

# Unveiling Unexpected Selfless Collectivism: Exploring Variances in Moral Beliefs Across Cultural Values

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**Purpose:** The impact of moral beliefs on individuals' moral judgments, particularly within the framework of contrasting cultural values such as collectivism and individualism, continues to be a subject of interest. This research delves into whether individuals with distinct values display differences in moral beliefs, with a specific focus on selflessness.

**Methods:** Through experiment 1 and 2, we scrutinize the moral judgments of individuals with diverse values concerning pro-social behaviors driven by selflessness and in-group favoritism. Experiment 3 investigates the underlying mechanisms by examining reward expectations.

**Results:** The findings from experiments 1 and 2 indicate that collectivists exhibit significantly higher moral judgment levels for selfless pro-social behaviors compared to individualists, highlighting a disparity in moral beliefs between the two value systems. Experimental 2 also found that collectivists' moral judgments rose and fell as rescuers' selflessness increased or decreased. However, individualist moral judgment did not change significantly with behavioral selflessness. The results reveal that collectivists hold higher reward expectations for selfless behavior, which contributes to their heightened moral judgment of selfless behavior.

**Conclusion:** While it may be assumed that collectivists' moral beliefs would be dominated by in-group preferences, aligning with the conceptual in-group preference of collectivism, this study unexpectedly found evidence of collectivists' pursuit of selflessness in their moral beliefs. These findings offer initial evidence of distinct patterns of moral beliefs associated with collectivism and individualism, shedding light on potential reasons that lead collectivists to possess stronger moral beliefs about selflessness.

**Keywords:** collectivism, individualism, moral beliefs, pro-social behavior, selflessness

## Introduction

While prior studies have examined the determinants of diverse moral beliefs, such as personality, education level, and social status, there remains a significant gap in research regarding whether individuals' primary moral beliefs vary across cultural values. This study aims to investigate the specific manifestations of the moral belief—selflessness—among individuals with distinct values.

“Selflessness” refers to an individual's endorsement of beliefs and attitudes towards altruistic behaviors, caring for others, and acting for the benefit of others. This belief reflects a concern for social responsibility and common interests, indicating a willingness to sacrifice personal interests in certain situations to promote the welfare of others and the overall benefit of society.<sup>1</sup> Given the lack of consistent understanding of selflessness across studies, the concept of selflessness addressed in this study is defined by the reduced emphasis on personal gain in moral judgment. Now, consider a hypothetical scenario where an individual is faced with a moral dilemma: the decision to save either a close friend or a stranger. This scenario prompts a fundamental question regarding whom the individual should prioritize, and whether sacrificing a stranger to save a friend, or vice versa, represents the more ethical choice. Those with a dominant moral belief in in-group preferences are more likely to prioritize a friend over a stranger, reflecting an ethical behavior rooted in fulfilling their responsibility towards their in-group.<sup>2–6</sup> Conversely, individuals whose dominant moral belief is

selflessness are more inclined to consider prioritizing the rescue of strangers as a more ethical behavior,<sup>7</sup> perceiving the act of rescuing strangers as possessing a higher level of selflessness and moral worth.

The focus of this study was on whether individuals with different values differed in selflessness beliefs. The conceptualization of individualism and collectivism follows the definition proposed by Bhagat, Erez, Earley,<sup>8</sup> characterizing these orientations as a set of shared beliefs and values concerning the relationship between individuals and collectives. Specifically, it explores whether individual interests take precedence (individualism) or if beliefs align with prioritizing collective interests (collectivism).<sup>9,10</sup> While it may be assumed that collectivists' moral beliefs would be dominated by in-group preferences, aligning with the conceptual in-group preference of collectivism, this study unexpectedly found evidence of collectivists' pursuit of selflessness in their moral beliefs.

This research is crucial due to the scarcity of cross-cultural studies on moral beliefs and the potential for values to provide insight into why some people view an act as morally superior while others view it as punishable. Moreover, the exploration of moral beliefs in the context of different cultural values holds particular significance in policymaking, where discrepancies in moral beliefs across cultural values may elucidate the challenges encountered when implementing policies in diverse cultural contexts. For instance, this study sheds light on why certain policies that are effective in collectivist-oriented countries may face obstacles when implemented in individualist-oriented countries, particularly in scenarios involving trade-offs between aiding distant and proximate targets, such as allocating aid budgets for COVID-19. Overall, this study seeks to contribute to a deeper understanding of the interplay between cultural values and moral beliefs, shedding light on the complexities of moral decision-making processes in a diverse and interconnected world.

## Two Alternative Moral Beliefs: Selflessness and in-Group Favoritism

Initially, we would like to elucidate the significance of selflessness in the realm of morality. Selflessness, characterized by assisting others even at personal cost, is a fundamental component of morality.<sup>11</sup> Effective altruism advocates for individuals to maximize the impact of their charitable contributions while bearing equivalent costs.<sup>12,13</sup> From this perspective, minimizing the influence of social proximity is crucial in maximizing the effectiveness of benevolent actions.<sup>13</sup> Additionally, altruistic acts motivated by material, social, or psychological benefits are considered to have a lower moral rating as they do not demonstrate the same level of selflessness.<sup>7</sup> However, selflessness has not taken absolute leadership in the moral realm either. Research in social psychology and affective neuroscience has provided insights into human behavior regarding caring and empathy. Studies consistently demonstrate that people have a natural inclination to care for and empathize with those who are socially closer and more similar to them.<sup>2-6</sup> For example, when sharing economic resources within their social network, individuals tend to allocate more resources to those who are closer to them.<sup>14-16</sup> Furthermore, Crimston, Bain, Hornsey, Bastian<sup>17</sup> found that people do not perceive in-group preference as unethical. Instead, they argue that individuals consider close people to be more deserving of moral concern than out-group others due to historical evolutionary factors. McManus, Kleiman-Weiner, Young<sup>18</sup> conducted a study that found helping socially distant individuals at the expense of helping close individuals was considered morally unacceptable.

Although we cannot definitively claim that selflessness beliefs and in-group preference beliefs are mutually exclusive, it is indisputable that individuals with a strong inclination towards selflessness are more likely to concede the interests of the in-group in moral decision-making. Conversely, individuals with a strong in-group preference find it challenging to jeopardize the interests of close individuals for the sake of strangers. People's choices in moral dilemmas and their moral judgments reveal their dominant moral preference. The belief that it is more moral to save a stranger indicates that the belief in selflessness prevails, while the belief that it is more moral to save a close person suggests that in-group preference prevails. In our experiment, we aim to ascertain individuals' dominant moral beliefs by comparing their level of moral evaluation regarding different behaviors.

## Differences in Moral Beliefs Between Individualism and Collectivism

Haidt, Koller, Dias<sup>19</sup> observed that moral beliefs exhibit cross-cultural variations. While acts that cause physical and psychological harm to individuals are universally prohibited, certain harmless or non-injurious rituals may be permitted

in some cultures and prohibited in others. Thus, exploring people's choices between this good and the other good from a values perspective is a very promising direction.

