



“Clothe yourselves with humility”: Humility can promote fairness

Xin Wang^a, Chuhua Zheng^b, Yanhong Wu^{a,c,d,*}

^a School of Psychological and Cognitive Sciences, Peking University, Beijing, China

^b Institute of Scientific and Technical Information of China, Beijing, China

^c Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, China

^d National Key Laboratory of General Artificial Intelligence, Peking University, Beijing, China

ARTICLE INFO

Keywords:

Humility
Fairness
Virtue
Ultimatum game
Dictator game

ABSTRACT

Humility, as a virtue and personality trait, promotes the development of other positive qualities in individuals. Across two studies, we employed economic game paradigms dictator game (DG) and ultimatum game (UG) to measure individuals' fairness behavior and explore the role of humility on fairness. The results revealed that individuals with high levels of trait humility behaved more fairly (Study 1, $N = 72$), and humility priming could also promote fairness behavior (Study 2, $N = 60$). Furthermore, humble individuals exhibited higher levels of fairness perceptions in the DG, while they adhered more closely to their internal fairness perceptions in the UG, despite there being no significant difference in fairness perceptions compared to the control group. Our findings suggest that humility promotes individuals to behave more fairly while holding higher fairness perceptions. These results contribute to a deeper understanding of the value of humility, and offer a feasible pathway to promote fairness and harmony in society.

1. Introduction

As an important trait and valuable virtue, humility is increasingly valued by philosophers, psychologists and society. Alfred Lord Tennyson referred to it as “the highest virtue, the mother of them all”, while Immanuel Kant viewed humility as a “meta-attitude which constitutes the moral agent's proper perspective on himself” (Grenberg, 2005). Psychologists also consider it a “foundational” virtue (Nadelhoffer & Wright, 2017; Stellar et al., 2018; Wright et al., 2017) and previous research has highlighted the positive effects of humility on oneself, such as promoting well-being (Zheng & Wu, 2020) and contributing to success in interpersonal relationships (Davis et al., 2013). However, an important yet currently less researched issue is the positive effects of humility in social interactions, especially its relationship with other virtues within this process. Among these, fairness is an important principle in social interactions (McAuliffe et al., 2017) and a valuable virtue, often mentioned alongside humility by philosophers, such as Adam Smith in *The Theory of Moral Sentiments*. Some theoretical psychologists have also noted the relationship between humility and fairness, suggesting that humble individuals tend to have higher fairness perceptions, and even considering fairness to be one of the core concepts of humility (Chancellor & Lyubomirsky, 2013; Nuyen, 1998), yet this

understanding remains theoretical and requires empirical investigation. Across two studies we examine the relationship between humility and fairness to help us understand the value of humility.

1.1. Humility

Humility, as a personality trait, encompasses several aspects including moderate self-awareness, low self-focus, high other-focus, and appreciation of the value of others and all things (Lee & Ashton, 2004; Nadelhoffer & Wright, 2017; Tangney, 2000). Individuals with high humility traits often perceive themselves as ordinary and do not seek special treatment, while those with low humility traits tend to exhibit self-enhancement bias, considering themselves superior and entitled to special treatment (Lee & Ashton, 2004). This realistic self-view among humble individuals arises from their particular psychological positioning within the context of a larger world, allowing them to shift their focus from themselves to others (Nadelhoffer & Wright, 2017). Based on it, they could recognize themselves as limited and fallible beings, thinking about and caring about others (Nadelhoffer & Wright, 2017; Worthington Jr. et al., 2021).

Among the various aspects of humility, theoretical research also suggests that the core concept of humility mainly lies in low self-focus

* Corresponding author at: School of Psychological and Cognitive Sciences, Peking University, Beijing, China.
E-mail address: wuyh@pku.edu.cn (Y. Wu).

and high other-focus (Davis et al., 2011; Nadelhoffer & Wright, 2017; Worthington Jr. et al., 2021). Specifically, low self-focus indicates that humble individuals have a more accurate view of the self and possess a low self-focus cognitive tendency, which can be explained from the perspective of psychological positioning (Nadelhoffer & Wright, 2017). Humble individuals examine themselves within the context of a larger world, perceiving themselves as part of the whole, and recognizing their own limitations. This leads to two main outcomes: on one hand, they are able to overcome self-enhancement biases and have a more accurate self-assessment of their abilities and achievements (Ashton & Lee, 2007; Owens et al., 2013; Tangney, 2000; Zheng et al., 2022); on the other hand, they also exhibit a more open self-view, acknowledging and accepting their shortcomings, and demonstrating greater openness and responsiveness to negative self-information (Exline, 2008; Tangney, 2000). When facing threats of death, humility can also alleviate individual anxiety and reduce the occurrence of unethical behavior (Kesebir, 2014).

Additionally, humble individuals also exhibit a high level of other-focus. With holding the particular psychological positioning, humble individuals are able to shift their attention away from themselves, appreciating and recognizing the value of others (Davis et al., 2010; Zheng et al., 2022). Humble individuals can better understand and experience themselves as only one among a group of other morally relevant beings, whose interests are as legitimate, and as worthy of attention and concern, as their own (Nadelhoffer & Wright, 2017). By paying close attention to others, humble individuals integrate themselves into the lives of others, greatly expanding the scope of personal needs and interests, and linking the happiness of others to their own.

Due to the complexity of the concept of humility, we combined self-report measures with humility priming in this study to better assess individuals' humility levels. Furthermore, the method of priming can help us better explore the causal relationships between humility and other concepts. Researchers have developed several scales to measure humility, each capturing different dimensions of humility (McElroy-Heltzel et al., 2019). However, there is a challenge with self-report measurement of humility, as individuals who are the humblest are likely to underreport their own humility, fearing it may be perceived as boasting (Davis et al., 2011). Therefore, in addition to self-report scales, we also employed humility priming to induce individuals' humility states. Research indicates that humility is also a dynamic state, shifting according to fleeting emotions and emotionally evocative contexts (Stellar et al., 2018). Priming individuals' humility state can prompt them to exhibit behaviors consistent with those of individuals with high humility traits (Kesebir, 2014; Tong et al., 2016). Comparing the different performances between the humility priming group and the control group can help us attribute these differences to humility and examine the causal relationships between humility and other concepts.

1.2. Humility and fairness

In social life, fairness involves the distribution of resources and needs among individuals and can be defined as the proportion of (material and immaterial) resources individuals receive compared to their legitimate needs (Rescher, 2002). Fair individuals treat others in the same or similar way (Peterson & Seligman, 2004) and are able to maintain cooperative relationships with large numbers of unrelated — and often unfamiliar — others (McAuliffe et al., 2017). Fairness helps stimulate individuals' intrinsic motivation, leading to higher levels of creativity (Saether, 2020), and promotes willingness to cooperate among individuals within groups, fostering a more harmonious and cooperative group atmosphere (Tyler, 1989). Given that fairness plays a crucial role in social interactions and holds significant importance for individual and societal development, how to promote fairness behavior among people has been a hot topic of concern for researchers and society. While research indicates that people generally hold beliefs in fairness (McAuliffe et al., 2017) and are sometimes even willing to incur costs to

avoid unfairness, there are significant individual differences in fairness behavior that some people are more likely to overcome selfish pursuits of personal interests and allocate themselves less reward in economic game tasks (Hilbig & Zettler, 2009; Yamagishi et al., 2017).

