Fate control and ingroup bias in donation for the fight with the coronavirus pandemic: The mediating role of risk perception of COVID-19

Wen-Qiao Li[a], Liman Man Wai Li[b,*], Da Jiang[b], Shuang Liu[b]

[a] *Hokkaido University, Japan*
[b] *The Education University of Hong Kong, Hong Kong, China*

A B S T R A C T

Ingroup bias could be a significant hindrance in a context where intergroup collaboration is crucial, which makes it essential to investigate ingroup bias during pandemics. This research investigated the influence of individuals' belief in fate control on ingroup bias in helping with COVID-19, and the mediating role of risk perception of COVID-19. To test our hypothesis, we analyzed the data from a community sample (n = 318) collected at the initial stage of the COVID-19 outbreak in China. We found that fate control was positively associated with ingroup bias in donation to the patients with COVID-19 and the frontline healthcare professionals. Moreover, the mediating role of risk perception of COVID-19 was significant. A higher level of fate control was associated with higher risk perception of COVID-19, which was, in turn, related to stronger ingroup bias in donation across individuals. These findings highlight the substantial role of general worldview in shaping individuals' responses to pandemics.

1. Introduction

Since January 2020, the coronavirus pandemic has shaken the whole world. By mid-July 2020, about 13 million people have got infected by COVID-19 and more than 500,000 patients have lost their lives (World Health Organization [WHO], 2020a).

Despite the great effort in calling intergroup collaborations (WHO, 2020b), ingroup bias in helping can be a significant hindrance to the combat with the pandemic in this challenging time. Human beings tend to have more positive evaluations and more favorable treatments towards their ingroup members than outgroup members, showing ingroup bias (Mullen, Brown, & Smith, 1992). Ingroup bias is observed in diverse domains such as person judgement and resource allocation (Scheepers, Spears, Doosje, & Manstead, 2006). In human philanthropy and altruism, ingroup bias also exists (Fu et al., 2012).

Importantly, it has been found that ingroup bias can be intensified in the emergency or crisis context. Emergencies or crises often make people experience aversive affect (e.g., disgust and uneasiness) towards the outgroup members, which demotivates helping towards the outgroups (Kunstman & Plant, 2008). This tendency can bring negative impacts especially in the context of disasters. Helping towards the victims of disasters in most cases lies in the context of intergroup behavior, as the disaster victims are in great need of help from outgroups

(Zagefka & James, 2015). However, due to ingroup bias, the victims might not be able to receive timely help (James & Zagefka, 2017).

Given the potential negative influence of ingroup bias in the emergency or crisis contexts (Kunstman & Plant, 2008), it is important to investigate what factors could increase or decrease individuals' ingroup bias in helping with the coronavirus pandemic, which is fundamental for future development of intervention programs to promote donations. Our research addressed this question by investigating the role of social axioms, specifically fate control, in influencing ingroup bias in helping with the pandemic among individuals.

1.1. Fate control

Social axioms refer to people's general beliefs about how the world functions (Leung & Bond, 2004). One of pan-cultural dimensions of social axioms is fate control, which refers to the belief that life outcomes are predetermined, but also that people have some ways to alter the outcomes.

Previous research has shown that fate control has an important role in a wide range of domains. Specifically, people high in fate control were more likely to have an external locus of control (Singelis, Hubbard, Her, & An, 2003) and endorse conservation values that emphasize conformity and tradition (Bond, Leung, Au, Tong, &

Chemonges-Nielson, 2004). It was also found that people with stronger fate control tend to cope with problems via passive wishful thinking (i.e., having fantasies of a positive outcome) and distancing from the problems (Bond et al., 2004). Furthermore, a strong belief in fate control might affect individuals' health status as strong fate control was found to be associated with higher heart disease death rate (Leung & Bond, 2004).

