

BELIEF IN RECIPROCITY IN A CHINESE SAMPLE¹²

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Summary.—Belief in reciprocity refers to a personally internalized faith in the reciprocity norm: that people will return positive and negative interactions or favors in kind. The current study aims to examine the relationship between belief in reciprocity and altruism among a Chinese sample. The Personal Norm of Reciprocity Scale, Trait Forgiveness Scale, Prosocial Tendency Measure, and Altruism Scale were used to assess extent of belief in reciprocity, forgiveness, and prosocial motivation, respectively, among 204 Chinese undergraduates. The results indicated that belief in reciprocity was a partially negative, but not neutral, reciprocity norm for Chinese people. Specifically, belief in reciprocity was positively related to negative reciprocity, but not significantly related to positive reciprocity. Moreover, belief in reciprocity was negatively related to both prosocial tendency and altruistic motivation. The results also indicated that forgiveness largely mediated the effect of belief in reciprocity on altruism. Finally, the implications and limitations of the current study were discussed.

As a multi-disciplinary concept, reciprocity has been a focus in economics, sociology, anthropology, evolutionary biology, and psychology (Gouldner, 1960; Trivers, 1971; Hoffman, McCabe & Smith, 1998; Fehr & Gächter, 2000; Nowak & Sigmund, 2005; Nowak, 2006; Algoe, Haidt, & Gable, 2008). For social psychologists, the norm of reciprocity is a key point in understanding group behavior and social interaction (Eisenberger, Cotterell, & Marvel, 1987; Perugini, Gallucci, Presaghi, & Ercolani, 2003; Eisenberger, Lynch, Aselage & Rohdieck, 2004; Wu, Hom, Tetrick, Shore, Jia, Li, *et al.*, 2006). The norm of reciprocity is defined as a social expectation that people will respond with positive actions to positive action toward them, and respond with negative actions or hostility when negative actions are directed toward them. Belief in reciprocity refers to a personally internalized faith in the norm of reciprocity (Perugini, *et al.*, 2003).

From the above definition, as an internal faith, belief in reciprocity should be a neutral agency for conducting social actions. That is, belief in the reciprocity influences one's reciprocal behaviors based on exchange, in both positive and negative directions. In Perugini, *et al.* (2003), the correlations between belief in reciprocity and negative reciprocity were .41 ($p < .001$) in an English undergraduate sample ($n = 581$) and .44

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($p < .001$) in an Italian undergraduate sample ($n = 370$), and those between belief in reciprocity and positive reciprocity were .43 ($p < .001$) and .15 ($p < .01$), respectively. In addition, the pattern of correlations among the English undergraduate sample suggested that two dimensions of altruism (empathy and fairness) were positively linked to positive reciprocity ($r = .21$, $p < .01$ and $.39$, $p < .01$) and negatively linked to negative reciprocity ($r = -.23$, $p < .01$ and $-.43$, $p < .01$), but were not linked to belief in reciprocity ($r = -.10$ and $-.01$; only English undergraduates answered the altruism questionnaire).

Although the reciprocity norm can be considered a golden rule of human society, whether belief or endorsement of reciprocity has a neutral valence across different cultures remains to be demonstrated. For example, Chinese scholars believe that the reciprocity norm of Chinese society is not the same as that of Western society. Yang (1993) thought that the reciprocity of Chinese people showed a stronger orientation toward relationships rather than exchange, which was embodied in increasing increments of positive reciprocal behavior, despite the manner in which Chinese people interact also tends to follow the principle of reciprocity and mutual benefit. Thus, as a beneficiary, one should return a greater benefit than what the benefactor gave. As the *Shijing*, an old anthology of Chinese poetry, says, "She tossed a peach to me, I bestowed on her a jade." However, compared to a reward for a benevolent deed, retaliation for bad behavior would not be publicly encouraged or approved of in Chinese society. Confucian philosophy that is central to Chinese culture holds that forgiveness for offensive behavior is a virtue. As Confucius said, "Recompense injury with justice, and recompense kindness with kindness" (Yang, 1980). This does not mean that Western cultures are lacking in gratitude and forgiveness, but that these tendencies may be more strongly imposed in Chinese society.