From the perspective of psychological positioning, we hypothesize that humility can promote individuals' fairness. Individuals characterized by fairness can overcome unrestrained pursuit of their own interests and understand the connection between themselves and others (Peterson & Seligman, 2004). This presupposes that individuals not only focus on themselves but also pay attention to the states and needs of others, indicating a particular psychological positioning. Humility provides such a psychological positioning of oneself, allowing individuals to not merely focus on self-interest and redirect their focus towards external others and matters (Nadelhoffer & Wright, 2017; Stellar et al., 2018), while possessing traits of low self-focus and high other-focus. Individuals with low self-focus are less concerned about their own interests and desires (Leary & Terry, 2012), whereas those with higher other-focus tend to be more altruistic, kind, fair, and tolerant, and are also more willing to allocate more money to others in experiments (Byerly et al., 2022).

Some studies have found that humble individuals exhibit more prosocial behavior (Exline & Hill, 2012; LaBouff et al., 2012), which suggests positive consequences of the particular psychological positioning of humility. Compared to individuals with low humility traits, those with high humility traits tend to be more altruistic and willing to spend more time helping others (LaBouff et al., 2012), even showing kindness towards strangers or hostile individuals (Exline & Hill, 2012). When interacting with others, humble individuals could rise above comparative and competitive responses (Owens et al., 2013), acknowledging and appreciating the strengths and contributions of others instead of feeling threatened and responding aggressively. Fairness is also a form of prosocial behavior; therefore, humility is likely to promote fairness as well. Additionally, some researchers theoretically argued that low self-focus and high other-focus in humble individuals, arising from this particular psychological positioning, contribute to their egalitarian beliefs (Chancellor & Lyubomirsky, 2013; Nuyen, 1998).

1.3. The effect of situational power

Furthermore, the impact of humility on fairness is also related to situational factors. Previous researchers have proposed the Situation, Trait, and Outcome Activation (STOA) model to explain the joint influence of traits and situational factors on individual social behavior (de Vries et al., 2016). According to the STOA model, there is mutual influence between situations and traits, where individuals may consciously or unconsciously perceive, select, evoke, and/or manipulate situations to fit their personality (situation activation). Subsequently, individuals exhibit behaviors that are more consistent with their traits in these specific situations (trait activation), and the positive or negative effects of their behavior are also correlated with specific situational factors (outcome activation).

For example, in economic game tasks often used to measure individual fairness, such as the Ultimatum Game (UG; Güth et al., 1982) and the Dictator Game (DG; Forsythe et al., 1994), there are differences in individuals' situational power, which arises from situational factors rather than individual characteristics (Barends et al., 2019). In both UG and DG, there are two roles: the proposer, who can make an offer about how to allocate a certain amount of money, and the responder, who either accepts or rejects the offer. In the DG, the proposer can make an offer that the responder cannot refuse (high situational power), whereas in the UG, the proposer's offer can be rejected by the responder, resulting in zero payoff for both (low situational power). Individuals with some prosocial traits, such as social value orientation, exhibit more fairness in DG which involves high situational power (Barends et al., 2019; Yamagishi et al., 2017). This interaction between traits and situational factors in shaping individual behavior patterns aligns with the trait

activation of the STOA model (de Vries et al., 2016).

In this study, we focus on the influence of situational power to further explore the relationship between humility and fairness. According to the trait activation hypothesis of the STOA model (de Vries et al., 2016), if fairness is a characteristic of the humble individuals, they should exhibit greater fairness across different situations. Given the characteristics of humble individuals, who are low self-focus and high other-focus (Nadelhoffer & Wright, 2017; Worthington Jr. et al., 2021), they should pay more attention to the circumstances of others and not become overly selfish simply because of changes in situational factors. Therefore, we compared the behaviors of humble and non-humble individuals under conditions of high situational power (DG) and low situational power (UG) in both studies.

1.4. The present research

In this investigation, we examined the relationship of humility and fairness using the economic game paradigms UG and DG through two studies. Besides self-report scale of humility trait (Study 1), we also prime humility states (Study 2) to explore the causal relationship between humility and fair behavior. Across two studies, we examined the influence of situational power to further explore the features of humility and its relationship with fairness. Moreover, we tested whether humble individuals hold a higher level of fairness perceptions in Study 2. All procedures were approved by the Committee for Protecting Human and Animal Subjects of School of Psychological and Cognitive Sciences, Peking University, Beijing, China.

2. Study 1: the influence of trait humility on fairness

Study 1 examined the influence of humility trait on individual fairness behavior using the economic game tasks UG and DG, and investigated whether humble individuals exhibit greater fairness across different situational powers. Precious research has indicated that situational power influences individual fairness behavior, with individuals displaying greater fairness under high situational power (DG) conditions (Yamagishi et al., 2017). Due to the psychological characteristics of humble individuals, we believed that they should behave fairly across different situations. Therefore, we hypothesized that individuals with high trait humility will exhibit higher levels of fairness behavior, and while situational power influenced individuals' fairness behavior, humble people would behave more fairly in both UG and DG.

2.1. Method

2.1.1. Participants

According to the calculation using G*Power 3.1 (Faul et al., 2007), for the 2-factor mixed design ANOVA in Study 1, the required sample size is 34 ($\beta = 0.8$, $\alpha = 0.05$, $f = 0.25$). We recruited a total of 72 undergraduate students from the Peking University randomly (45.8 % male), ranging from 17 to 28 years old ($M = 21.68$, $SD = 2.71$). Participants could get a certain reward after the study.

2.1.2. Design

Study 1 employed a 2 (humility: high humility vs. low humility; between-subjects) \times 2 (game type: UG vs. DG; within-subjects) mixed design. In the experiment, participants needed to choose one from three offers of different levels of fairness (fair, sub-fair, unfair) in each trial. Therefore, the main dependent variable was the proportion of choices for the fair offers made by the participants. Additionally, after the experiment, participants were asked to complete a feedback survey, reporting the offers (the percentage allocating to themselves) they would like to make under conditions of fully self-determined distribution, without having to choose from preset options, and were informed that the offers in feedback would not affect the final reward. The offers in feedback served to validate their choices in the formal experiment.