1.2. Fate control and ingroup bias in helping

Some previous studies examined the relation between fate control and helping behavior; however, the results were inconsistent. Liem, Hidayat, and Soemarno (2009) found that fate control was positively associated with donation intention, and they argued that people high in fate control might believe that their donations would help to reduce other people's adversities and change their fate. However, in another study, measuring helpfulness as a dimension of personality traits, Chen, Fok, Bond, and Matsumoto (2006) found that fate control was negatively related to helpfulness.

The mixed findings in the relation between fate control and helping tendency may suggest the importance of a more nuanced investigation of this relation. To establish a better understanding of the influence of fate control on people's helping behavior, our research investigated the relation between fate control and ingroup bias with differentiating the help towards ingroup members versus outgroup members in the COVID-19 pandemic. To our knowledge, our research is the first attempt to investigate the association between fate control and ingroup bias in helping. Moreover, we delved into the underlying mechanism of the relation between fate control and ingroup bias in helping by proposing risk perception of COVID-19 to be a significant mediator in the examined relation.

1.2.1. The mediating role of risk perception of COVID-19

Previous research found that fate control was positively correlated with external locus of control (Singelis et al., 2003). When people believe that one's life, including one's health status, is largely predetermined by external forces beyond their control (e.g., fate and destiny), they tend to feel more vulnerable to the external threats, such as disease (Taiwo, 2015) and death (Hui, Bond, & Ng, 2007). Hence, it is likely that people with high fate control are more aware of the threat of COVID-19, leading to higher risk perception of COVID-19. Supporting this indirectly, it was found that stronger fate control predicted greater death anxiety (Hui et al., 2007), which is closely related to risk perception of disease (Trumbo, McComas, & Kannaovakun, 2007).

Furthermore, some research suggests that higher risk perception is associated with stronger ingroup bias in helping (Faulkner, Schaller, Park, & Duncan, 2004; Navarrete & Fessler, 2006). For example, perceived disease vulnerability was related to stronger ethnocentric attitudes, which emphasize the superiority of one's own group over other groups (Navarrete & Fessler, 2006). Likewise, Faulkner et al. (2004) demonstrated that perceived vulnerability to disease led to stronger xenophobia (i.e., negative attitudes towards outgroups). It was argued that when people perceive high risks of disease, they would have aversive reactions towards the outgroup people who are potential carriers of novel pathogens and are indicative of high contagion risk, which would lead to stronger ingroup bias (Faulkner et al., 2004; Navarrete & Fessler, 2006). Following previous research, we expected that higher risk perception of COVID-19 may be associated with stronger ingroup bias in helping with COVID-19.

Taking together, in this research, we hypothesized that stronger fate control may be associated with stronger ingroup bias in helping with COVID-19. Furthermore, risk perception of COVID-19 would explain the relation between fate control and ingroup bias in helping with COVID-19, in which fate control may be related to higher risk perception of COVID-19, which, in turn, may be associated with stronger ingroup bias in helping with COVID-19.

2. Methods

2.1. Participants

A total of 330 participants [age range: 18–85, mean age = 37.74, SD = 18.22; 244 females (73.9%)] finished an online survey. All participants received a supermarket coupon valued at US\$25 in local currency upon completing the survey. Five participants misunderstood the instructions of the survey, being intended to donate more than the amount of their remuneration, and two participants provided missing information regarding their donation amount. Furthermore, three participants provided inconsistent answers about their donation intention, as they first indicated no intention to donate, but later indicated that they would donate some amount of money. These were considered as invalid data and were excluded from further analyses. Two participants were excluded from analyses because of the calculation of ingroup bias in helping (details were explained in the later section). The final sample included 318 participants [age range: 18–85, mean age = 38.03, SD = 18.35; 233 females (73.3%)].

According to Fritz and MacKinnon (2007), we need at least 148 participants to achieve 0.80 power for detecting a mediation model with a small-to-medium effect size (r = 0.26) for both the α path and the β path, using the bias-corrected bootstrap method. Thus the sample size in the present study was suggested to be adequate. Ethical approval for the current research was obtained from the Human Research Ethics Committee (HREC) of the Education University of Hong Kong (HREC number 2019-2020-0315).