Based on the cultural background of Chinese people, it was predicted that belief in reciprocity would have a somewhat more negative than positive meaning. That is, individuals who hold a belief in reciprocity would be more focused on negative reciprocity than positive reciprocity in social interactions, and thus show fewer altruistic tendencies. In addition, it was also predicted that forgiveness would mediate the relationship between belief in reciprocity and prosocial motivation—a person who holds strongly to the belief in reciprocity would show less forgiveness for another's offensive behavior and express fewer prosocial tendencies and less motivation toward engaging in them.

The current study aimed to examine the relationship between belief in reciprocity and altruism among a Chinese sample. The following three hypotheses were proposed: (Hypothesis 1) although belief in reciprocity

will be positively related to motivation for both positive and negative reciprocity, the correlation between belief in reciprocity and negative reciprocity will be higher than that of belief in reciprocity and positive reciprocity; (Hypothesis 2) belief in reciprocity will be negatively related to altruism and prosocial tendencies; and (Hypothesis 3) forgiveness would partly or completely mediate the effect of belief in reciprocity on altruism.

PILOT STUDY

The purpose of the pilot study is to test the applicability of the Personal Norm of Reciprocity Scale as the main instrument used to assess individual norms of reciprocity among Chinese sample.

Participants

Chinese undergraduates ($N = 1,226$) participated in the pilot study. Of these participants, 354 (28.9%) were men, 842 (68.7%) were women, and 30 (2.4%) did not report their sex. The age range was 17 to 28 years ($M = 20.6$, $SD = 1.1$).

Material

Personal Norm of Reciprocity Scale (PNR).—This scale was developed and applied by Perugini and his colleagues (Perugini & Gallucci, 2001; Gallucci & Perugini, 2002; Perugini, *et al.*, 2003). It includes three subscales: Belief in Reciprocity, Positive Reciprocity, and Negative Reciprocity, with each subscale having nine items rated on a Likert-type scale, ranging from 1: Not true for me to 7: Very true for me.

The Chinese Personal Norm of Reciprocity Scale was revised according to a two-stage process of translation and back-translation. First, every item was translated into Chinese by a Ph.D. psychology student, and was subsequently back translated into English by another Ph.D. psychology student. Second, these two translators discussed and determined every item of the Chinese version.

Data Analysis

In accordance with Perugini, *et al.* (2003), we conducted separate factor analyses for Belief in Reciprocity as a separate structure of belief level, then for Positive Reciprocity and Negative Reciprocity as another structure of motivation level. These participants were randomly divided into two equally sized subsamples by using SPSS 11.5 software package. Subsample 1 ($n = 613$) was used to conduct exploratory factor analysis (EFA), which consists of 168 men, 424 women, and 21 of unknown sex, with an average age of 20.5 yr. Subsample 2 ($n = 613$) was used to conduct confirmatory factor analysis (CFA), which consists of 186 men, 418 women, and nine of unknown sex, with an average age of 20.7 yr. EFA and CFA were conducted using SPSS 11.5 and LISREL 8.72, respectively.

RESULTS

Belief in Reciprocity

Firstly, the correlation matrix between Belief in Reciprocity and all 9 items indicated that the correlation coefficient of Item 4 and Belief in Reciprocity ($r = .23$) was quite low compared to that of other items ($r = .49$ to $.60$). In addition, the content meaning of Item 4 (“If I work hard, I expect it will be repaid”), seems not to be apparently related to interpersonal reciprocity. Therefore, Item 4 was eliminated from further analysis. Next, EFA was conducted for the remaining 8 items. KMO (0.75) and Bartlett’s Test ($\chi^2 = 682.54$, $df = 28$, $p < .001$) showed that the data were acceptable for factor analysis. Two eigenvalues above 1.0 were 2.61 and 1.08. By running a parallel analysis procedure (Horn, 1965), only one factor was retained. Factor loadings of all eight items were over .40 (see Table 1), and the single factor accounted for 32.7% of the total variance. Then, CFA conducted on the 8-item Belief in Reciprocity Scale showed that the single-factor structure was supported by the data at acceptable goodness of fit ($\chi^2 = 88.59$, $df = 20$, $p < .001$; CFI = 0.93, NNFI = 0.91, RMSEA = 0.08, SRMR = .05).