Bhagat, Erez, Earley<sup>8</sup> define individualism and collectivism as a set of shared beliefs and values regarding the relationship between the individual and the collective or group. Ethical decision-making is influenced by individualism and collectivism, which pertain to beliefs about whether the individual good or the collective good takes precedence.<sup>9,10</sup> Although it appears from the definitions of collectivism and individualism that collectivists will show stronger in-group preferences and a stronger aversion to "sacrificing those close to them to save strangers" due to the prioritization of in-group interests. However, this study predicts that collectivists will show a stronger preference for selflessness than individualists.

The reasons as follows: First we need to be clear that there are some differences between collectivists' in-group prioritization beliefs and moral beliefs, and whether collectivists' in-group prioritization manifests itself in their moral beliefs needs to be further explored, especially since many studies have continually emphasized the importance that collectivists place on selflessness as a moral belief. Sastry, Ross<sup>20</sup> found that collectivist-oriented Asian cultures place greater emphasis on selflessness compared to individualist-oriented Western cultures. However, the study also highlighted that collectivists' selflessness is primarily directed towards their family and community. It remains open to question whether collectivists may exhibit a broader spectrum of selflessness extending from their behavior. Also, collectivist cultures prioritize social stability and harmony and view individual self-needs as potentially detrimental to society. To maintain social order and minimize conflict, individuals are encouraged to prioritize the needs of the collective or others over their personal needs.<sup>21</sup> Even the definition of collectivism itself underscores the selflessness of collectivists by emphasizing that people put the interests of the collective before the interests of the individual, essentially. Combined with the profound influence of Confucianism on East Asian culture, it is emphasized that individuals should pursue moral perfection and achieve social harmony through selfless and humble behavior.<sup>22</sup> Within such moral values, prioritizing individual rights and defending the interests of close in-groups may be perceived as selfish and immoral.<sup>23,24</sup> In contrast, individualistic cultures emphasize rights rather than obligations. In the context of individualistic cultures, individuals have the right to pursue their own interests and power to attain personal freedom and happiness, without feeling ashamed for doing so.<sup>21,25</sup> Considering the prevailing cultural context and value orientation, it is reasonable to expect that collectivists would cultivate stronger beliefs in selflessness compared to individualists.

Additionally, collectivists have the social capital and support to practice the moral conviction of selflessness, knowing that other in-group members can help cover their backs when they are unable to fulfill their in-group responsibilities. On the other hand, for individualists, the narrow and tightly knit in-group sphere means that they need to be the first to respond to difficulties or dangers for their close ones, as there may be irreversible consequences if they do not.<sup>25,26</sup> This practical reason makes it challenging for individualists to take the risks involved with the pursuit of selflessness.

Finally, we utilize normative shifts<sup>27</sup> - the process by which people's morals and values change in response to changes in production - to explain the historical reasons for the differences in moral beliefs between collectivists and individualists. In rural and traditional societies, collectivism was practiced through mutual aid and collaboration, which were essential for the survival and development of agrarian cultures as land and natural resources were utilized for food production and basic needs. The moral belief of selflessness not only fulfills the moral quest of collectivists but also plays a functional role in helping them expand the scope of the in-group to enhance food production and withstand risks. In contrast, industrialization introduced advanced technology, transportation, and communication, making individuals in individualistic cultures more self-sufficient. As a result, individualists may be less likely to support strangers because they believe they can solve problems independently and have less experience being rewarded for "helping strangers".

Based on the theoretical and empirical evidence presented, it can be inferred that collectivists hold stronger beliefs about selflessness in moral judgments compared to individualists.

## Expected Return Motives for Strong Selflessness Beliefs in Collectivists

Our groundbreaking research delves into the use of future reward expectations to elucidate why collectivists maintain stronger selflessness beliefs compared to individualists. Drawing from norm-shift theory,<sup>27</sup> it is plausible that selfless behavior within collectivist cultures serves a functional purpose. The convictions regarding collectivist selflessness likely

stem from the reinforcement of the link between selfless behavior and the expansion of the in-group's scope, as well as an increase in risk tolerance. In contrast, for individualists, the belief in selflessness does not fulfill a similar functional role as it does for collectivists. This is partly since individualists do not possess a strong imperative to expand their in-groups, and also because, in the context of individualism, individuals are much less likely to receive positive reinforcement for their selfless behavior. Consequently, for individualists, selfless behavior primarily satisfies a moral need without serving a survival function. To validate this hypothesis, we can simply compare whether collectivists and individualists differ in their expectations of rewards for selfless behavior, and whether this disparity accounts for the variation between the two groups in their moral assessment of selfless behavior.

At the same time, it's important to clarify that the positive correlation between high reward expectations and high mortality among collectivists appears to contradict Barasch's view. Barasch, Levine, Berman, Small<sup>7</sup> argue that the higher the level of reward obtained for a behavior, the lower the level of selflessness and morality. However, we would like to emphasize that the findings of this study are not inherently contradictory to Barasch's view. The more positive attitudes of collectivists towards selflessness stem from the implicit association between selflessness and positive outcomes in past experiences. As a result, collectivists tend to have higher expected rewards for selfless behavior, creating a positive cycle that makes them more willing to engage in selflessness in their future choices. Nevertheless, this does not imply that high rewards are necessary for collectivists to engage in selfless behavior.

## Overview

The primary aim of this study was to compare the moral beliefs regarding selflessness between collectivists and individualists. In Experiment 1, Chinese (collectivist-oriented) and American (individualist-oriented) participants were presented with scenarios related to selflessness-oriented beliefs (rescuing strangers) and in-group preferences (rescuing people close to them) and were asked to make moral evaluations of these behaviors. In Experiment 2, we primed Chinese participants' collectivist/individualist tendencies in a rigorous experimental procedure to replicate the findings of Experiment 1.

We hypothesized that collectivists would exhibit significantly higher selflessness beliefs than individualists (Hypothesis 1). This was supported by the Chinese participants' moral evaluations, which indicated a significantly higher regard for selflessness-dominated behavior compared to that of individualists.

In addition, in Experiment 2, we also controlled for the level of selflessness of the behavior to observe changes in individuals' moral evaluations of the behavior under different values. If an individual's primary moral belief pertains to the level of selflessness in behavior, then the individual's moral evaluation of the behavior should vary accordingly. To control for the level of selflessness, experiment 2 managed the level of the helper's contribution, as well as the social distance between the helper and the rescued person. It was observed that the higher the level of the helper's contribution, the higher the level of selflessness of the behavior,<sup>28</sup> and the greater the social distance between the helper and the rescued person, the higher the level of selflessness of the behavior.<sup>7</sup> We anticipated that collectivists would exhibit a more pronounced positive correlation between the moral evaluation of behavior and the level of selflessness of behavior compared to individualists (Hypothesis 2).