2.2. Procedure and measures

Participants completed a set of questionnaires online. We only included the measures that were relevant to our research questions in the present study.

2.2.1. Fate control

We measured fate control using the eight-item subscale of fate control extracted from the Social Axioms Survey II (SAS-II) (Leung et al., 2012). Sample items include, "Matters of life and death are determined by fate.", "Fate determines one's successes and failures.", and "Fate determines a person's success in life." Previous research has supported the reliability and validity of this scale of fate control across cultures, including both Western and East Asian participants (Leung et al., 2012; Wu, Chen, & Ng, 2020). Participants rated the extent to which they believed in the statements using a five-point scale (1 = *strongly disbelieve*, 5 = *strongly believe*). In the present study, Cronbach's α was 0.797. An average score was computed to indicate people's belief in fate control, with a higher score indicating stronger fate control.

2.2.2. Risk perception of COVID-19

Next, we measured risk perception of COVID-19. Following previous research (e.g., De Zwart et al., 2007), the measure of risk perception of COVID-19 was constructed by multiplying the scores of two items which measured perceived vulnerability of COVID-19 and perceived severity of COVID-19, respectively, with a higher score indicating higher risk perception of COVID-19. For perceived vulnerability, participants indicated the perceived likelihood of getting COVID-19 in the next month for others with similar age (0–100%). For perceived severity, participants indicated the perceived severity of COVID-19 for others with similar age if they caught the disease (0 = *very mild*, 100% = *very severe*).

2.2.3. Ingroup bias in donation

Before the donation-related questions, the participants provided some demographic information, including age, gender and subjective socioeconomic status [SES] (1 = *lowest rank*, 10 = *highest rank*). Then,

at the end of the survey, the participants were asked whether they were willing to donate some of their remuneration (i.e., HK$200) to the patients with COVID-19 and the frontline healthcare professionals.

After indicating the willingness to donate or not, the participants indicated how much they would like to donate to different groups of recipients respectively, including the local patients with COVID-19, the patients with COVID-19 in Hubei, the local healthcare professionals and the healthcare professionals in Hubei.

Although COVID-19 soon spread to different parts in China, Hubei is the most severely affected province with around 68,000 confirmed cases (covering over 80% of the confirmed cases in China) by July 2020. Our research was conducted in February to March 2020, when Hubei was the epicenter of the pandemic outbreak in China. Therefore, we took Hubei as the reference group and tested how the participants from the provinces outside Hubei would provide help towards the patients and healthcare workers in their province (the ingroup) versus towards those in Hubei (the outgroup) as the indicator of ingroup bias in helping.

Ingroup bias in donation was computed as the sum of the donation amounts to the patients and the healthcare professionals in one's local place reduced by that in Hubei. Thus two participants from Hubei were excluded from the analyses. Those who were not intended to donate should write donating 0 dollar for each group of recipients. Among the 318 participants, 193 participants (60.7%) indicated intention to donate money.

Finally, all participants were debriefed and then received all of their payment.

3. Results

For those who did not want to donate any money to any group of recipients, the index of ingroup bias in donation (i.e., 0) might reflect the absence of ingroup bias or their indifference to this matter. Therefore, we cautiously tested our hypothesis by focusing on the donor-only sample (n = 193), which allowed us to test the level of ingroup bias separate from the decision to donate or not. However, for completeness, we also analyzed the full sample, including both donors and non-donors. Table 1 shows the descriptive statistics of the examined variables.

3.1. Comparisons between donations to the ingroup and donations to the outgroup

Analysis based on the donor-only sample showed that the ingroup bias index was not significantly different from zero, $t(192) = -0.57$, $p = .569$, 95% confidence interval (CI) of the difference = $[-20.76, 11.45]$. Analysis based on the full sample revealed similar results, $t(317) = -0.57$, $p = .568$, 95% CI of the difference = $[-12.57, 6.92]$.

Although the results indicated that donations to the ingroup was not significantly different from donations to the outgroup, a great range of

Table 1
The descriptive statistics of the examined variables.