2.1.3. Procedure and measures

Firstly, participants were required to complete 8-item Modesty Subscale from the Honesty-Humility HEXACO measure (Lee & Ashton, 2004). Once completed, participants were paired with randomly assigned partners to collectively participate in the economic game UG and DG and were introduced the rules of economic games. Participants were informed that they had a base reward of 20 *yuan* and needed to allocate 20 *yuan*, presented as percentages.

After introducing the game tasks, the experimenter informed participants that roles would be randomly assigned, though both participants acted as proposers. Each participant was situated in a separate quiet room and did not meet their partner during the experiment. For each participant, the experiment comprised a total of 120 trials, divided into 60 trials each for the UG and DG tasks, referred to as Game A and Game B, conducted in separate phases. Prior to each task, a prompt indicating the game type was presented. In each trial, a fixation cross appeared in the center of the screen for 500 ms, followed by instructions and three offers of different levels of fairness (fair, sub-fair, unfair) displayed randomly on the screen. Previous research has shown that distributions below 30 % of the total value to the responder are considered unfair, while distributions between 30 % and 40 % are sub-fair, and distributions between 40 % and 50 % are fair (Hu et al., 2014). Participants were required to select an offer using the "1", "2", or "3" keys on the keyboard, followed by a 1000 ms interval before the next trial (See Fig. 1). Before the tasks, participants were informed that their choices would impact their experimental earnings: the computer determined the participant's earnings by calculating the average (denoted as *M*) of 10 randomly selected trials, as the final reward was $(20 + 20 * M/100)$ *yuan*. Actually, the experimental reward was a random amount around 30 *yuan*.

Finally, participants were required to complete a feedback survey, reporting the offers they would make under conditions of fully self-determined distribution, and were informed that the offers in feedback would not affect the experimental reward.

2.2. Results

2.2.1. Manipulation check

Divided into high and low humility groups based on scores on the humility scale, there were 34 participants in the high humility group and 32 participants in the low humility group. This practice of selecting people with high and low scores on personality scales for follow-up testing is supported by psychometrics and pragmatism (Asendorpf et al., 2013), which could be seen in some studies when grouping participants (e.g., Meyer & Gawłowska, 2017). The humility scores for the high humility group ($M = 31.75$, $SD = 2.60$) were significantly higher than those for the low humility group ($M = 23.76$, $SD = 2.84$), $t_{(64)} = 11.89$, $p < 0.001$, Cohen's $d = 2.73$, meaning that the grouping based on trait humility was successful.

2.2.2. Proportion of choices for the fair offers

A 2 (humility: high humility vs. low humility; between-subjects) \times 2 (game type: UG vs. DG; within-subjects) mixed design ANOVA yielded a significant main effect of humility, $F(1, 64) = 5.83$, $p = 0.019$, $\eta_p^2 = 0.083$, indicating that the proportion of selecting fair offers was significantly higher in the high humility group ($M = 0.64$, $SD = 0.41$) compared to the low humility group ($M = 0.45$, $SD = 0.41$). There was also a significant main effect of game type, $F(1, 64) = 35.71$, $p < 0.001$, $\eta_p^2 = 0.358$, indicating that participants tended to choose more fair offers in the UG task ($M = 0.70$, $SD = 0.36$) compared to the DG task ($M = 0.39$, $SD = 0.42$). However, there was no significant interaction between humility level and game type, $F(1, 64) = 0.38$, $p = 0.539$.

Trait humility was treated as a continuous variable, and a linear mixed-effects model (LMM) analysis was conducted using the *lme4* package in R (Bates et al., 2015). The model included fixed effects for trait humility and game type, and random effects estimated the

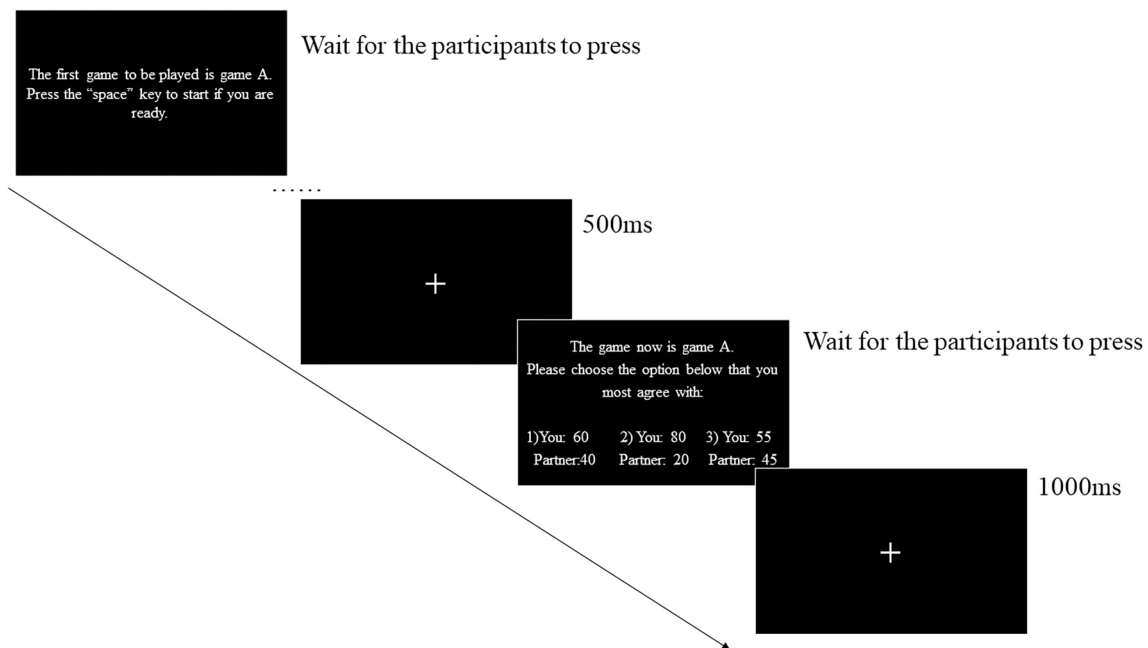


Fig. 1. The experimental procedure of economic game tasks in Study 1.

intercepts for each participant. The model's AIC value was 130.21. The ICC value was 0.38, indicating that the use of a LMM model was appropriate. The results (see Table 1) indicated that the main effect of trait humility was significant, with $\beta = -0.305$, $t = 70.0$, $p < 0.001$, and a 95 % confidence interval of [0.090, 0.340]. The main effect of game type was also significant, with $\beta = -0.305$, $t = 7.0$, $p < 0.001$, and a 95 % confidence interval of [-0.402, -0.209]. Furthermore, when the interaction term between trait humility and game type was added to the model, the coefficient for the interaction term was not significant and the AIC value increased to 135.25, suggesting a worse fit for the model with the interaction term included.