Furthermore, we investigated potential reasons for the differences in moral beliefs across values. In Experiment 3, participants were asked to evaluate the morality of both selflessness-dominant (rescuing strangers) and in-group preference-dominant (rescuing those close to them) behaviors, while also assessing the level of possible future reward for these behaviors. We anticipated that collectivists would demonstrate a higher level of expected rewards for behaviors aligned with selflessness as the dominant moral belief compared to individualists (Hypothesis 3), and that reward expectations as a mediator could effectively explain the relationship between values and moral evaluations (Hypothesis 4).

## Experiment 1

### Method

#### Ethical Issues

Institutional Review Board (IRB) approval was obtained (IORG0011738). The study protocol was conducted in accordance with the requirements of the research program and applicable laws and regulations. Furthermore, the study adhered to the principles outlined in the current version of the Declaration of Helsinki.

## Participants

140 Chinese participants (57 females, 83 males, aged 18 to 25) were recruited through the internet. To ensure adequate statistical power for the planned contrasts in the ANOVA, a sensitivity power analysis was performed using G\*Power 3.1.<sup>29</sup> With an alpha level set at 0.05, the analysis revealed that the chosen sample size of  $N = 140$  would provide 80% power to detect an effect size of  $f = 0.064$ . This effect size is traditionally considered small.<sup>30</sup> To compensate them for their time and effort, all participants received 5RMB payment. In addition, in Experiment 1 we drew on open data from the US participants in the Fowler, Law, Gaesser<sup>31</sup> study (300 participants, 55% men; mean age = 42.5 years). US participants were compensated \$5 for completing the experiment. No data were excluded from the observations. All data can be found at [https://osf.io/pdwz8/?view\\_only=638f5af046f5402e9f855e0f6f37e8da](https://osf.io/pdwz8/?view_only=638f5af046f5402e9f855e0f6f37e8da), and key study materials are described in detail in the text. No pre-registration was performed for this study, and the above statements also apply to Experiments 2 and 3. Informed consent was obtained from all participants, who were compensated for their time and effort. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. This statement applies to all experiments in the study. No data were omitted from the final data analysis.

## Procedure

Experiment 1 consisted of a 4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  4 (individuals toward whom empathy is extended: socially distant target only, socially close target only, both targets equally, neither target) within-participant design. Participants viewed a total of 16 vignettes, all in the same context where the protagonists of the stories were told about a global food shortage and learned about two people who were experiencing hunger. After learning about the plights of these two individuals, the person in the story then feels empathy for the socially distant target, the socially close target, both targets, or neither target. The socially distant target was held constant as an individual in a distant country, whereas the socially close target varied from someone living in China to someone living in the same town, a friend, or a family member. Targets were selected from previous research indicating that they vary in perceived social distance and consequently in moral concern<sup>17</sup> (The specific differences in the 16 vignettes are detailed in Table 1). The vignettes were presented in random order, and after each vignette was presented, participants were asked to rate the moral level of the protagonist in the vignette, and briefly described why they thought the protagonist was morally right or wrong. Finally, participants completed demographics information, and were thanked for their participation. All experimental materials were presented in Mandarin. The following are the translated versions.

**Table 1** Specific Experimental Materials for the 16 (4social Distance of Close Target $\times$  4 Individuals Toward Whom Empathy is Extended) Conditions in Experiment 1

	Empathy Act Type			
Close target	Socially close target only	Socially distant target only	Both targets equally	Neither target
Same country	The protagonist feels empathy for the suffer from same country instead of the African sufferer.	The protagonist feels empathy for the African sufferers rather than his own country.	The protagonist feels empathy for both.	The protagonist feels no empathy for either.
Same town	The protagonist feels empathy for the suffer from same town instead of the African sufferer.	The protagonist feels empathy for the African sufferers rather than his own town.	The protagonist feels empathy for both.	The protagonist feels no empathy for either.
Friends	The protagonist feels empathy for the friends instead of the African sufferer.	The protagonist feels empathy for the African sufferers rather than his friend.	The protagonist feels empathy for both.	The protagonist feels no empathy for either.
Family	The protagonist feels empathy for the family instead of the African sufferer.	The protagonist feels empathy for the African sufferers rather than his family.	The protagonist feels empathy for both.	The protagonist feels no empathy for either.

**Note:** All stories have the same background, the difference lies in the reaction of the protagonist to the two sufferers of the story.

## Measure

After each vignette, participants rated how morally right or wrong they thought the emotional experience of empathy felt by the protagonist of the vignette was (1 = extremely morally wrong; 5 = neither right nor wrong; 9 = extremely morally right).

## Results

Only the most relevant results to the research hypotheses are reported in this study.

We first conducted a 4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  4 (individuals toward whom empathy is extended: socially distant target only, socially close target only, both targets equally, neither target) within-participant ANOVA, which found a significant main effect of different type of empathic acts,  $F(3, 417) = 342.18, p < 0.001, \eta^2 = 0.71$ . Participants' moral judgments of different empathic acts were, in descending order: both targets, socially close target only, socially distant target only, and neither target, which was consistent with the previous findings.<sup>31</sup> Post hoc comparisons with Bonferroni corrections indicated that when collapsed across social distance, all conditions were significantly different in perceived moral rightness or wrongness. Participants rated the protagonist in the vignette as the most morally right if they felt empathy for both individuals in need ( $M = 7.52, SD = 1.30, SEM = 0.55$ ) and less morally right if the protagonist felt empathy only for socially close target ( $M = 6.95, SD = 1.47, SEM = 0.62, t(139) = -7.67, p < 0.001, dz = -0.32, 95\% CI = [-.72, -0.43]$ ). Meanwhile, participants rated the protagonist in the vignette as the most morally wrong if they were depicted as feeling no empathy ( $M = 3.01, SD = 1.90, SEM = 0.80$ ) but less morally wrong if the protagonist felt empathy for only socially distant target ( $M = 4.95, SD = 2.11, SEM = 0.09, t(139) = 20.46, p < 0.001, dz = 0.86, 95\% CI = [1.76, 2.14]$ ). Further, participants judged the protagonist's feelings as less morally wrong when those feelings were for only a socially close target rather than a socially distant target,  $t(139) = -18.80, p < 0.001, dz = -0.79, 95\% CI = [-2.19, -1.77]$ .