	M	SD	1	2	3
The donor-only sample					
1. Fate control	3.17	0.69	1		
2. Risk perception of COVID-19	1059.76	1480.48	0.29***	1	
3. Ingroup bias in donation	−4.66	113.43	0.23**	0.29***	1
The full sample					
1. Fate control	3.20	0.66	1		
2. Risk perception of COVID-19	1081.56	1467.36	0.24***	1	
3. Ingroup bias in donation	−2.83	88.30	0.18**	0.23***	1

** $p < .01$.

*** $p < .001$.

individual variations in ingroup bias in donation were observed. For both the donor-only sample and the full sample, it ranged from −200 to 200.

3.2. The mediation model

We used the PROCESS macro in SPSS to examine the mediating effect of risk perception of COVID-19 in the relation between fate control and ingroup bias in donation (model 4; Hayes, 2017). Five thousand bias-corrected bootstrap samples were used to create 95% confidence intervals.

3.2.1. The mediation model based on the donor-only sample

The results showed that stronger fate control predicted stronger ingroup bias in donation, total effect = 35.69, $SE = 12.26$, $p = .004$, 95% CI = [11.51, 59.88].

More importantly, risk perception of COVID-19 had a significant mediating effect on the relation between fate control and ingroup bias in donation, indirect effect = 12.05, $SE = 4.63$, 95% CI = [4.29, 22.40]. Fate control was positively associated with risk perception of COVID-19, $b = 628.45$, $SE = 154.22$, $p < .001$, 95% CI = [324.13, 932.76], which, in turn, was positively related to ingroup bias in donation, $b = 0.02$, $SE = 0.01$, $p = .001$, 95% CI = [0.01, 0.03] (see Fig. 1A).

The results were similar with the effects of participants' gender, age and SES controlled in the analysis. Furthermore, similar patterns were observed when we analyzed the ingroup bias in donation to healthcare professionals and that to patients separately.

3.2.2. The mediation model based on the full sample

The total effect of fate control on ingroup bias in donation was significant, total effect = 23.66, $SE = 7.75$, $p = .002$, 95% CI = [8.41, 38.91]. The mediating effect of risk perception of COVID-19 on the relation between fate control and ingroup bias in donation was also significant, indirect effect = 6.36, $SE = 2.33$, 95% CI = [2.46, 11.66]. Stronger fate control predicted higher risk perception of COVID-19, $b = 539.33$, $SE = 125.77$, $p < .001$, 95% CI = [291.82, 786.84], which was, in turn, associated with stronger ingroup bias in donation, $b = 0.01$, $SE = 0.003$, $p = .001$, 95% CI = [0.005, 0.02] (see Fig. 1B).

The results were similar when we controlled for the effects of participants' age, gender and SES. Moreover, we got similar patterns when we conducted separate analyses on the ingroup bias in donation to healthcare professionals and that to patients. To sum up, the analyses on the full sample and the donor-only sample yielded similar results.

4. Discussion

The results supported our hypothesis. Stronger belief in fate control predicted stronger ingroup bias in helping with COVID-19. Furthermore, the relation between fate control and ingroup bias in helping with COVID-19 was explained by risk perception of COVID-19, in which stronger fate control was associated with higher risk perception of COVID-19, which, in turn, was associated with stronger ingroup bias in helping with COVID-19.