2.2.3. Offers in feedback

The result of a 2 (humility: high humility vs. low humility; between-subjects) \times 2 (game type: UG vs. DG; within-subjects) mixed design ANOVA on the offers in feedback (unrelated to rewards), were consistent with the proportion of choices for the fair offers. The main effect of humility was significant, $F(1, 64) = 5.57$, $p = 0.021$, $\eta_p^2 = 0.080$, indicating that individuals in the high humility group ($M = 62.06$, $SD = 16.87$) allocated a smaller percentage to themselves in the feedback offers compared to those in the low humility group ($M = 68.10$, $SD = 19.49$). The main effect of game type was also significant, $F(1, 64) = 92.09$, $p < 0.001$, $\eta_p^2 = 0.590$, indicating that individuals allocated a smaller percentage to themselves in the UG ($M = 53.77$, $SD = 6.37$) compared to the DG ($M = 76.58$, $SD = 19.53$). The interaction between

Table 1
Results of LMM analysis in Study 1.

Fixed effects	β	SE	95 % CI	t	p
Intercept	0.273	1.18	[-0.187, 0.733]	85.2	0.242
Trait humility	0.215	3.43	[0.090, 0.340]	71.0	0.001
Game type	-0.305	-6.29	[-0.402, -0.209]	70.0	0.000
Random effects	Variance				
Participant (Intercept)	0.051				
Residual	0.085				

fair ~ GameType + humility + (1 | participant).

humility and game type was also not significant, $F(1, 64) = 3.31$, $p = 0.074$.

2.3. Discussion

Study 1 found that individuals with high humility traits exhibited higher levels of fairness behavior. Regardless of whether humility traits were grouped or calculated as continuous variables, the results consistently showed that individuals with high humility traits made fairer decisions, even when it involved allocating rewards that affected their own interests, in both the UG and the DG tasks where they acted as proposers. Consistent results were also observed in offers in feedback which were unrelated to self-interest. Furthermore, although situational power (i.e., game type) influenced individuals' fairness behavior, humble individuals behaved more fairly both in situations of high situational power (DG) and low situational power (UG).

3. Study 2: the influence of humility priming on fairness

Study 1 found a positive correlation between trait humility and fairness, and that individuals with high humility traits behaved more fairly in both the UG and DG. Based on the results of Study 1, Study 2 would explore whether priming individuals' humble state promote their fair behavior. Moreover, individuals' fairness perceptions, defined as a person's subjective feeling and evaluation of fairness, are also important factors (Chai et al., 2024; Ma et al., 2015; Woodley, 2017). Therefore, in addition to fair behavior, Study 2 also included the measurement of fairness perceptions to investigate whether the fair behavior of humble individuals stems from their own beliefs about fairness. In Study 2, we hypothesized that priming individuals' humble state would promote them to exhibit fairer behavior and possess a higher level of fairness perceptions.

3.1. Method

3.1.1. Participants

Same as study 1, the required sample size is 34. We recruited a total of 60 undergraduate students from the Peking University randomly (38.3 % male), ranging from 17 to 26 years old ($M = 20.27$, $SD = 1.98$).

Participants could get a certain reward after the study.

3.1.2. Design

Study 2 employed a 2 (priming condition: humility vs. control; between-subjects) \times 2 (game type: UG vs. DG; within-subjects) mixed design. As in Study 1, the dependent variables included the proportion of choices for the fair offers and the offers in feedback. Additionally, participants are asked to report their perceived fairest offers in the game to measure their fairness perceptions.

3.1.3. Procedure and measures

After giving their informed consent, we first randomly assigned the participants to either the humility priming or control conditions. In the humility priming condition, participants were initially required to read a humility story about “Zhang Ming”, adapted from [Tong et al. \(2016\)](#) and slightly revised to fit Chinese participants. The story was presented as follows:

“Zhang Ming was awarded the Principal's Scholarship for his outstanding academic performance and was invited to give a brief speech to the graduating students. In his speech, he attributed his achievements to the help of his teachers and the support of his friends. When interviewed, Zhang Ming's classmates all mentioned that he never boasted about himself and was always willing to help his classmates academically. When interviewed directly, Zhang Ming stated that he could recognize both his strengths and weaknesses and emphasized the importance of continuously improving his shortcomings to strive for better.”

Then, participants in the priming condition needed to answer three questions: 1) “Please summarize in one word the personal quality that Zhang Ming possesses”; 2) “To what extent do you agree that Zhang Ming is a humble person?” using a 7-point Likert scale ranging from “1” (completely disagree) to “7” (completely agree); 3) “To what extent do you agree that humility is an important virtue?” using a 7-point Likert scale ranging from “1” (strongly disagree) to “7” (strongly agree). After answering the questions, participants in the humility priming condition were required to report a personal experience of humility. Control group participants were asked to report their typical daily activities at school. The total time for both groups was controlled at 6 to 8 min.

After the priming manipulation, participants were also asked to complete Rosenberg Self-esteem Scale (RSES; [Rosenberg, 1965](#)) and The Positive Affect and Negative Affect Schedule (PANAS; [Watson et al., 1988](#)) to control for self-esteem or emotional factors, as previous studies had found that self-esteem ([Sun et al., 2021](#)) or emotional factors ([Forgas, 2016](#)) could influence fairness of decision making.

Participants were then also required to act as proposers and complete the UG and DG games in Study 2. Unlike Study 1, the distribution schemes in Study 2 were not random (fair: 42/58, 45/55, 48/52, 50/50; sub-fair: 40/60, 38/62, 32/68, 30/70; unfair: 10/90, 15/85, 20/80, 25/75) to eliminate the influence of randomness ([Hu et al., 2014](#)). These three types of schemes were combined differently, with each game consisting of a total of 64 trials, and the presentation positions on the screen were randomized. Participants were required to select their preferred scheme out of the three options in each trial, with no feedback provided.

After completing all trials, the computer randomly provided participants with their experimental rewards. Finally, participants were asked to complete a feedback survey, reporting the offers they would make under conditions of fully self-determined distribution and the fairest offers they believed in both games.

3.2. Results

3.2.1. Manipulation check

After random allocation, there were 31 participants in the humility priming group and 29 in the control group. There was no significant difference in self-esteem scores between the humility priming group (M

$= 28.42$, $SD = 5.40$) and the control group ($M = 29.00$, $SD = 4.73$), $t_{(58)} = 0.44$, $p = 0.660$. Similarly, there was no significant difference in positive affect between the humility priming group ($M = 31.55$, $SD = 5.97$) and the control group ($M = 30.72$, $SD = 6.73$), $t_{(58)} = 0.50$, $p = 0.617$. Additionally, there was no significant difference in negative affect between the humility priming group ($M = 25.06$, $SD = 7.11$) and the control group ($M = 24.07$, $SD = 7.18$), $t_{(58)} = 0.54$, $p = 0.592$ (two-tailed). Among the 31 participants in the humility priming group, 20 participants (64.5 %) described the quality of “Zhang Ming” using words such as “humble” or “modest”. Overall, participants perceived Zhang Ming as a humble person ($M = 5.71$, $SD = 1.13$), significantly higher than the baseline value of 4, $t_{(30)} = 8.42$, $p < 0.001$, and endorsed humility as an important virtue ($M = 5.61$, $SD = 1.17$), significantly higher than the baseline value of 4, $t_{(30)} = 7.65$, $p < 0.001$.