From the above results, it seems that there is no significant difference in overall moral beliefs between Chinese participants and American participants, with both having in-group preference beliefs overtaking selflessness beliefs as the dominant moral beliefs (moral evaluations of empathically close targets were higher than those of empathically distant targets). However, we are curious whether there is a difference between collectivists and individualists in terms of selflessness beliefs respectively. Thus, after analyzing the Chinese participants separately, we put the US participants' and Chinese participants' data together in a 2 (participant type: American; Chinese)  $\times$  4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  4 (individuals toward whom empathy is extended: socially distant target only, socially close target only, both targets equally, neither target) repeated ANOVA, with the US participants' data referenced from the open data of the study by Fowler, Law, Gaesser<sup>31</sup> (Data analysis was performed to ensure complete consistency between the two experimental procedures), where participants from different countries were the between-participant variables, the four empathic behavior types and four target types were the within-participant variables. It was found that firstly, the main effect of participant type was significant,  $F(1, 438) = 10.53, p < 0.001, \eta^2 = 0.19$  and the moral rating of Chinese participants ( $M = 5.61, SD = 0.08$ ) was generally higher than that of American participants ( $M = 4.67, SD = 0.05$ ); Secondly, the interaction between empathic act type and participant type was also significant,  $F(3, 1314) = 54.57, p < 0.001, \eta^2 = 0.11$ . The results of the simple effect analysis are shown in Figure 1, which indicates significant differences in the moral judgments of different participants for different types of empathic acts. Specifically, Chinese participants had significantly higher moral judgments for the socially close target only condition (Chinese:  $M = 6.95, SD = 1.47$ ; American:  $M = 4.64, SD = 1.98, t(1758) = 24.61, p < 0.001, dz = 0.55, 95\% CI = [2.12, 2.49]$ ) and the socially distant target only condition than American participants (Chinese:  $M = 4.96, SD = 2.11, SEM = 0.09$ ; American:  $M = 3.62, SD = 1.75, SEM = 0.05, t(1758) = 14.03, p < 0.001, dz = 0.33, 95\% CI = [1.16, 1.53]$ ). This result is generally consistent with Hypothesis 1.

## Experiment 2

Social progress and cultural integration have altered values.<sup>32</sup> Qualification of values with participants from different nations raises several concerns, therefore in Experiment 2, we primed participants' collectivist/individualist tendencies in a rigorous experimental technique to duplicate the data pattern of values' effect on moral beliefs. In addition, we added



**Figure 1** Results of a simple effects analysis of the interaction between different values and empathy act types on moral judgments (Error bars indicate 95% CI; \* $p < 0.05$ ).

the rescuer's level of contribution as a new control variable, because the rescuer did not really give anything to the empathic behaviors used in Experiment 1, we wanted to investigate whether individuals with different values still show difference in moral beliefs when evaluating behaviors that really consume the rescuer's time or money, ie, whether collectivists still show stronger beliefs about selflessness and higher moral evaluations of "socially distant target only" condition. In addition, experiment 2 controlled for the level of behavioral selflessness by managing the rescuer's contribution and the distance between the rescuer and the helper. Once again, it sought to ascertain whether collectivists and individualists exhibited differing moral beliefs by examining whether subjects' moral evaluations fluctuated with the level of behavioral selflessness.

Experiment 1 showed that people with different values do not significantly differ in their moral evaluations of "both targets" and "neither target", Experiment 2 did not include these conditions.

## Method

### Participants

201 Chinese participants (108 females; 93 males; Age range of 18 to 25) were recruited through the internet. To ensure adequate statistical power for the planned contrasts in the ANOVA, a sensitivity power analysis was performed using G\*Power 3.1 (Faul et al, 2007). With an alpha level set at 0.05, the analysis revealed that the chosen sample size of  $N = 201$  would provide 80% power to detect an effect size of  $f = 0.054$ . This effect size is traditionally considered small.<sup>30</sup>

### Procedure

Experiment 2 was a mixed experimental design of 2 (priming type: individualism, collectivism)  $\times$  4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  2 (individuals toward whom empathy is extended: socially distant target only, socially close target only)  $\times$  2 (contribution level: empathic, prosocial act), with the priming was a between-participants variable, the other three were within-participants variables.

The experiment began with participants completing a scrambled sentence task to prime individualistic or collectivistic tendencies without being told the purpose of the experiment. Participants were asked to unscramble words to create a meaningful sentence, experimental paradigm adapted from Oyserman, Lee.<sup>33</sup> To prime individualism, the words I, my, mine, different, competing, own, free, unique, separated, confident, unusual, autonomous, separate, apart, autonomous, detached, different, dissimilar, unique, independent, individual, isolated, separate, solitary, divided, unique, and self-sufficient were used. To prime collectivism, the words we, our, our, joined, similar, similarly, shared, cooperative, able to agree, helpful, group, respectful, partnership, together, team, supportive, others, additional, allied, close, cohesive, connected, indivisible, interdependent, intimate, common, combined, overlapping of, similar, shared, together, allied, and friendship were used. After completing the priming paradigm, participants completed the associated values measuring scales. Next, the experimental process was almost the same as Experiment 1. Participants read 16 vignettes; Experiment 1 only included the empathic act of the protagonist (eg, the protagonist did not feel empathy for the family but for Africans), while Experiment 2 added a prosocial act (eg, Instead of reaching out to their family, the protagonist reaches out to African suffers). The second difference was to reduce the participants' fatigue, experiment 2 only included the two conditions of "socially distant target only" and "socially close target only". As in Experiment 1, participants were required to evaluate the protagonist's morality after reading each narrative and to briefly explain their reasoning before moving on to the next vignette. A total of 16 vignettes appeared randomly.

## Measure and Manipulation Check

The horizontal and longitudinal individualism and collectivism scales were adapted from Oyserman, Coon, Kimmelmeier,<sup>9</sup> a 29-item self-report scale that measures a person's cultural orientation using a 7-point Likert scale ranging from completely disagree to completely agree. Both dimensional scales showed high reliability (individualism: Cronbach's  $\alpha = 0.82$ ; collectivism: Cronbach's  $\alpha = 0.86$ ). Participants under collectivism and individualism priming showed marginal differences on the values scale, supporting the validity of the priming effect,  $t(29) = 1.77, p = 0.058$ . Moral judgments were measured in the same way as in Experiment 1.

## Result

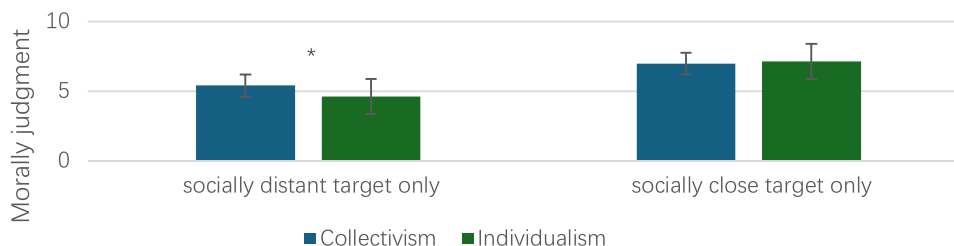
We first conducted a 2 (priming type: individualism, collectivism)  $\times$  4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  2 (individuals toward whom empathy is extended: socially distant target only, socially close target only)  $\times$  2 (contribution level: empathic, prosocial act) repeated ANOVA and found a marginally significant main effect of priming,  $F(1, 199) = 3.70, p = 0.056, \eta^2 = 0.02$ , a post hoc test found that participants' overall moral judgments were significantly higher in the collectivist priming condition ( $M = 6.19, SD = 0.12$ ) than in the individualist priming condition ( $M = 5.87, SD = 0.11$ ), in which collectivism had higher overall moral ratings than individualism for different types of acts.