The results were similar in the analyses using the donor-only sample and the full sample, suggesting that the findings were robust even when using lenient criteria for determining valid responses. Moreover, we adopted a relative and weak approach to differentiate ingroup and outgroup (i.e., different regions within the country), similar as some previous research (e.g., Li, Li, & Li, 2019). This was reflected by the finding that the index of ingroup bias in helping was not significantly different from zero. However, the results regarding the relation between fate control and ingroup bias in helping were consistent and persuasive, suggesting that this relation is robust. We expect that the findings would be even more robust when the boundary of ingroup and outgroup is strong and obvious (e.g., home country versus foreign country).
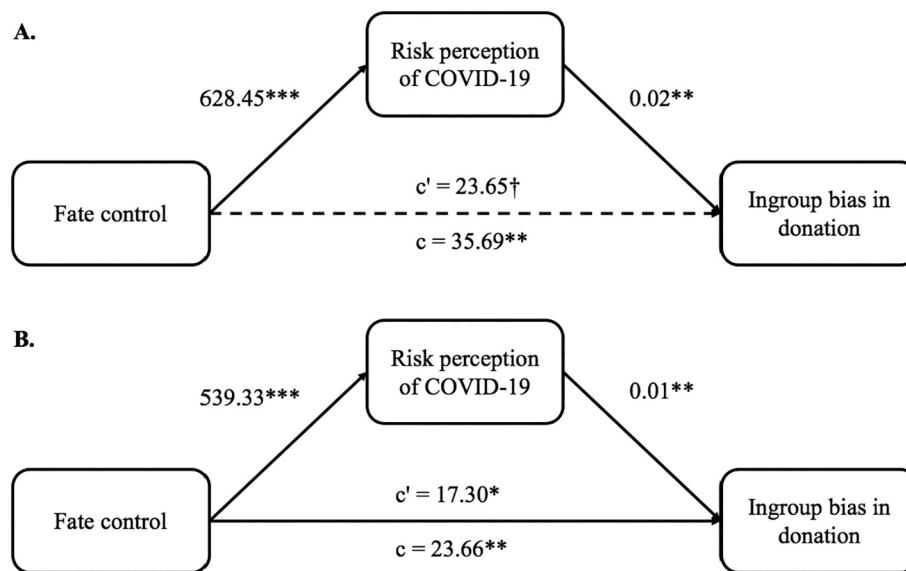
Fig. 1. (A) Results of the mediation analysis based on the donor-only sample; (B) results of the mediation analysis based on the full sample. Unstandardized coefficients are reported. †$p = .059$, * $p < .05$, ** $p < .01$, *** $p < .001$. c′ = direct effect, c = total effect.

4.1. Theoretical implications

Our research contributes to the research on ingroup bias in two ways. First, our research broadens the current knowledge of ingroup bias in the disaster context. Ingroup bias has been extensively investigated in a large body of research. However, previous research mostly used experiment-based tasks (e.g., Taylor & Moriarty, 1987) or economic games (e.g., Rand et al., 2009). Little research has examined ingroup bias in the real-life context, limiting the external validity of the existing findings. Furthermore, the experimental studies might fail to answer what factors could influence the ingroup bias in real-life contexts like disasters, where ingroup bias is likely to have notable negative social consequences (James & Zagefka, 2017). Our research addressed the limitations of prior work by examining individuals' ingroup bias in helping with COVID-19, an unprecedentedly destroying disaster. We identified the influence of fate control as well as risk perception of COVID-19 on people's ingroup bias in helping with COVID-19. One of research priority domains is about the antecedents or determinants of intergroup division during the COVID-19 pandemic (O'Connor et al., 2020). Our findings provide insight to this critical research domain by showing that general beliefs significantly underlie the individual differences in ingroup bias in helping with COVID-19.

Second, our research suggests that the pan-cultural general beliefs have influences on ingroup bias. Previous theories have stressed that specific beliefs exert effects on ingroup bias (e.g., Ockenfels & Werner, 2014). For example, according to the belief congruence theory, beliefs in sharing similarity with outgroups would predict less ingroup bias (Roccas & Schwartz, 1993). However, the influence of general beliefs such as social axioms that guide people's behaviors across different domains (Bond et al., 2004) on ingroup bias is relatively under-investigated. Our research, in combination with the study that demonstrated the relation between social cynicism and ingroup bias (Kurman, 2011), highlights the influence of general beliefs on intergroup behavior.