3.2.2. Proportion of choices for fair offers and offers in feedback

A 2 (priming type: humility vs. control) \times 2 (game type: UG vs. DG) mixed design ANOVA yielded a significant main effect of priming type, $F(1, 58) = 4.36$, $p = 0.041$, $\eta_p^2 = 0.070$, indicating the effectiveness of humility priming, with participants in the humility priming group ($M = 0.55$, $SD = 0.41$) choosing the fair offers at a higher proportion compared to those in the control group ($M = 0.40$, $SD = 0.36$). There was also a significant main effect of game type, $F(1, 58) = 85.25$, $p < 0.001$, $\eta_p^2 = 0.595$, indicating that participants tended to choose more fair offers in the UG task ($M = 0.68$, $SD = 0.32$) compared to the DG task ($M = 0.27$, $SD = 0.35$). However, the interaction between game type and priming type was not significant, $F(1, 58) = 0.59$, $p = 0.447$.

The results of offers in feedback were consistent with the results of the proportion of choices for fair offers. A 2 (priming type: humility vs. control) \times 2 (game type: UG vs. DG) mixed design ANOVA also yielded a significant main effect of priming type, $F(1, 58) = 2.23$, $p = 0.140$, $\eta_p^2 = 0.037$, indicating that individuals in the humility priming group ($M = 65.55$, $SD = 18.36$) allocated a smaller percentage to themselves in the feedback offers compared to those in the control group ($M = 70.19$, $SD = 18.05$). The main effect of game type was also significant, $F(1, 58) = 97.41$, $p < 0.001$, $\eta_p^2 = 0.627$, indicating that individuals allocated a smaller percentage to themselves in the UG ($M = 54.74$, $SD = 7.47$) compared to the DG ($M = 78.60$, $SD = 16.92$). The interaction between game type and priming type was not significant, $F(1, 58) = 0.34$, $p = 0.565$.

3.2.3. Perceived fairest offers

The perceived fairest offers were measured as the percentage of money allocated to the participants themselves in UG/DG. After removing two outliers (beyond three standard deviations), for the fairness perceptions, a 2 (priming type: humility vs. control) \times 2 (game type: UG vs. DG) mixed design ANOVA yielded a significant main effect of game type, $F(1, 56) = 53.72$, $p < 0.001$, $\eta_p^2 = 0.490$, indicating that participants perceived offers in UG ($M = 52.28$, $SD = 4.23$) to be fairer when they received less reward compared to the DG ($M = 68.18$, $SD = 15.69$). The main effect of priming type was significant, $F(1, 56) = 4.41$, $p = 0.040$, $\eta_p^2 = 0.073$, indicating that participants in the humility priming group ($M = 57.90$, $SD = 13.27$) considered a smaller percentage allocated to themselves to be fairer compared to the control group ($M = 62.28$, $SD = 15.16$). The interaction between game type and priming type was marginally significant (see [Fig. 2](#)), $F(1, 56) = 3.77$, $p = 0.057$, $\eta_p^2 = 0.063$. Further simple effects analysis revealed that both the humility priming groups and control groups considered receiving more money in the DG task to be fair ($ps < 0.001$). In the UG task, there was no significant difference between the humility priming group and the control group ($p = 0.348$). However, in the DG task, the humility priming group reported higher fairness perceptions compared to the control group, suggesting that receiving less money was perceived as fairer, with the difference significantly significant ($p = 0.040$).

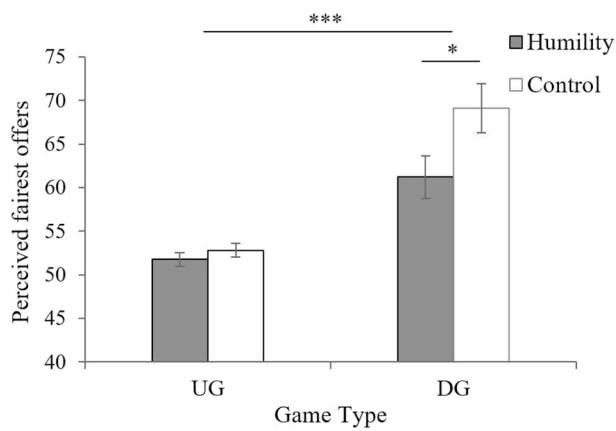


Fig. 2. The perceived fairest offers reported by participants under different game types and priming conditions in Study 2.

Note. The perceived fairest offers aimed to measure participants' fairness perceptions under different conditions. A larger value indicated that the individual believed allocating more to themselves is fairer. $*p < 0.05$, $***p < 0.001$. Error bars ± 1 standard error.

3.3. Discussion

Study 2 revealed that priming a humble state in individuals promoted their fairness behavior, as they exhibited greater fairness in both UG and DG. Furthermore, we confirmed that humble individuals had higher levels of fairness perceptions in Study 2. We also found that situational power influenced individuals' fairness perceptions: when individuals had greater situational power, they perceived receiving more rewards as fair, rather than adhering strictly to absolute fairness. However, the impact of situational power on fairness perceptions was moderated by humility, particularly in the DG where individuals in a humble state perceived closer-to-equal distribution of rewards as fairer, resulting in choosing more fair distribution schemes in DG for individuals in humility priming condition. In the UG, there was no difference in fairness perceptions between individuals in the humility priming condition and those in the control condition. However, individuals in the humility priming condition behaved more fairly, which could be explained as they adhered more closely to their internal principles of fairness. According to the trait activation of STOA model (de Vries et al., 2016), the results supported that fairness was a characteristic of humble individuals. They also suggested that humble individuals exercised restraint and did not aggressively pursue special treatment even when temporarily advantaged by situational power (Lee & Ashton, 2004), thus demonstrating higher levels of fairness perceptions.

4. General discussion

Two studies tested the influence of humility on individuals' fairness behavior, and the results supported our hypotheses. Humble individuals exhibited more fairness behavior, whether they possessed high levels of humility trait (Study 1) or were primed into the humble state (Study 2). Furthermore, humble individuals also held higher levels of fairness perceptions (Study 2). Moreover, situational power influenced both fairness behavior and fairness perceptions. In both studies, humble individuals were affected by situational power, being less fair under high situational power (DG) compared to low situational power (UG), but still more fair than low-humility or control group individuals. By measuring fairness perceptions (Study 2), we found there was no difference in fairness perceptions between humility priming and control group individuals under low situational power (UG). However, humble individuals adhered more closely to their internal principles of fairness and ultimately behaved more fairly. Under high situational power (DG), humble individuals' fairness perceptions were closer to equal

distribution, indicating they were less selfish, and they also behaved more fairly.