Positive Reciprocity and Negative Reciprocity Scales

EFA was conducted for all 18 items of the Positive and Negative Reciprocity Scales. KMO (0.86) and Bartlett’s test ($\chi^2 = 2,548.55$, $df = 153$, $p < .001$) showed the data were acceptable for factor analysis. By using principal components analysis, the first three eigenvalues were greater than one: 3.82, 3.23, and 1.07. By running a parallel analysis procedure (Horn, 1965), two factors were retained. Results showed factor loading of all items were above .40 (see Table 2), and every item still remained in the original Posi-

TABLE 1
EXPLORATORY FACTOR ANALYSIS OF BELIEF IN RECIPROCITY SCALE WITH 8 ITEMS ($n = 613$)

Item	Loading
B6. I avoid being impolite because I do not want others being impolite with me.	.66
B5. When I pay someone compliments, I expect that s/he in turn will reciprocate.	.64
B3. I fear the reactions of a person I have previously treated badly.	.60
B8. It is obvious that if I treat someone badly s/he will look for revenge.	.59
B2. I do not behave badly with others so as to avoid them behaving badly with me.	.56
B1. To help somebody is the best policy to be certain that s/he will help you in the future.	.52
B7. If I help tourists, I expect that they will thank me nicely.	.50
B9. If I don't leave a good tip in a restaurant, I expect that in the future I will not get good service.	.47
Eigenvalue	2.61
Explained variance %	32.7

B: items in Belief in Reciprocity scale.

TABLE 2
EXPLORATORY FACTOR ANALYSIS OF POSITIVE RECIPROCITY SCALE
AND NEGATIVE RECIPROCITY SCALE WITH 18 ITEMS ($n = 613$)

Item	Loading Factor	
	1	2
N4. If somebody puts me in a difficult position, I will do the same to him / her.	.77	-.02
N2. I am willing to invest time and effort to reciprocate an unfair action.	.70	-.08
N5. If somebody offends me, I will offend him/her back.	.70	.12
N1. If I suffer a serious wrong, I will take my revenge as soon as possible, no matter what the costs.	.67	-.10
N6. If someone is unfair to me, I prefer to give him/her what s/he deserves instead of accepting his/her apologies.	.60	-.12
N3. I am kind and nice if others behave well with me, otherwise it's tit-for-tat.	.59	.01
N8. If somebody is impolite to me, I become impolite.	.58	-.14
N7. I would not do a favour for somebody who behaved badly with me, even if it meant foregoing some personal gains.	.58	.11
N9. The way I treat others depends much on how they treat me.	.57	.17
P9. I go out of my way to help somebody who has been kind to me before.	.05	.73
P5. When someone does me a favour, I feel committed to repay him/her.	.11	.71
P2. If someone does a favour for me, I am ready to return it.	.06	.67
P3. If someone is helpful with me at work, I am pleased to help him/her.	-.12	.61
P1. I am ready to undergo personal costs to help somebody who helped me before.	-.08	.57
P7. If someone lends me money as a favour, I feel I should give him/her back something more than what is strictly due.	.02	.56
P6. If someone asks me politely for information, I'm really happy to help him/her.	-.14	.50
P4. I'm ready to do a boring job to return someone's previous help.	.19	.47
P8. If somebody suggests to me the name of the winning horse at the race, I would certainly give him/her part of my winnings.*	-.07	.41
Eigenvalue	3.82	3.23
Explained variance %	21.3	17.9

N: items in Negative Reciprocity scale; P: items in Positive Reciprocity Scale.

tive Reciprocity or Negative Reciprocity Scale. The two factors can explain 39.2% of variance of Positive Reciprocity and Negative Reciprocity. CFA showed the two-factor model had acceptable goodness of fit ($\chi^2 = 509.90$, $df = 134$, $p < .001$, CFI = 0.93, NNFI = 0.92, RMSEA = 0.07, SRMR = .08).

Analysis of internal consistency showed Cronbach's alpha of Belief in Reciprocity was .69, Positive Reciprocity .75, Negative Reciprocity .82. The test-retest reliabilities of Belief in Reciprocity, Positive Reciprocity, and Negative Reciprocity among 136 participants with a 3-wk. interval were .70, .70, and .81, respectively.

Conclusion

Some indicators of fit statistics for Positive and Negative Reciprocity Scales were not satisfactory. $\chi^2/df < 2.0$ is an ideal indicator. However, when conducting CFA with a bigger sample, a ratio less than 5.0 is reasonable. Here, the ratio is 3.80 with $n = 613$. Thus, this indicator should be in a reasonable range. Similarly, $NNFI > .90$ or $RMSEA < .08$ are also acceptable to a certain extent based on a low requirement for goodness of fit.