The most relevant result for Hypothesis 1 is that the interaction between saving act type and priming was significant,  $F(1, 119) = 8.74, p = 0.003, \eta^2 = 0.04$ , the results of the simple effects analysis were shown in Figure 2. There was no significant difference between collectivism and individualism for the moral evaluation of socially close target only condition (collectivism:  $M = 7.14, SD = 0.10$ ; individualism:  $M = 6.98, SD = 0.11$ ), but collectivism was significantly higher than individualism in the moral evaluation of socially distant target only condition (collectivism:  $M = 5.40, SD = 0.21$ ; individualism:  $M = 4.61, SD = 0.20, p = 0.007$ ). Once again, the difference in moral judgment between the two values on the act of socially distant target only condition was shown (H1). Experiment 2 demonstrated the selflessness beliefs of collectivists are higher than those of individualists.

### Saving Distant Target Only

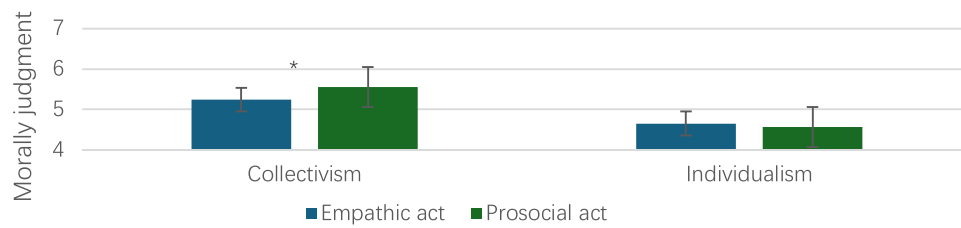
To investigate whether collectivists and individualists exhibit an increase in their ratings of the behavior of rescuing distant objects as the rescuer's level of contribution rises, we conducted a 2 (priming type: individualism, collectivism)  $\times$  4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  2 (contribution level: empathic, prosocial act) repeated measures ANOVA, with the participants' moral judgment of the "socially distant target only" condition as the dependent variable.

First, the main effect of priming was significant,  $F(1, 199) = 7.50, p = 0.007, \eta^2 = 0.04$ , and participants' moral judgment of "socially distant target only" act were significantly higher after collectivism priming ( $M = 5.40, SD = 0.21$ ) than after individualism priming ( $M = 4.61, SD = 0.20$ ), consistent with H1. In addition, the interaction between contribution level and priming were significant,  $F(1, 199) = 9.23, p = 0.003, \eta^2 = 0.04$ . The simple effect analysis (see Figure 3) showed that for the participants under collectivism priming, when the protagonist's "socially distant target only" act changed from "empathic act" to "prosocial act", the participant's moral judgment increased with the protagonist's contribution (empathic act:  $M = 5.24, SD = 0.21$ ; prosocial act:  $M = 5.55, SD = 0.23, p = 0.001$ ).



**Figure 2** Results of simple effects analysis of save act type and priming interactions on the morally judgment (Error bars indicate 95% CI; \* $p < 0.05$ ).





**Figure 3** Results of simple effects analysis of action and priming interactions on the morally judgment of “socially distant target only” act (Error bars indicate 95% CI; \* $p < 0.05$ ).

Participants’ moral judgments of the rescuer did not rise significantly with the level of contribution under individualism priming (empathic act:  $M = 4.65$ ,  $SD = 0.19$ ; prosocial act:  $M = 4.57$ ,  $SD = 0.21$ ,  $p = 0.349$ ).

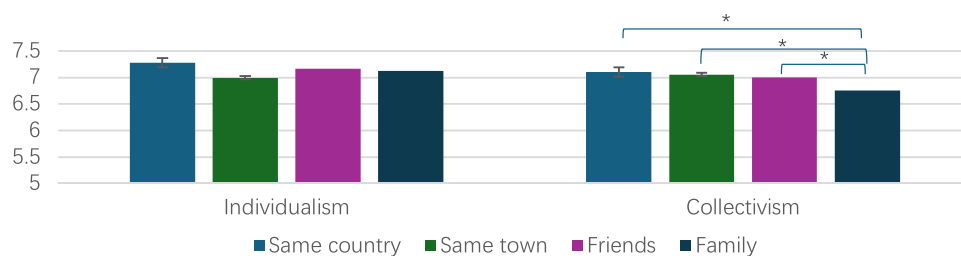
The moral evaluation of the “socially distant target only” action by collectivists is notably higher than that by individualists, once again underscoring the stronger belief in selflessness held by collectivists. Concurrently, the moral appraisal of the “socially distant target only” action by collectivists increases in tandem with the level of the rescuer’s contribution. This escalation is also a byproduct of collectivists’ robust belief in selflessness, as a heightened level of contribution implies a greater degree of selflessness in the action. Consequently, collectivists are inclined to render higher moral evaluations for the act of rescuing strangers. In contrast, the moral assessment of “socially distant target only” by individualists does not elevate with an increase in their level of contribution. The above results are consistent with hypothesis 2.

### Saving Socially Close Target Only

To investigate whether collectivists and individualists exhibit an increase in their ratings of the behavior of rescuing distant objects as the social distance between the helper and rescuer get closer, we conducted a 2 (priming type: individualism, collectivism)  $\times$  4 (social distance of close target: individual in the same country, individual in the same town, friend, family member)  $\times$  2 (contribution level: empathic, prosocial act) repeated measures ANOVA using the moral judgment of “socially close target only” as the dependent variable.

The interaction between priming and social distance of close target was significant,  $F(3, 597) = 2.62$ ,  $p = 0.05$ ,  $\eta^2 = 0.01$ , and the results of the simple effects analysis were shown in the following Figure 4. Participants did not lower their moral judgment of the protagonist because the rescued target was the protagonist’s family in the individualistic priming condition. In contrast, individuals in the collectivism priming condition rated protagonist significantly lower when the close target was a member of their own family ( $M = 6.76$ ,  $SD = 1.59$ ,  $SEM = 0.117$ ) than when the target was the same town ( $M = 7.05$ ,  $SD = 1.33$ ,  $t(183) = -2.86$ ,  $p = 0.005$ ,  $dz = -0.21$ , 95% CI =  $[-.51, -0.09]$ ), the same country ( $M = 7.10$ ,  $SD = 1.48$ ,  $t(183) = -2.82$ ,  $p = 0.005$ ,  $dz = -0.21$ , 95% CI =  $[-.59, -0.10]$ ) and friend ( $M = 7.01$ ,  $SD = 1.37$ ,  $t(183) = -2.13$ ,  $p = 0.034$ ,  $dz = -0.15$ , 95% CI =  $[-.48, -0.02]$ ).