4.1. Humility promotes fairness as a valuable virtue

In the past two decades, psychologists from various fields have conducted in-depth research and exploration on the function of humility, increasingly regarding it as a valuable virtue, even a "foundational" virtue for the full development of other virtues (Nadelhoffer & Wright, 2017; Peterson & Seligman, 2004), with positive effects on both individuals and groups (Davis et al., 2013; Zheng et al., 2022). Humble individuals not only focus on themselves but also instead turn their attention towards the states and needs of others, holding a particular psychological positioning of themselves within the context of a larger world, which encourages them to exhibit prosocial and moral behaviors. In our studies, fairness is promoted by humility. Additionally, some researchers have considered fairness to be a virtue of justice (Peterson & Seligman, 2004; Rescher, 2002), and empirical studies have shown that basic fairness emerges in early childhood and becomes increasingly complex with age (McAuliffe et al., 2017). Therefore, our research also provides supporting evidence for the view that humility is "foundational" to the manifestation of other virtues.

The particular psychological positioning held by humble individuals can help us understand why humility promotes fairness. More specifically, the particular psychological positioning operates through two core features of humility: low self-focus and high other-focus. In our studies, all participants were required to take on the role of the proposer, whose advantageous position was not due to individual abilities (Debove et al., 2016). Humble individuals, being in a state of low self-focus, were more likely to recognize this and held higher levels of fairness perceptions. Moreover, individuals in this state were less concerned about their own interests and desires (Leary & Terry, 2012). Therefore, humble individuals could rise above comparative and competitive reactions (Owens et al., 2013), acknowledging and appreciating others' strengths and contributions. On the other hand, the individuals interacting with humble individuals were in a disadvantaged position. The particular psychological positioning of humble individuals made them more attentive to the interests and situations of others. This high concern for others prompted humble individuals to empathize more with others, believing that others' interests need to be protected just as much as their own (Nadelhoffer & Wright, 2017). People in a state of empathy are more attentive to others' misfortunes and suffering (Batson et al., 2007) and behave more fairly (Hilbig et al., 2015; Singer et al., 2006). Therefore, humble individuals exhibit greater fairness and held higher levels of fairness perceptions when making proposals in economic games.

Furthermore, the core concepts of humility determine that, although humility provides the foundation for the development of fairness, encouraging individuals to hold higher levels of fairness perceptions and behave more fairly, it does not lead to absolute egalitarianism. The particular psychological positioning of humility enables individuals to consider more factors, resulting in fairer behavior that goes beyond mere equality in distribution. Across studies, we also examined the influence of situational power. Situational power similarly affected individuals' fairness behavior, as previous research has shown (Barends et al., 2019; Yamagishi et al., 2017), but due to their particular psychological positioning, humble individuals overall tend to be fairer. Specifically, under high situational power (DG), humble individuals were able to resist temptation, possessed higher levels of fairness beliefs, and behaved less selfishly. Under low situational power (UG), there was no difference in fairness perceptions between high humility and low humility individuals, but humble people were more likely to adhere to their internal fairness perceptions.

4.2. The feasibility and necessity of cultivating the virtue of humility

In our studies, priming humble state in individuals also promoted fair behavior. Humility is not just a personality trait but also a dynamically changeable state (Kesebir, 2014; Stellar et al., 2018), which is related to the developmental process of humility on oneself. Humility originates from the particular psychological positioning of oneself within the context of a larger world, and when individuals not merely focus on self-interest and pay attention to other morally relevant individuals, the humble state emerges. Therefore, in the studies, when individuals read a story portraying humility and recalled similar experiences, they entered a state of humility and subsequently exhibited more fair behavior in economic games. Our results also provide confidence in cultivating the virtue of humility and others, as everyone can enter the humility state and thereby develop the humble virtue through appropriate means.

From the perspective of the positive effect of fairness, cultivating the virtue of humility is also crucial. Fairness is not only a principle of social interaction (Rescher, 2002) but also an important virtue on oneself (Peterson & Seligman, 2004). People generally have a tendency towards fairness (McAuliffe et al., 2017), but they often face temptations of selfishness (Burrus & Mattern, 2010). The key issue about fairness is how to promote fair behavior in individuals. This question is typically explored from two aspects: the situations in which individuals behave more fairly and the traits that make individuals fairer. Previous research has demonstrated that both situational factors and traits can influence individuals' fairness (Hilbig & Zettler, 2009; Yamagishi et al., 2017). However, situations may not always be changeable, and decisions often need to be made in specific situations. In such cases, how can individuals' fairness be enhanced? Our study found that humility can promote individuals' fairness. Furthermore, the study also discovered that humility could function as a state, and by priming a humble state in individuals, their level of fairness behavior and perceptions could be increased. Therefore, promoting fairness in specific situations can be achieved through the humility priming. Moreover, this research also provides support for the promotion of the virtue of humility. It emphasizes the need to enhance the cultivation of humility virtue in people's daily lives, providing a feasible path towards achieving social fairness, justice, and harmony.

4.3. Limitations and future directions

Two studies examined the positive relationship between humility and fairness, and the hypothesis that humility promotes fairness was supported. However, they are also limited, and future research can further explore the mechanisms through which humility promotes fairness and enriches the understanding of the virtue of humility. First, fair behavior is a complex social phenomenon with various manifestations (McAuliffe et al., 2017). While these studies primarily focused on fairness beliefs and behavior in economic games, other aspects such as aversion to unfairness and third-party fairness are also crucial components of human fairness behavior (McAuliffe et al., 2017). Future research could investigate whether humble individuals, when acting as third parties or responders, are also inclined to uphold fairness norms, even at personal cost. Second, future studies could integrate cognitive neuroscience techniques to examine whether humble individuals exhibit neural correlates when facing conflicts between personal interests and fairness norms. For instance, previous studies have found that individuals with prosocial traits show greater cognitive conflict when making decisions involving personal gain (Kieslich & Hilbig, 2014). Third, future research could further explore the relationship between humility and other virtues. Previous studies have already noted that high levels of humility are associated with altruism, forgiveness, and gratitude (Worthington Jr. et al., 2021). Researchers could examine the relationship between humility and other virtues, especially those that have not previously been emphasized in humility research (such as courage or patience), which would greatly expand the value of humility

as a virtue. Last, these studies adopted a cross-sectional data, and future research could further explore the long-term effects of the virtue of humility. Longitudinal studies tracking the behavior of individuals with humility traits over time could provide insights into the enduring impact of humility.

