al., 2013). We proposed that only harm and the fairness foundation of morality would moderate the effect of guilt on unfair allocation.

**Chips division.** To calculate the value of unfair allocation, we subtracted the number of chips given to the rivals from the number of chips given to the partners. The results in Table 1 support our prediction: the participants in the guilt group allocated \( M = 81.60, SD = 33.77 \) more unfairly than did the control group \( M = 4.60, SD = 22.72 \), \( t_{58} = 10.19, p < .001, d = 2.63 \). Compared with the control group, the participants in the guilt group allocated more chips to their partners (also the victims), and fewer chips to their rivals. Consistent with our hypothesis, this result supports the notion of de Hooge et al. (2011) that guilty individuals are more likely to give more resources to victims but fewer resources to non-victim members in multi-party interactions.

In general, guilty individuals ought to have compensated victims by taking advantage of their own resources, however, in multi-party interactions, guilty individuals have a right to compensate victims by taking advantage of others’ resources. This seems to be more economical, and guilty dictators may be more willing to engage in this kind of compensatory behaviour for it costs nothing but relieves the suffering of guilt and possibly improves relationships with victims.

However, Experiment 1 could not explain why guilt, as a moral emotion, led to an unethical allocation result. Deeper research needs to be carried out to explore the mechanism of guilt on unfair allocation in multi-party interactions. Experiment 2 was designed to verify that the moral foundations of guilt played a pivotal role in the impact of the guilt emotion on fair allocation.

**Hypothesis 2:** Participants who more strongly endorse the harm foundation of morality, when they are made to feel guilty, will be even more likely to allocate more resources to their victims and fewer resources to non-victims compared to those who are not made to feel guilty. On the contrary, participants who more strongly endorse the fairness foundation of morality, when they are not made to feel guilty, will be even more likely to allocate more resources to their victims and fewer resources to non-victims compared to those who are made to feel guilty.

**Method**

**Participants and design.** A total of 160 Beijing Normal University students (80 women; \( M_{\text{age}} = 20.15, SD = 2.01 \)) were recruited from the campus BBS. All the participants were randomly assigned to either a guilt group or a control group. Experiment 2 contained a moral foundations measure, a lab induction of guilt and a behavioural measure. The lab induction of guilt and the behavioural measure were the same as in Experiment 1. Specifically, the guilt emotion was triggered in the guilt group, but not in the control group. We used the amount difference in chip divisions to represent the degree of unfair allocation as the dependent variable. Harm and fairness were used as the moderator variables.

**Procedure.** Participants filled in the Moral Foundation Questionnaire (MFQ) in the Chinese version revised by Luo and his colleagues (Graham et al., 2008; Luo et al., 2013). The MFQ contains two parts, which ask questions in different ways. Part 1 is ‘When you decide between right and wrong, how relevant are the following factors to your judgements?’ Part 2 is ‘Please circle the answers that present how much you agree with the statement.’ In our study, we used the Part 1 question because the Cronbach’s \( \alpha \) of Part 2 was too low (.763). Part 1 of the MFQ contained five dimensions, each with three items and one validating question at the end of the questionnaire.

Then, three participants (two real participants and one experiment confederate) entered the laboratory room and sat down in separate cubicles. They were told that during the session they would complete a series of tasks and earn gambling chips. The chips could be used later in a poker game (which did not happen) and, as a reward, could be cashed in at the end of the experiment. The session contained a cooperative task and a three-party dictator game, as in Experiment 1.

Moreover, as a manipulation check, the participants subsequently indicated how much guilt, disappointment, sadness, fear, anger or dissatisfaction they felt on a scale ranging from 1 (not at all) to 7 (very strongly) in the cooperative task.
Finally, all participants were thanked and thoroughly debriefed.

**Results and discussion**

**Emotion-manipulation check.** The guilty participants ($M = 4.25$, $SD = 2.48$) reported more guilt than did the control participants ($M = 2.30$, $SD = 1.94$), $t_{158} = 5.50$, $p < .001$, and the guilty participants reported more guilt than other emotions, all $t$s > 2.41, $p_s < .05$. For the other emotions, there were no significant differences between the two groups.

The Chinese version of the Moral Foundation Questionnaire. The Cronbach’s $\alpha$ of the entire Part 1 scale was .813, with fairness at .511 and harm at .504. The inner-item correlation matrix showed that most of the items had moderate positive correlation.