This result is interesting in that collectivists decrease their level of moral evaluation of the rescuer because the rescuer rescues their own family members, but individualists do not show such a tendency. One possible explanation that we cautiously give under this result is that collectivists decrease their level of moral evaluation of the act of rescuing family members due to the dominance of the belief in selflessness in moral evaluation because it is difficult to admit that



**Figure 4** Results of simple effects analysis of the interaction between different value priming and social distance of close target on “socially close target only” condition (Error bars indicate 95% CI; \* $p < 0.05$ ).

rescuing family members is a selfless act, but the selflessness belief does not bother individualists. The above results are another side effect of the fact that collectivism focuses more on the moral belief of selflessness than individualism, consistent with H2.

## Experiment 3

Experiment 3 served a dual purpose: first, to replicate the test and confirm whether collectivists indeed maintain stronger beliefs about selflessness than individualists; and second, to delve into the underlying reasons for this divergence. The experimental setup closely mirrored that of Experiment 2, with the notable substitution of COVID-19 for the virtual environment utilized in the prior study, thereby enhancing the study's social relevance. Furthermore, the assessment of expected reward levels was integrated to investigate whether the heightened reward expectations of collectivists for selfless behavior contribute to their more pronounced moral beliefs regarding selflessness. It is important to note that in Experiments 1 and 2, a significant number of participants expressed concerns related to patriotism, viewing the act of rescuing socially distant targets (eg, an individual in a distant country) as indicative of a lack of patriotism, and consequently assigning lower moral evaluations to selfless behavior. To mitigate the potential confounding influence of this patriotic complex, experiment 3 modified the socially distant target to represent victims in remote areas of China, while the near subjects were identified as individuals within the same town, friends, and family members.

## Method

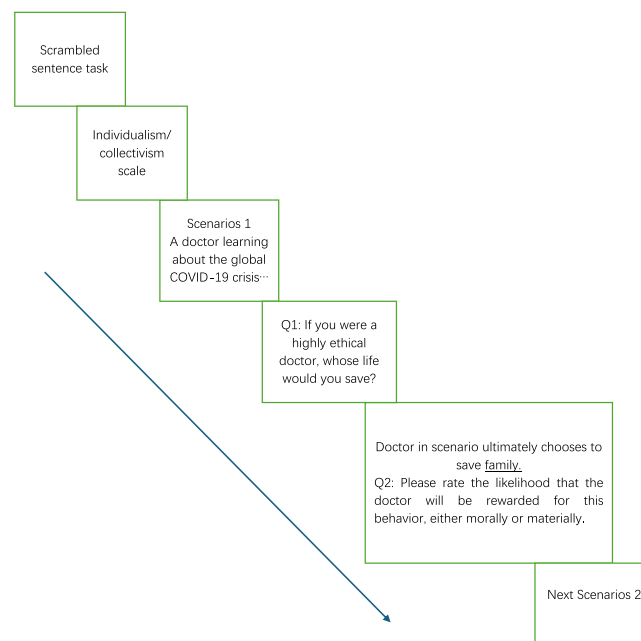
### Participants

198 Chinese participants (121 females; 71 males; Age range of 18 to 25) were recruited through the internet. To ensure adequate statistical power for the planned contrasts in the ANOVA, a sensitivity power analysis was performed using G\*Power 3.1 (Faul et al, 2007). With an alpha level set at 0.05, the analysis revealed that the chosen sample size of  $N = 198$  would provide 80% power to detect an effect size  $f = 0.059$ .

### Procedure

The procedure for Experiment 3 involved a 2 (priming type: individualism, collectivism)  $\times$  3 (social distance of close target: individual, individual in the same town, friend, family member)  $\times$  2 (individuals toward whom empathy is extended: socially distant target only, socially close target only)  $\times$  2 (contribution level: empathic, prosocial act) mixed design experiment, with priming serving as the sole between-participants variable and all others as within-participants variables.

At the outset of Experiment 3, participants completed a scrambled sentence task without prior knowledge of the experimental targets, followed by an initiation of different values, and subsequently were provided with a values scale to validate the initiation (see Figure 5 for specific procedure). They were then instructed to read a series of short stories. The narratives featured a doctor learning about the global COVID-19 crisis, receiving reports of a pandemic affecting individuals in the doctor's town (or friends and family, as close targets) and another report describing patients in a remote region of China (as distant targets), both equally affected by the pandemic. Twelve scenarios were presented, depicting doctors either prioritizing the socially distant targets over the socially close targets or vice versa, with half of the scenarios involving empathic acts and the other half involving the pro-social act of personally rescuing someone in the infected location. To directly gauge the moral beliefs of participants, a new question was added to the experiment. Following each story, participants were first asked, "If you were a highly ethical doctor, whose life would you save?" We utilized participants' responses to ascertain their dominant moral beliefs, with selflessness beliefs prevailing in moral judgments for choosing socially distant targets, and in-group favoritism prevailing for choosing socially close targets. Subsequently, participants were informed of the doctor's really choice in the scenario and assess the likelihood of the doctor being rewarded for the action. After completing evaluations for one scenario, participants proceeded to the next scenario, with 12 scenarios presented in random order. Upon completion of all scenarios, participants were required to provide relevant personal information.



**Figure 5** The experimental procedure for Experiment 3, which consisted of 12 trials, is presented in the figure below for only one of them.

### Measure and Manipulation Check

The impact of values on moral beliefs was evaluated by quantifying the frequency with which participants, following exposure to collectivist or individualist values, chose “socially distant target” or “socially close target” as the morally superior option. Notably, the decision to prioritize saving the distant target indicated that individuals primarily based their moral judgment on the level of selflessness exhibited by the action. Conversely, opting to save the close target reflected a primary consideration of fulfilling in-group responsibility.

The measure for reward anticipation was adapted from Fowler, Law, Gaesser.<sup>31</sup> The Expected Reward Measure comprised three questions, such as “How likely do you think the doctor will be rewarded by the individual he or she saves, either morally or materially?” The scale ranged from 1 to 9, with 1 indicating exceedingly unlikely and 9 indicating extremely likely. The scale demonstrated good reliability, with Cronbach’s  $\alpha=0.75$ .

## Result

### Moral Beliefs

Based on our analysis of participants’ responses to the question “If you were a highly ethical doctor, whose life would you save?” following different value initiations, our findings revealed that participants initially exposed to collectivism significantly favored choosing the “save the distant target” option more often than those initially exposed to individualism. Conversely, participants who were initially exposed to individualism significantly leaned towards choosing the “saving close target” option more frequently than participants who were initially exposed to collectivism (see Figure 6). These results suggest that for individualists, high moral standards entail prioritizing the saving of close targets to fulfill one’s responsibility to the close target, whereas for collectivists, high morality involves selflessness, with choosing to save a distant target representing a high moral act. These outcomes reaffirm the validity of Hypothesis 1, indicating that collectivists place greater value on selflessness beliefs compared to individualists.