5. Conclusion

Using the UG and DG paradigms, two studies tested the influence of humility on individuals' fairness behavior. The results showed that humility could promote fairness and is influenced by situational power. Specifically, humble individuals exhibited more fair behavior in both the UG and DG, whether they possessed high levels of humility trait or were primed into the humble state. Furthermore, humble individuals held higher levels of fairness perceptions, with this effect being moderated by situational power. Under high situational power (DG), humble individuals' fairness perceptions were closer to equal distribution. Under low situational power (UG), there was no difference in fairness perceptions between the humility-primed and control groups. However, humble individuals might adhere more closely to their internal principles of fairness and ultimately behaved more fairly.

CRediT authorship contribution statement

Xin Wang: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Chuhua Zheng:** Methodology, Formal analysis, Conceptualization. **Yanhong Wu:** Writing – review & editing, Supervision, Resources, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no conflict of interest.

Acknowledgements

This work was supported by National Natural Science Foundation of China (grant number 32171050). We are very grateful to Dr. Qiong Wu for her valuable suggestions during the revision of this paper.

Data availability

Data will be made available on request.

References

- Asendorpf, J. B., Conner, M., De Fruyt, F., De Houwer, J., Denissen, J. J. A., Fiedler, K., ... Wicherts, J. M. (2013). Recommendations for increasing replicability in psychology: Recommendations for increasing replicability. *European Journal of Personality*, 27(2), 108–119. <https://doi.org/10.1002/per.1919>
- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, 11(2), 150–166. <https://doi.org/10.1177/1088868306294907>
- Barends, A. J., de Vries, R. E., & van Vugt, M. (2019). Power influences the expression of honesty-humility: The power-exploitation affordances hypothesis. *Journal of Research in Personality*, 82, Article 103856. <https://doi.org/10.1016/j.jrp.2019.103856>
- Bates, D., Mächler, M., Bolker, B. M., & Walker, S. C. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Batson, C. D., Eklund, J. H., Chermok, V. L., Hoyt, J. L., & Ortiz, B. G. (2007). An additional antecedent of empathic concern: Valuing the welfare of the person in need. *Journal of Personality and Social Psychology*, 93(1), 65–74. <https://doi.org/10.1037/0022-3514.93.1.65>
- Burrus, J., & Mattern, K. (2010). Equity, egoism, and egocentrism: The formation of distributive justice judgments. *Basic & Applied Social Psychology*, 32(2), 155–164. <https://doi.org/10.1080/01973531003738593>
- Byerly, T. R., Hill, P. C., & Edwards, K. J. (2022). Others-centeredness: A uniquely positive tendency to put others first. *Personality and Individual Differences*, 186, Article 111364. <https://doi.org/10.1016/j.paid.2021.111364>