This research also has implications for the research on social axioms. Previous research has found that social axioms can shape people's social behaviors across different domains (Leung & Bond, 2008). Specifically, fate control was found to be related to distancing and wishful thinking in terms of coping strategies (Bond et al., 2004), which suggests that fate control is associated with passive and avoidant coping styles. Extending these findings, we novelly found that fate control

predicted stronger ingroup bias in helping with pandemics, which is regarded as one of defensive coping strategies in the hard times (Schmitt & Maes, 2002). In addition, previous research found that fate control had negative impacts on individuals' psychological and physical well-being, reflected by stronger perceived stress (Kuo, Kwantes, Towson, & Nanson, 2006) and higher heart disease death rate (Leung & Bond, 2004). Given that risk perception can strongly shape people's well-being (e.g., Havenaar, De Wilde, Van Den Bout, Drottz-Sjöberg, & Van Den Brink, 2003), the effect of fate control on individuals' well-being might also be mediated by risk perception. Future research needs to investigate this possibility.

4.2. Limitations and future directions

This research has several limitations. First, we adopted a survey method and the data were correlational in nature, which did not provide empirical support for the causal effect of fate control on ingroup bias in helping with COVID-19. Therefore, future studies need to use longitudinal designs or to conduct experiments to test the causal relationship between fate control and ingroup bias. Second, we measured donation intention rather than actual donation behavior, thus future research needs to examine actual giving for the COVID-19 pandemic for facilitating a better understanding of the influence of fate control on the ingroup bias in real-life helping contexts. Third, we focused on examining ingroup bias in helping with the COVID-19 pandemic, thus it is unclear whether the effect of fate control could be generalized to ingroup bias in prosocial behaviors in other non-disaster contexts, such as organ donation (Georgiadou, Fotakopoulou, & Pnevmatikos, 2015), or to ingroup bias in other domains, such as resource allocation (Scheepers et al., 2006). Future research is needed to thoroughly study the effect of fate control on ingroup bias in different settings. Fourth, the participants in our research were from an East-Asian collectivistic culture (Liu, Morris, Talhelm, & Yang, 2019), therefore it remains an open question whether our findings could be generalized to other societies with different heritage cultural background. Although social axioms are pan-cultural (Leung & Bond, 2004), the effect of social axioms can be moderated by the cultural context in some domains (Fu et al., 2004). To provide solid support for the generalizability of the current findings, future research should test the relation between fate control and ingroup bias in helping with COVID-19 among other cultural groups.

CRediT authorship contribution statement

Wen-Qiao Li: Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing. **Liman Man Wai Li:** Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing, Supervision. **Da Jiang:** Conceptualization, Methodology, Writing - review & editing, Supervision, Project administration, Investigation, Funding acquisition. **Shuang Liu:** Investigation, Project administration.

Declaration of competing interest

None.

Acknowledgments

References

Bond, M. H., Leung, K., Au, A., Tong, K. K., & Chemonges-Nielson, Z. (2004). Combining social axioms with values in predicting social behaviours. *European Journal of Personality, 18*, 177–191. https://doi.org/10.1002/per.509.

Chen, S. X., Fok, H. K., Bond, M. H., & Matsumoto, D. (2006). Personality and beliefs about the world revisited: Expanding the nomological network of social axioms. *Personality and Individual Differences, 41*, 201–211. https://doi.org/10.1016/j.paid.2006.01.009.

De Zwart, O., Veldhuijzen, I. K., Elam, G., Aro, A. R., Abraham, T., Bishop, G. D., ... Brug, J. (2007). Avian influenza risk perception, Europe and Asia. *Emerging Infectious Diseases, 13*, 290–293. https://doi.org/10.3201/eid1302.060303.

Faulkner, J., Schaller, M., Park, J. H., & Duncan, L. A. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes and Intergroup Relations, 7*, 333–353. https://doi.org/10.1177/1368430204046142.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*, 233–239. https://doi.org/10.1111/j.1467-9280.2007.01882.x.

Fu, F., Tarnita, C. E., Christakis, N. A., Wang, L., Rand, D. G., & Nowak, M. A. (2012). Evolution of in-group favoritism. *Scientific Reports, 2*, 460. https://doi.org/10.1038/srep00460.