### Expected Reward

In the repeated measures ANOVA with 2 (priming type: individualism, collectivism)  $\times$  3 (social distance of close target: individual, individual in the same town, friend, family member)  $\times$  2 (individuals toward whom help is extended: socially distant target only, socially close target only)  $\times$  2 (contribution level: empathic, prosocial act) as the independent

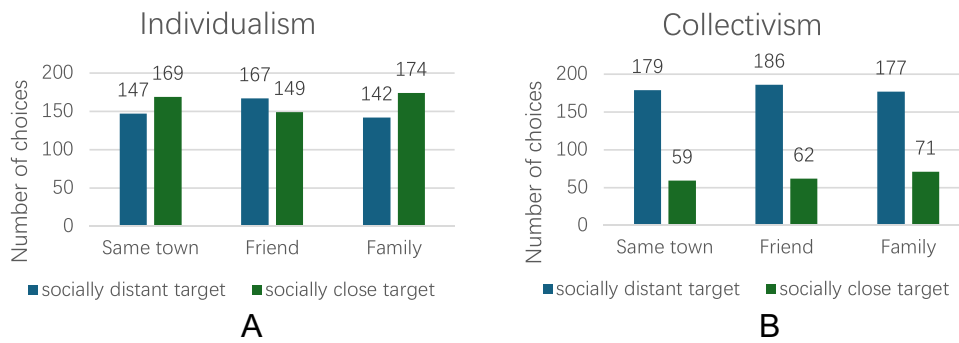


Figure 6 Moral choices of individuals initiated by individualism (A) and collectivism (B).

variables, and the expected reward judgment as the dependent variable, the interaction between individuals toward whom help is extended and priming on expected reward judgments was found to be significant,  $F(1, 196) = 10.60, p < 0.001, \eta^2 = 0.05$ . Simple effects analysis (See Figure 7) revealed that the level of expected reward for “socially distant target only” was significantly higher in collectivist-primed participants ( $M = 6.52, SD = 0.19$ ) than in individualist-primed participants ( $M = 5.66, SD = 0.18$ ),  $p = 0.001$ . This difference did not appear in the judgment of expected reward for “socially close target only” act (collectivism:  $M = 6.94, SD = 0.12$ ; individualism:  $M = 6.78, SD = 0.12, p = 0.342$ ). This result implies that collectivism yields higher reward expectations for “socially distant target only” acts compared to individualism, providing preliminary evidence for differences in the expected level of rewards for selfless behavior between collectivists and individualists, consistent with H3.

### Mediational Analyses

To further investigate Hypothesis 4, we seek to uncover the underlying mechanisms that drive collectivists’ heightened belief in selflessness. Specifically, our hypothesis posits that the elevated sense of selflessness among collectivists may stem from their increased anticipation of rewards linked to selfless behaviors, subsequently leading to higher moral evaluations of such behaviors. In our study, participants’ cultural values served as the independent variable, their moral assessments of selfless behaviors (particularly the act of saving a distant target) as the dependent variable, and their perceptions of the expected rewards for engaging in such behaviors as the mediating variable.

Our findings reveal a positive association between collectivist values and higher moral evaluations of selfless behavior, while individualist values exhibit a negative association ( $\beta = -0.420, p < 0.01$ ). Notably, the mediation analysis indicates that the impact of collectivist values on moral evaluations of selfless behavior is partially mediated by the heightened anticipation of rewards for selfless behavior among individuals with collectivist values ( $\beta = -0.230, p < 0.01$ ). This suggests that the stronger endorsement of selfless behavior among collectivist individuals can be, in part, driven by their elevated expectations of positive outcomes associated with such behavior. See Figure 8 and Table 2 for detailed mediation-related results.

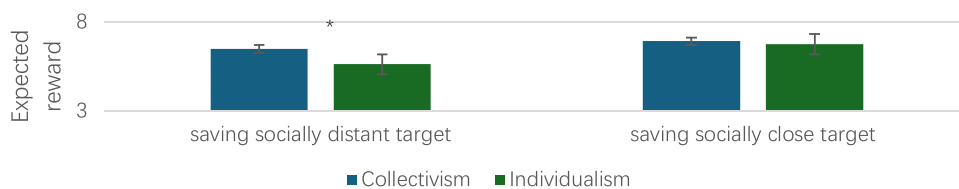
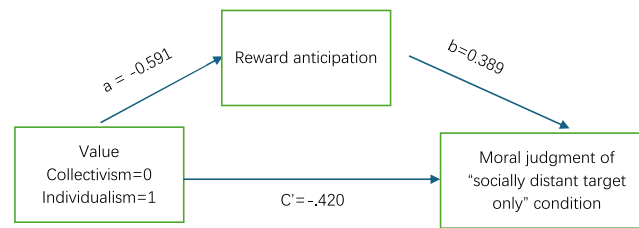


Figure 7 Results of simple effects analysis of the interaction between different value and saving act type (Error bars indicate 95% CI; \* $p < 0.05$ ).



**Figure 8** Mediating Role of Expected Rewards in Cultural Values and Moral Evaluations.

## General Discussion

Our findings reveal nuanced distinctions in moral beliefs across cultural values, with collectivism placing greater emphasis on selfless beliefs compared to individualism. In Experiment 1, while both Chinese and American participants exhibited stronger in-group favoritism in their moral judgments, as evidenced by significantly higher moral evaluations of “rescuing the close target only” compared to “rescuing the distant target only”, collectivists exhibited a more pronounced inclination towards selflessness than individualists, as evidenced by their significantly higher levels of moral evaluation for “rescuing the distant target only”. Experiment 2 replicated these findings using a more rigorous experimental control method for initiating values. Additionally, experiment 2 observed changes in individuals’ moral judgments based on their cultural values while controlling for the level of selflessness in the rescuers’ behaviors. It was found that as the level of selflessness in their behaviors increased or decreased (Controlling selflessness by managing the level of the rescuer’s contribution and the social distance between the rescuer and the rescued person), the moral judgment of collectivists rose and fell correspondingly. In contrast, the moral judgment of individualists did not exhibit significant changes in response to alterations in the level of behavioral selflessness. In Experiment 3, we delved deeper into the underlying reasons for collectivists’ stronger endorsement of selflessness. The results revealed that collectivists exhibit higher levels of expected rewards for selfless behavior, leading to correspondingly elevated levels of moral evaluation of selfless behavior when compared to individualists.