It is not too useful to have a scale measuring a concept that explains less than half the variance. In the current study, a single factor explained 32.7% of the variance of Belief in Reciprocity and two factors explained 39.2% of the variance in Positive and Negative Reciprocity scores. However, comparing these results with the 27.6% and 40.2% of variance explained in the original scale as developed by Perugini, *et al.* (2003), these indicators are improved. The pilot study showed that the Chinese Positive and Negative Reciprocity Scale is at least suitable for exploration of the norms of reciprocity in Chinese culture.

METHOD

Participants

Chinese undergraduates ($N = 204$) as formal participants responded to all questionnaires. Of these participants, 46 were men (22.5%), 154 were women (75.5%), and four (2%) did not report their sex. Age ranged from 18 to 28 years ($M = 20.0$, $SD = 1.8$).

Measures

Personal Norm of Reciprocity Scale.—The revised Chinese scale includes 26 items which was applied in the current study.

Trait Forgiveness Scale.—The scale developed by Berry, Worthington, O'Connor, Parrott, and Wade (2005) comprises 10 items measuring one-dimensional forgiveness tendency. Here, forgiveness is the disposition to forgive interpersonal transgressions over time and across situations (e.g., "I can forgive a friend for almost anything"). Scoring is done for each item on a 5-point Likert-type scale: 1: Strongly disagree, 2: Mildly disagree, 3: Agree and disagree equally, 4: Mildly agree, and 5: Strongly agree. Possible scores range from 5 to 50. The Chinese version of the Forgiveness Scale showed good reliability (Cronbach's $\alpha = .83$) and construct validity (Zhang & Luo, 2011). In the current study, the Cronbach's α was .80.

Altruism Scale.—This is a subscale of the Philosophies of Human Nature Scale (Wrightsmann, 1964), which is used to measured the extent of unselfishness, sincere sympathy, and concern for others present in people (e.g., "Most people do not hesitate to go out of their way to help someone in trouble"). It comprises 14 items which are scored using a 6-point Lik-

ert-type scale with anchors of 1: Strongly disagree and 6: Strongly agree. Thus, possible scores range from 14 to 84. It has been showed to have adequate reliability and validity among Western samples (Wrightsmann, 1964) or Chinese samples (Wang, Wang, & Ma, 1999). In the current study, Cronbach's alpha for the Altruism Scale was .80.

Prosocial Tendency Measure.—This questionnaire was developed by Carlo and Randell (2002). It comprises 23 items rated on a 5-point Likert-type scale (1: Does not describe me at all, 2: Describes me a little, 3: Somewhat describes me, 4: Describes me well, and 5: Describes me greatly), which measures common prosocial behaviors (e.g., "I tend to help people who are in a real crisis or need"). According to Carlo and Randell (2002), total scores on all 23 items reflect general prosocial tendency. The Chinese version of the Prosocial Tendency Measure showed good construct validity and reliability (Yu, Yan, & Chen, 2004). In the current study, Cronbach's alpha of the entire questionnaire was .87.

Procedures

All questionnaires were bound into a booklet and handed out to every participant. Participants independently completed this booklet in small groups of 10 to 20 people. After completion, participants were debriefed by telling them the aim and content of this study. Finally, every participant was given a notebook costing 10 Yuan RMB (approximately US\$1.50) as a reward for participating in this study. Before administering self-report questionnaires, investigators obtained verbal consent. Ethics approval for this study was obtained from the ethics committees of the Institute of Psychology, Chinese Academy of Sciences.

Data Analysis

Univariate descriptive statistics and correlation analyses were computed for the following variables: Belief in Reciprocity, Positive Reciprocity, Negative Reciprocity, Forgiveness, Prosocial Tendency and Altruism variables. Mediating effects tests were used to analyze whether Forgiveness mediated the effect of Belief in Reciprocity on Prosocial Tendency and Altruism. All analyses were conducted with SPSS Version 11.5 for Windows.

RESULTS

The results of the correlation analysis among 204 formal participants showed that scores on Belief in Reciprocity were positively correlated with scores on negative reciprocity ($r = .57, p < .001$), but were not with scores on positive reciprocity ($r = .03, p = .65$); there was also a weak negative correlation between scores on positive reciprocity and negative reciprocity ($r = -.19, p = .008$) (see Table 3 for correlation analysis). This result suggested that belief in reciprocity was a relatively negative, rather than neutral, internalized norm among the Chinese sample.