**Chips division.** The mean scores, standard deviations of the study variables and the Pearson correlation coefficients among them are presented in Table 2. The results show that unfair allocation was positively correlated with guilt and harm, but negatively correlated with fairness. However, there was no significant relationship between unfair allocation and the other three foundations of morality (namely ingroup, hierarchy and purity). What’s more, there was no significant relationship between guilt and each foundation of morality (namely fairness, harm, ingroup, hierarchy and purity).

Subsequently, regression analyses were performed to examine the effects of fairness and harm on the outcomes of allocation. Three different models were compared with each other in Table 3. Guilt was the only independent variable in Model 1, which shows the effect of guilt on unfair allocation ($\beta = 13.19$, $t_{158} = 7.77$, $p < .001$, $R^2 = .27$). Model 2 explains more variation of the dependent variable ($R^2 = .48$) to show the main effect and moderating effect of each foundation of morality. Specifically, harm could not only directly promote unfair allocation ($\beta = 6.03$, $t_{158} = 3.53$, $p = .001$), but also moderate positively the disadvantageous effect of guilt on fair allocation ($\beta = 1.27$, $t_{158} = 2.25$, $p < .05$), while the fairness foundation could only directly promote fair allocation ($\beta = -5.61$, $t_{158} = -2.61$, $p = .01$). As we expected, there were no significant main effects or moderating effects of the other three moral foundations (ingroup, hierarchy and purity). Based on Model 2, Model 3 removed the independent variables of ingroup, hierarchy and purity, and it could still explain 43% of the variation of the dependent variable ($R^2 = .43$). We thought Model 3 was more compact than Model 2, because six factors were reduced in Model 3 while the effect size decreased by only 5 percentage points. What’s more, the results of Model 3 were in accordance with those in Model 2: the main effect of harm ($\beta = 6.57$, $t_{158} = 3.70$, $p < .001$) and the moderating effect of harm ($\beta = 1.42$, $t_{158} = 2.49$, $p = .014$) were both significant; the main effect of fairness was significant ($\beta = -6.62$, $t_{158} = 2.38$, $p < .05$), while the moderating effect of fairness was non-significant ($\beta = -2.6$, $t_{158} = -0.37$, $p = .712$). The results show that the fairness foundation promoted equality in allocation regardless of whether the allocator felt guilty, while the harm foundation promoted victim compensation (unfair allocation) particularly when the allocator felt guilty.

To explore this significant interaction between guilt and the harm foundation in detail, we compared the effect size of guilt on unfair allocation in the ‘high value of harm group’ with that in the ‘low value of harm group’. The two groups were split by the median of values of harm foundation (Median = 4.22). As Table 4 and Figure 1 indicate, there was a significant effect of guilt on unfair allocation for the participants with a high value of harm foundation, $t = 15.10$, $p < .001$, $d_1 = 3.38$ and such a significant effect also existed for the participants with a low value of harm foundation, $t = 7.95$, $p < .001$, $d_2 = 1.78$. We noticed that $d_1 > d_2$. Thus, it can be concluded that there was a stronger causal

| Variables                  | $M$   | $SD$  | 1 | 2   | 3   | 4   | 5   | 6   | 7   |
|----------------------------|-------|-------|---|-----|-----|-----|-----|-----|-----|
| 1. Guilt                   | 1.50  | 0.50  | – | .14 | –   | .36***| –   |     |     |
| 2. Fairness                | 4.90  | 1.31  | -.14| –   |     |     | .22***| .10 |     |
| 3. Harm                    | 4.22  | 1.77  | .08| -.16| -.06| .19* |     |     |     |
| 4. Ingroup                 | 3.65  | 1.92  | .13|     | -.22***| .10 |     |     |     |
| 5. Hierarchy               | 3.88  | 1.89  | .08|     | -.16* | -.06| .19* |     |     |
| 6. Purity                  | 4.53  | 2.01  | -.05| .05 | .01 | .04 | -.01|     |     |
| 7. Unfair allocation       | 122.04| 28.61 | .52***| -.49***| .53***| .15 | .02 | -.09|     |

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

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The interaction between guilt and fairness is also shown in Table 5 and Figure 2, although the moderating effect was non-significant. There was a significant effect of guilt on unfair allocation for the participants with a high value of fairness foundation, $t = 5.07, p < .001, d_1 = 1.13$, and such a significant effect also existed for the participants with a low value of fairness foundation, $t = 5.67, p < .001, d_2 = 1.27$. We noticed that $d_1$ approximately equaled to $d_2$.