The majority of the hypotheses presented in this study were scrutinized through experimental methods. However, the relationship between collectivist beliefs of selflessness and higher levels of expected returns needs further elucidation. Given the belief in the selflessness of collectivism, one might reasonably expect that collectivists would anticipate lower levels of expected payoffs for “saving distant targets”.<sup>20</sup> Surprisingly, experiment 3 instead demonstrated that collectivists have higher reward expectations for selfless behavior. It is important to emphasize that the conclusion drawn from this study is that collectivists hold higher reward expectations for selfless behavior, rather than implying that they require the prospect of high rewards to engage in selfless behavior. Our interpretation is that this phenomenon likely arises from implicit associations stemming from past experiences. It is plausible that collectivists, having received more positive feedback for past selfless behaviors, are more inclined to continue engaging in such behaviors, leading them to anticipate higher rewards for rescuing a distant target. From an evolutionary perspective,<sup>34</sup> as adaptive beings, humans must have derived benefits from past selfless behaviors in order to consistently engage in them. Therefore, the correlation between collectivists’ beliefs in selflessness and their heightened levels of expected rewards is not contradictory, but rather consistent with evolutionary and adaptive mechanisms.

**Table 2** Associated Statistics from Path Models in Experiment 3

Path	Effect	95% CI		t	p
		BootLLCI	BootULCI		
Value=>Reward anticipation=>Moral judgment	-0.230	-0.089	-0.039	-17.922	0.000
Value=> Reward anticipation	-0.591	-0.803	-0.378	-5.452	0.000
Reward anticipation => Moral judgment	0.389	0.339	0.438	15.389	0.000
Value=> Moral judgment	-0.420	-0.607	-0.233	-4.403	0.000
Value=> Moral judgment	-0.650	-0.852	-0.448	-6.296	0.000

## Contribution

This study constitutes a significant contribution to both cross-cultural psychology and the study of moral beliefs. It unveils the interplay between values and moral beliefs, broadens the scope of prior research, and introduces novel research avenues. One of its pivotal findings is its challenge to the stereotype of collectivism as solely prioritizing the interests of the in-group in all circumstances, shedding light on the significance of selflessness beliefs within the moral framework of collectivists.<sup>10,35</sup> Furthermore, the study elucidates the internal mechanisms underlying value-based differences in moral beliefs by introducing the variable of expected reward level, thereby underscoring the crucial functional role of selfless behavior for collectivists.<sup>36</sup>

From a practical standpoint, the findings of this study hold important implications for understanding and elucidating differences in societal behaviors rooted in divergent values. For instance, within the context of COVID-19 as explored in Experiment 3, individuals primed with different values demonstrated distinct attitudes towards a physician's act of self-sacrifice. While individualists may consider it morally wrong for a doctor to prioritize saving a stranger over their own family, collectivists may perceive it as a more moral act. These divergent moral perceptions carry significant implications for the prevention and treatment of infectious diseases such as COVID-19. What collectivists may regard as noble and virtuous could be viewed as irresponsible and neglectful by individualists.

## Limitations and Future Directions

At the outset of the study, our aim was to investigate potential differences in moral beliefs—specifically, selflessness and in-group preferences. However, subsequent experiments revealed that in-group preferences did not consistently exhibit the same stable differences between individualists and collectivists as selflessness beliefs did. For instance, in Experiment I, collectivists demonstrated a stronger in-group preference than individualists, as evidenced by their significantly higher ratings of the morality of rescuing close targets. However, in Experiments II and III, individualists' in-group preference beliefs appeared to surpass those of collectivists once more. Notably, in Experiment III, individualists believed that doctors with high moral standards would prioritize helping proximate objects. Consequently, we refrained from drawing uniform and reliable conclusions. Further exploration in future research could shed light on whether a significant difference in in-group preferences exists between these two sets of values.

In Experiment 2, another regrettable aspect of the experimental design is that although we controlled for the level of selflessness in behavior by manipulating the social distance between the helper and the person being helped, as well as the level of the helper's contribution, we did not include a manipulative check to ensure that participants indeed perceived rescuing strangers as more selfless than rescuing family members, and that helpers with high levels of input were considered more selfless than those with low levels of input. In particular, the manipulation of social distance is subject to uncertainty, and previous research has found that rescuing family members is considered the optimal and most moral, selfless behavior whenever family members are present among those waiting to be rescued, illustrating the special place of family members in moral beliefs.<sup>18,37</sup> However, the other results obtained in the experiment were sufficient to support the reliability of the research hypotheses. We incorporated the results of Experiment 2 into the main body of the study due to the informative nature of the differences between collectivists and individualists regarding social distance and levels of contribution. For instance, among collectivists, rescuing family members was not only not judged to be a more selfless act, but it also received lower moral ratings. However, it is evident that these differences require more rigorous control in future research to derive reliable conclusions.

One limitation of this study pertains to Experiment 3, where the protagonists were doctors. While this choice was made to align with the logical context and investigate public attitudes towards doctors' choices in a real-world scenario, it is important to acknowledge the unique identity of doctors as the protagonists. This uniqueness may introduce additional variables into the study. To address this limitation and provide guidance for future research, further investigations are warranted. One potential avenue for future studies could involve expanding the range of professional roles beyond doctors to examine moral judgments from diverse perspectives. Another limitation is the age distribution of the participants, as most were in their 20s and 30s. Considering recent trends in economic and cultural globalization and integration, the traditional distinction between collectivism and individualism in Eastern and Western cultures has

become increasingly blurred. Notably, the younger generation of Chinese individuals exhibits more individualistic tendencies compared to their middle-aged and older counterparts.<sup>38</sup> Therefore, future research should place greater emphasis on participant diversity and examine the differences in “collectivism/individualism” values across various age groups, which could yield valuable insights into the evolving nature of these cultural dimensions.

Another potential avenue for future research is to expand the cultural/national scope of the study. Additionally, considering the interaction between different cultural backgrounds and values, expanding the cultural and national scope of the study represents another potential avenue for future research. This approach would allow for a more comprehensive understanding of how diverse cultural contexts influence moral judgments and the collectivism/individualism dichotomy, providing valuable insights into the universality and variability of these cultural dimensions.

## Conclusion

Our research sheds light on the nuanced interplay between cultural values and moral beliefs, demonstrating that collectivists hold stronger beliefs in selflessness compared to individualists. Specifically, our findings reveal that collectivists consistently exhibit higher moral judgment levels for selfless pro-social behaviors compared to individualists. Furthermore, the dynamic nature of collectivists’ moral judgments in response to varying levels of behavioral selflessness underscores the close relationship between the value of collectivism and selflessness. The exploration of reward expectations among collectivists further enriches our understanding of the underlying mechanisms shaping moral beliefs. Overall, our study contributes to the growing literature on cultural psychology and moral cognition, emphasizing the need to consider cultural values as influential factors in shaping moral judgments and pro-social behavior.

## Data Sharing Statement

The data and material that support the findings of this study are available on request from the corresponding author.

## Ethics Approval

Ethical approval was obtained from the South China Normal University Ethics Committee.

## Consent to Participate

Written informed consent was obtained from individual.

## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

The authors report no conflicts of interest in this work.

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