TABLE 3
CORRELATION MATRIX AMONG SCORES ON POSITIVE AND NEGATIVE RECIPROCITY, FORGIVENESS SCALE, PROSOCIAL TENDENCY MEASURE, AND ALTRUISM SCALE (N = 204)

	M	SD	2	3	4	5	6
1. Positive and Negative Reciprocity							
2. Belief in Reciprocity	3.52	0.80					
3. Positive Reciprocity	5.57	0.76	-.03				
4. Negative Reciprocity	2.78	1.03	.57†	-.19*			
5. Forgiveness	3.66	0.62	-.45†	.31†	-.68†		
6. Altruism	4.28	0.64	-.28†	.36†	-.45†	.45†	
7. Prosocial Tendency	3.37	0.36	-.30†	.52†	-.46†	.49†	.39†

* $p < .01$. † $p < .001$.

As predicted, Belief in Reciprocity was negatively related to Forgiveness, Prosocial Tendency, and Altruism. Forgiveness, Prosocial Tendency, and Altruism were positively related to positive reciprocity, and were negatively related to negative reciprocity. These results seem to indicate

TABLE 4
MEDIATING EFFECT TEST OF FORGIVENESS ON THE RELATIONSHIP BETWEEN BELIEF IN RECIPROCITY AND PROSOCIAL TENDENCY (N = 204)

Step-test Procedure	B	β	SEM	t	p
Step 1	-0.14	-0.30	0.030	-4.50	< .001
Step 2	-0.35	-0.45	0.048	-7.13	< .001
Step 3	0.28	0.49	0.036	7.95	< .001
Sobel test		0.10	0.031	-1.52	.13

Note.—Step 1: Belief in Reciprocity predicts Prosocial Tendency; Step 2: Belief in Reciprocity predicts Forgiveness; Step 3: Forgiveness predicts Prosocial Tendency; Sobel test: Forgiveness mediates the prediction of Prosocial tendency from Belief in Reciprocity.

that someone who strongly believes in reciprocity tends to offer less forgiveness and lower prosocial tendency. This could imply that reciprocity (as measured) has more negative connotation for Chinese people than for Western people (Perugini, *et al.*, 2003).

TABLE 5
MEDIATING EFFECT TEST OF FORGIVENESS ON THE RELATIONSHIP BETWEEN BELIEF IN RECIPROCITY AND ALTRUISM (N = 204)

Step-test Procedure	B	β	SEM	t	p
Step 1	-0.22	-0.28	0.054	-4.07	< .001
Step 2	-0.35	-0.45	0.048	-7.13	< .001
Step 3	0.47	0.45	0.065	7.20	< .001
Sobel test		-0.09	0.056	-1.30	.20

Note.—Step 1: Belief in Reciprocity predicts Altruism; Step 2: Belief in Reciprocity predicts Forgiveness; Step 3: Forgiveness predicts Altruism; Sobel test: Forgiveness mediates the prediction of Altruism from Belief in Reciprocity

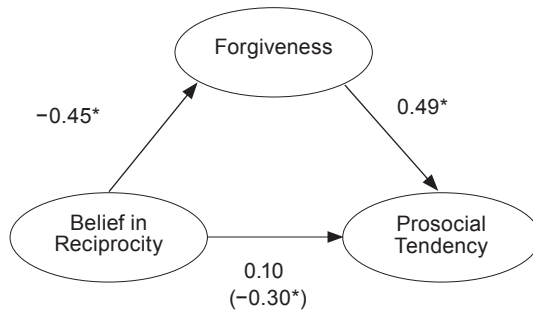


FIG. 1. Mediating effect of forgiveness on the relationship between belief in reciprocity and prosocial tendency. $*p < .05$.

Owing to the significant correlations between Belief in Reciprocity, Forgiveness, Prosocial Tendency, and Altruism, Forgiveness might have mediated the effect of Belief in Reciprocity on Prosocial Tendency. In accordance with previous research (Baron & Kenny, 1986; Wen, Chang, Hau & Liu, 2004), tests for a mediating effect were conducted. The results of these mediating tests are summarized in Tables 4 and 5 and Figs. 1 and 2. The mediating effect test and the Sobel test indicated that Forgiveness completely mediated the relationship between Belief in Reciprocity and Prosocial Tendency (see Table 4 and Fig. 1) as well as Belief in Reciprocity and Altruism (see Table 4 and Fig. 2): when Forgiveness scores were controlled, Belief in Reciprocity had no effect on Prosocial Tendency or Altruism.