These results suggest that in the three-party dictator game, people who more strongly endorsed the harm foundation of morality tended to allocate more unfairly, while people who more strongly endorsed the fairness foundation of morality tended to allocate more fairly. In addition, people who more strongly endorsed the harm foundation of morality, when they were made to feel guilty, were even more likely to allocate more resources to their victims and fewer resources to non-victims compared to those who were not made to feel guilty.

**Table 3** Regression analyses for the prediction of unfair allocation by the independent variables in Experiment 2

| Model 1 | Model 2 | Model 3 |
|---------|---------|---------|
| **Constant** | 37.46 | 8.49 |
| **Guilt** | 13.19 | 7.85 |
| **Guilt × fairness** | -0.20 | -0.26 |
| **Guilt × harm** | 1.27 | 1.42 |
| **Guilt × ingroup** | 2.81 | 2.12 |
| **Guilt × hierarchy** | -5.30 | -4.23 |
| **Guilt × purity** | 2.73 | 3.11 |
| **Fairness** | -5.61 | -6.62 |
| **Harm** | 6.03 | 6.57 |
| **Ingroup** | 7.65 | 
| **Hierarchy** | -4.23 | 
| **Purity** | 3.11 | 
| **Guilt × fairness** | 0.20 | 0.26 |
| **Guilt × harm** | 1.27 | 1.42 |
| **Guilt × ingroup** | 2.81 | 2.12 |
| **Guilt × hierarchy** | -5.30 | -4.23 |
| **Guilt × purity** | 2.73 | 3.11 |
| **Fairness** | -5.61 | -6.62 |
| **Harm** | 6.03 | 6.57 |
| **Ingroup** | 7.65 | 
| **Hierarchy** | -4.23 | 
| **Purity** | 3.11 | 
| **Guilt × fairness** | 0.20 | 0.26 |
| **Guilt × harm** | 1.27 | 1.42 |
| **Guilt × ingroup** | 2.81 | 2.12 |
| **Guilt × hierarchy** | -5.30 | -4.23 |
| **Guilt × purity** | 2.73 | 3.11 |
| **Fairness** | -5.61 | -6.62 |
| **Harm** | 6.03 | 6.57 |
| **Ingroup** | 7.65 | 
| **Hierarchy** | -4.23 | 
| **Purity** | 3.11 | 
| **Guilt × fairness** | 0.20 | 0.26 |
| **Guilt × harm** | 1.27 | 1.42 |
| **Guilt × ingroup** | 2.81 | 2.12 |
| **Guilt × hierarchy** | -5.30 | -4.23 |
| **Guilt × purity** | 2.73 | 3.11 |
| **Fairness** | -5.61 | -6.62 |
| **Harm** | 6.03 | 6.57 |
| **Ingroup** | 7.65 | 
| **Hierarchy** | -4.23 | 
| **Purity** | 3.11 | 

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

**Table 4** Means (standard deviations) for ‘unfair allocation’ in each group and ‘unfair allocation’ as a function of ‘harm foundation’ and ‘conditions of guilt’ in Experiment 2

| Group | Guilt | Control | $t$ | d.f. | $p$ | $d$ |
|-------|-------|---------|-----|------|-----|-----|
| High value of harm | 98.40 (26.17) | > | 11.33 (24.74) | 15.10 | 78 | <.001 | $d_1 = 3.38$ |
| Low value of harm | 50.00 (26.13) | > | 3.47 (25.56) | 7.95 | 78 | <.001 | $d_2 = 1.78$ |

**Figure 1** Experiment 2: Unfair allocation as a function of guilt and the harm foundation of morality.

**General discussion**

de Hooge et al. (2011) found that although guilt could bring about pro-social behaviour towards victims, it might also evoke disadvantageous effects on others. They were concerned about the dark side of guilt, but in the present study, we attempted to extend this phenomenon of guilt to a broader domain of social fairness. The results of the present study reveal that in multi-party interactions, people who felt guilt toward a certain victim would give more resources to the victim and fewer resources to the non-victim, which meant unfair allocation. This result was verified repeatedly in Experiments 1 and 2.
Previous studies realized the dark side of guilt, but their concern was the self-interested function of guilt. However, few studies have discussed why guilt, as a moral emotion, could lead to an unfair result (Nelissen, 2012). In the present study, we found that the mechanism might actually involve two different but coexisting moral foundations: harm and fairness. Because guilt results from violating moral rules, harm and fairness played guiding roles in how the guilty individuals regarded their mistakes and what they compensated for.