- Chai, F., Ma, J., Wang, Y., Zhu, J., & Han, T. (2024). Grading by AI makes me feel fairer? How different evaluators affect college students' perception of fairness. *Frontiers in Psychology*, 15, Article 1221177. <https://doi.org/10.3389/fpsyg.2024.1221177>
- Chancellor, J., & Lyubomirsky, S. (2013). Humble beginnings: Current trends, state perspectives, and hallmarks of humility. *Social and Personality Psychology Compass*, 7, 819–833. <https://doi.org/10.1111/spc3.12069>
- Davis, D. E., Hook, J. N., Worthington, E. L., Van Tongeren, D. R., Gartner, A. L., Jennings, D. J., & Emmons, R. A. (2011). Relational humility: Conceptualizing and measuring humility as a personality judgment. *Journal of Personality Assessment*, 93(3), 225–234. <https://doi.org/10.1080/00223891.2011.558871>
- Davis, D. E., Worthington, E. L., & Hook, J. N. (2010). Humility: Review of measurement strategies and conceptualization as personality judgment. *The Journal of Positive Psychology*, 5(4), 243–252. <https://doi.org/10.1080/17439761003791672>
- Davis, D. E., Worthington, E. L., Hook, J. N., Emmons, R. A., Hill, P. C., Bollinger, R. A., & Van Tongeren, D. R. (2013). Humility and the development and repair of social bonds: Two longitudinal studies. *Self and Identity*, 12(1), 58–77. <https://doi.org/10.1080/15298868.2011.636509>
- de Vries, R. E., Tybur, J. M., Pollet, T. V., & van Vugt, M. (2016). Evolution, situational affordances, and the HEXACO model of personality. *Evolution and Human Behavior*, 37(5), 407–421. <https://doi.org/10.1016/j.evolhumbehav.2016.04.001>
- Debove, S., Baumard, N., & André, J. (2016). Models of the evolution of fairness in the ultimatum game: A review and classification. *Evolution and Human Behavior*, 37(3), 245–254. <https://doi.org/10.1016/j.evolhumbehav.2016.01.001>
- Exline, J. J. (2008). Taming the wild ego: The challenge of humility. In H. A. Wayment, & J. J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 53–62). Washington, DC: American Psychological Association.
- Exline, J. J., & Hill, P. C. (2012). Humility: A consistent and robust predictor of generosity. *The Journal of Positive Psychology*, 7(3), 208–218. <https://doi.org/10.1080/17439760.2012.671348>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191. <https://doi.org/10.3758/BF03193146>
- Forgas, J. P. (2016). Affective influences on moral decisions: Mood effects on selfishness versus fairness. In J. P. Forgas, L. Jussim, & P. A. M. Van Lange (Eds.), *The social psychology of morality* (pp. 152–170). Routledge/Taylor & Francis Group.
- Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (1994). Fairness in simple bargaining experiments. *Games and Economic Behavior*, 6, 347–369. <https://doi.org/10.1006/game.1994.1021>
- Grenberg, J. (2005). Kant and the ethics of humility: A story of dependence, corruption and virtue. Cambridge University Press. <https://doi.org/10.1017/CBO9780511627859>
- Güth, W., Schmittberger, R., & Schwartz, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, 3(4), 367–388. [https://doi.org/10.1016/0167-2681\(82\)90011-7](https://doi.org/10.1016/0167-2681(82)90011-7)
- Hilbig, B. E., Thielmann, I., Würl, J., & Zettler, I. (2015). From Honesty–Humility to fair behavior – Benevolence or a (blind) fairness norm? *Personality and Individual Differences*, 80, 91–95. <https://doi.org/10.1016/j.paid.2015.02.017>
- Hilbig, B. E., & Zettler, I. (2009). Pillars of cooperation: Honesty–Humility, social value orientations, and economic behavior. *Journal of Research in Personality*, 43(3), 516–519. <https://doi.org/10.1016/j.jrp.2009.01.003>
- Hu, J., Cao, Y., Blue, P. R., & Zhou, X. (2014). Low social status decreases the neural salience of unfairness. *Frontiers in Behavioral Neuroscience*, 8, 402. <https://doi.org/10.3389/fnbeh.2014.00402>
- Kesebir, P. (2014). A quiet ego quiets death anxiety: Humility as an existential anxiety buffer. *Journal of Personality and Social Psychology*, 106(4), 610–623. <https://doi.org/10.1037/a0035814>
- Kieslich, P. J., & Hilbig, B. E. (2014). Cognitive conflict in social dilemmas: An analysis of response dynamics. *Judgment and Decision Making*, 9(6), 510–522. <https://doi.org/10.1017/s1930297500006392>
- LaBouff, J. P., Rowatt, W. C., Johnson, M. K., Tsang, J., & Willerton, G. M. (2012). Humble persons are more helpful than less humble persons: Evidence from three studies. *The Journal of Positive Psychology*, 7(1), 16–29. <https://doi.org/10.1080/17439760.2011.626787>
- Leary, M. R., & Terry, M. L. (2012). Hypo-egoic mindsets: Antecedents and implications of quieting the self. In M. R. Leary, & J. P. Tangney (Eds.), *Handbook of self and identity* (2nd ed.). New York: Guilford.
- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO personality inventory. *Multivariate Behavioral Research*, 39(2), 329–358. https://doi.org/10.1207/s15327906mbr3902_8
- Ma, Q., Hu, Y., Jiang, S., & Meng, L. (2015). The undermining effect of facial attractiveness on brain responses to fairness in the ultimatum game: An ERP study. *Frontiers in Neuroscience*, 9, 77. <https://doi.org/10.3389/fnins.2015.00077>
- McAuliffe, K., Blake, P. R., Steinbeis, N., & Warneken, F. (2017). The developmental foundations of human fairness. *Nature Human Behaviour*, 1(2), 0042. <https://doi.org/10.1038/s41562-016-0042>
- McElroy-Heltzel, S. E., Davis, D. E., DeBlaere, C., Worthington, E. L., & Hook, J. N. (2019). Embarrassment of riches in the measurement of humility: A critical review of 22 measures. *The Journal of Positive Psychology*, 14(3), 393–404. <https://doi.org/10.1080/17439760.2018.1460686>
- Meyer, A., & Gawlowska, M. (2017). Evidence for specificity of the impact of punishment on error-related brain activity in high versus low trait anxious individuals. *International Journal of Psychophysiology*, 120, 157–163. <https://doi.org/10.1016/j.ijpsycho.2017.08.001>
- Nadelhoffer, T., & Wright, J. C. (2017). The twin dimensions of the virtue of humility: Low self-focus and high other-focus. In W. Sinnott-Armstrong, & C. B. Miller (Eds.), *Vol. 5. Moral psychology: Virtue and character* (pp. 309–342). Boston Review.
- Nuyen, A. T. (1998). Just modesty. *American Philosophical Quarterly (Oxford)*, 35(1), 101–109.
- Owens, B. P., Johnson, M. D., & Mitchell, T. R. (2013). Expressed humility in organizations: Implications for performance, teams, and leadership. *Organization Science*, 24, 1517–1538. <https://doi.org/10.1287/orsc.1120.0795>
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, DC: APA Press.
- Rescher, N. (2002). *Fairness: Theory and practice of distributive justice*. Transaction Publishers.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: University Press.
- Saether, E. A. (2020). Creativity-contingent rewards, intrinsic motivation, and creativity: The importance of fair reward evaluation procedures. *Frontiers in Psychology*, 11, 974. <https://doi.org/10.3389/fpsyg.2020.00974>
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J., & Frith, C. D. (2006). Empathic neural responses are modulated by the perceived fairness of others. *Nature*, 439(7075), 466–469. <https://doi.org/10.1038/nature04271>
- Stellar, J. E., Gordon, A., Anderson, C. L., Piff, P. K., McNeil, G. D., & Keltner, D. (2018). Awe and humility. *Journal of Personality and Social Psychology*, 114(2), 258–269. <https://doi.org/10.1037/pspi0000109>
- Sun, Q., Xiong, Y., Guo, S., Wang, X., & Liu, Y. (2021). Procedural fairness predicts cooperative behaviour for high-self-esteem individuals but not for low-self-esteem individuals. *International Journal of Psychology*, 56(2), 266–275. <https://doi.org/10.1002/ijop.12708>
- Tangney, J. P. (2000). Humility: Theoretical perspectives, empirical findings and directions for future research. *Journal of Social and Clinical Psychology*, 19(1), 70–82. <https://doi.org/10.1521/jscp.2000.19.1.70>
- Tong, E., Tan, K., Chor, A., Koh, E., & Tan, R. (2016). Humility facilitates higher self-control. *Journal of Experimental Social Psychology*, 62, 30–39. <https://doi.org/10.1016/j.jesp.2015.09.008>
- Tyler, T. R. (1989). The psychology of procedural justice: A test of the group-value model. *Journal of Personality and Social Psychology*, 57(5), 830–838. <https://doi.org/10.1037/0022-3514.57.5.830>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070. <https://doi.org/10.1037/0022-3514.54.6.1063>
- Woodley, H. J. R. (2017). *That's not fair! examining individual differences in perceptions of fairness* [Doctoral dissertation, The University of Western Ontario]. Electronic Thesis and Dissertation Repository.
- Worthington, E. L., Jr., Goldstein, L., Hammock, B., Griffin, B. J., Garthe, R. C., Lavelock, C., ... Van Tongeren, D. R. (2021). Humility: A qualitative review. In C. R. Snyder, S. J. Lopez, L. M. Edwards, & S. C. Marques (Eds.), *The Oxford handbook of positive psychology* (3rd ed., pp. 643–656). Oxford University Press.
- Wright, J. C., Nadelhoffer, T., Perini, T., Langville, A., Echols, M., & Venezia, K. (2017). The psychological significance of humility. *The Journal of Positive Psychology*, 12(1), 3–12. <https://doi.org/10.1080/17439760.2016.1167940>
- Yamagishi, T., Matsumoto, Y., Kiyonari, T., Takagishi, H., Li, Y., Kanai, R., & Sakagami, M. (2017). Response time in economic games reflects different types of decision conflict for prosocial and proself individuals. *Proceedings of the National Academy of Sciences - PNAS*, 114(24), 6394–6399. <https://doi.org/10.1073/pnas.1608877114>
- Zheng, C., & Wu, Y. (2020). The more modest you are, the happier you are: The mediating roles of emotional intelligence and self-esteem. *Journal of Happiness Studies*, 21(5), 1603–1615. <https://doi.org/10.1007/s10902-019-00144-4>
- Zheng, C. H., Wang, X., & Wu, Y. H. (2022). Modesty brings gains: The mechanisms of individual psychology and social culture. *Advances in Psychological Science*, 30(5), 1131–1142. <https://doi.org/10.3724/SP.J.1042.2022.01131>