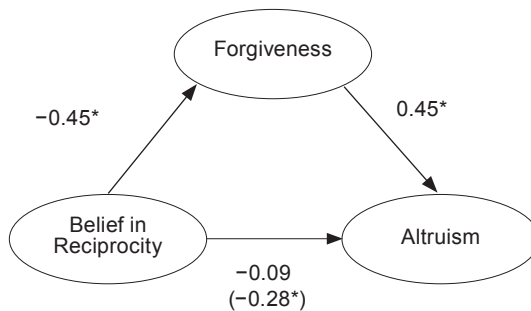


FIG. 2. Mediating effect of forgiveness on the relationship between belief in reciprocity and altruism. $*p < .05$.

DISCUSSION

The above analysis generally confirmed the following hypotheses: Belief in Reciprocity had a more negative valence among a Chinese sample, and was not a neutral internalized norm for this sample of Chinese undergraduates. This conclusion was demonstrated in the following man-

ner. First, Belief in Reciprocity had no significant correlation with Positive Reciprocity, but a strong correlation with Negative Reciprocity. Second, Belief in Reciprocity was negatively related to Altruism and Prosocial Tendencies. The above results were not completely consistent with studies of Perugini, *et al.* (2003) using Western samples.

The results also indicated that forgiveness completely mediated the effect of Belief in Reciprocity on prosocial tendency and altruism. Further, forgiveness largely explained why Belief in Reciprocity results in low altruistic motivation. Individuals with a stronger belief in behaving negatively toward those who behave negatively indicate lower tendency to forgiveness and thus altruistic behavior.

However, it is not clear why Belief in Reciprocity was a generally negative principle in interpersonal interaction by this Chinese sample and resulted in lower scores on prosocial behaviors. As mentioned earlier, China is a collectivist nation long influenced by Confucianism and particularly emphasizes incremental or delayed reciprocal benefits (Yang, 1957; Yang, 1993; Oyserman, Coon & Kemmelmeier, 2002). According to "bao" (报), meaning reciprocity or the repayment notion of Confucianism about social exchange (Yang, 1993), when one benefits from the behaviors of other people, one should give more back to the benefactor so that the friendship can persist and develop. However, for negative behaviors from others, Confucianism endorses tolerance and forgiveness, quite similar to Judeo-Christian morality in the West. When one hurts you, repaying them with equal or more severe pain is not considered a moral behavior and would result in long-term retaliation. In brief, whether in response to a good or bad action, "giving what you get" is not a good strategy in interpersonal relationships. As a motivation or trait, forgiveness inclines people to inhibit relationship-destructive responses and to behave constructively toward others (McCullough, Worthington, & Rachal, 1997; Berry, *et al.*, 2005). A robust believer in both positive and negative reciprocity (the reciprocal norm) would show less forgiveness, tolerance, and agreeableness, as well as less prosocial tendency in an interpersonal context.

This study has several limitations. First, due to the number of self-report questionnaires used, the effects of social desirability and impression management cannot completely be prevented. We suggest that in future studies, experimental methods and field observations be further employed to enhance the internal and ecological validity of the above findings. Second, we used undergraduates, and thus the sample had high homogeneity, which reduces the generalizability of these findings. Future studies need to employ more comprehensive and representative groups (e.g., common residents) in exploring the particulars of reciprocity among Chinese. Third, although reciprocity is a universal phenomenon in almost

all cultures, there are some important cultural differences in the meaning and expression of reciprocity. Thus, on one hand, cross-cultural comparison is necessary for exploring the universality and particularity of the reciprocal norm in the future, but on the other hand, Chinese researchers should develop relevant tests to measure reciprocity and the norm of reciprocity on the basis of indigenous theories. Future researchers should also focus on unraveling complex interactions between cultural forces and norms of reciprocity by conducting multi-perspective empirical studies and constructing solid theoretical foundation.

Despite these limitations, this study is an early investigation into Chinese norms of reciprocity, and some features of the Chinese reciprocal norm found in this study could inspire more thought and empirical research on the universality and the specificity of reciprocal norms.

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