Harm and fairness are regarded as individual differences. People’s attitudes towards harm and fairness vary, and moralities about harm and fairness are formed gradually and as a result of different environmental factors (i.e., place of birth, family situation, culture, education, etc.). Some people take fairness, justice and freedom far more seriously than harm, damage and injury, and vice versa. So when people feel guilty, some of them care about the violation of harm more than fairness, and they tend to compensate for harm rather than fairness, but others care about the violation of fairness more than harm, so they tend to compensate for fairness rather than harm. In three-party interactions, the former group will allocate social resources more unfairly than the latter group, so the outcomes of allocation depend on the outcomes of competition between the harm and fairness foundations of morality.

The result regarding the moderating effects of moral foundations in Experiment 2 does not seem to be in accordance with our hypothesis. We only find the moderating effect of the harm foundation of morality, which means people who more strongly endorse the harm foundation of morality, when they are made to feel guilty, will be even more likely to allocate more resources to their victims and fewer resources to non-victims compared to those who are not made to feel guilty. That is, people who care about the harm foundation will be more easily influenced by the guilt emotion when they allocate social resources. However, the fairness foundation doesn’t have the moderating effect.

In three-party dictator games, harm means guilt promotes unfair allocation on the one hand, but fairness means guilt promotes fair allocation on the other hand. Guilty individuals have to balance the two foundations of morality when they decide how to allocate resources. Therefore, we believe harm and fairness could explain the disadvantageous impact of guilt on fair allocation in multi-party interactions.

Haidt and Graham (2007) established the moral foundation theory, but they seldom mention the situations in which the five foundations of morality conflict with each other. We believe the conflict situations are ubiquitous in multi-party interactions. The present study attempted to reveal how harm and fairness compete against each other, and how they affect the impact of guilt on fair allocation in multi-party interactions.

Nonetheless, there is no doubt that all five foundations of morality can coexist harmoniously in many instances, because they are all important instinctive psychological systems involved in making moral judgements. Moral dilemma occurs when resources are limited. In this situation, people can’t satisfy all the moral rules at the same time, so they tend to make a balance based on their intuitions, namely competition among all the moral foundations.
Implications and limitations

The experiments in the current study were also designed to shed light on the issue of corruption, which involves the allocation of social resources. Corruption is a global issue and a political–psychological problem that all governments are concerned with. We suggest that people do not simply regard unfair allocation as immoral, but consider it as an outcome of competition among all the moral foundations that underlie it. Then, we can take actions to enhance the fairness foundation of morality as well as weaken the other foundations of morality, to improve social fairness and reduce corruption. For example, a fair society is more likely to be constructed under the control of a government that advocates freedom, equality, and personal rights, and has a legal system with sound laws and regulations.

In fact, more research is needed to explore the effect of the competition between fairness and other foundations of morality on fair allocation, for example, ingroup and hierarchy. It is reasonable to think that other moral emotions like sympathy, anger and contempt may also have a disadvantageous effect on fair allocation. By furthering research along these lines, we may be able to propose a theory for the competition of moral foundations to explain why true fairness is often too flimsy to obtain in real life.

Conclusion

A sense of guilt, as a moral emotion, can induce unfair allocation in multi-party interactions. Competition between harm and fairness in individual traits can explain the disadvantageous effect of guilt on fair allocations; the fairness foundation promotes equality in allocation, while the harm foundation promotes victim compensation. In addition, the harm foundation of morality can positively moderate the effect of guilt on unfair allocation.

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Note

1. Another 30 participants (in the compensation group), who were recruited at the same time, were made to feel guilty and then accepted guilt compensation through a ‘helping others’ task. Participants in the compensation group reported more guilt ($M = 4.37$, $SD = 1.99$) than did the participants in the control group ($M = 2.00$, $SD = 1.44$), $t_{58} = 4.53$, $p < .001$. The participants in the guilt group divided ($M = 81.60$, $SD = 33.77$) more unfairly than the compensation group ($M = 31.40$, $SD = 23.12$), $t_{58} = 6.72$, $p < .001$. This experimental condition was dropped in accordance with the reviewers’ advice, for it was beyond the scope of this paper.

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