Fu, P. P., Kennedy, J., Tata, J., Yukl, G., Bond, M. H., Peng, T. K., ... Cheosakul, A. (2004). The impact of societal cultural values and individual social beliefs on the perceived effectiveness of managerial influence strategies: A meso approach. *Journal of International Business Studies, 35*, 284–305. https://doi.org/10.1057/palgrave.jibs.8400090.

Georgiadou, T., Fotakopoulou, O., & Pnevmatikos, D. (2015). Adolescents' preferences for organ allocation: The role of empathy and altruism in allocation judgments. *European Journal of Developmental Psychology, 12*, 310–323. https://doi.org/10.1080/17405629.2015.1010503.

Havenaar, J. M., De Wilde, E. J., Van Den Bout, J., Drottz-Sjöberg, B. M., & Van Den Brink, W. (2003). Perception of risk and subjective health among victims of the Chernobyl disaster. *Social Science & Medicine, 56*, 569–572. https://doi.org/10.1016/S0277-9536(02)00062-X.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* The Guilford Press.

Hui, V. K. Y., Bond, M. H., & Ng, T. S. W. (2007). General beliefs about the world as defensive mechanisms against death anxiety. *Omega: Journal of Death and Dying, 54*, 199–214. https://doi.org/10.2190/8NQ6-1420-4347-H1G1.

James, T. K., & Zagefka, H. (2017). The effects of group memberships of victims and perpetrators in humanly caused disasters on charitable donations to victims. *Journal of Applied Social Psychology, 47*, 446–458. https://doi.org/10.1111/jasp.12452.

Kunstman, J. W., & Plant, E. A. (2008). Racing to help: Racial bias in high emergency helping situations. *Journal of Personality and Social Psychology, 95*, 1499–1510. https://doi.org/10.1037/a0012822.

Kuo, B. C., Kwantes, C. T., Towson, S., & Nanson, K. M. (2006). Social beliefs as determinants of attitudes toward seeking professional psychological help among ethnically diverse university students. *Canadian Journal of Counselling and Psychotherapy, 40*, 224–241.

Kurman, J. (2011). What I do and what I think they would do: Social axioms and behaviour. *European Journal of Personality, 25*, 410–423. https://doi.org/10.1002/per.801.

Leung, K., & Bond, M. H. (2004). Social axioms: A model for social beliefs in multicultural perspective. In M. P. Zanna (Vol. Ed.), *Advances in experimental social psychology. Vol. 36. Advances in experimental social psychology* (pp. 119–197). Elsevier Academic Press. https://doi.org/10.1016/S0065-2601(04)36003-X.

Leung, K., & Bond, M. H. (Eds.). (2008). *Psychological aspects of social axioms: Understanding global belief systems.* Springer Science & Business Media.

Leung, K., Lam, B. C. P., Bond, M. H., Conway, L. G., Gornick, L. J., Amponsah, B., ... Zhou, F. (2012). Developing and evaluating the social axioms survey in eleven countries: Its relationship with the five-factor model of personality. *Journal of Cross-Cultural Psychology, 43*, 833–857. https://doi.org/10.1177/0022022111416361.

Li, W. Q., Li, L. M. W., & Li, M. (2019). Residential mobility reduces ingroup favouritism in prosocial behaviour. *Asian Journal of Social Psychology, 22*, 3–17. https://doi.org/10.1111/ajsp.12338.

Liem, A. D., Hidayat, S. S., & Soemarno, S. (2009). Do general beliefs predict specific behavioral intentions in Indonesia? The role of social axioms within the theory of planned behavior. In K. Leung, & M. H. Bond (Eds.). *Psychological aspects of social axioms* (pp. 217–238). Springer.

Liu, S. S., Morris, M. W., Talhelm, T., & Yang, Q. (2019). Ingroup vigilance in collectivistic cultures. *Proceedings of the National Academy of Sciences, 116*, 14538–14546. https://doi.org/10.1073/pnas.1817588116.

Mullen, B., Brown, R., & Smith, C. (1992). Ingroup bias as a function of salience, relevance, and status: An integration. *European Journal of Social Psychology, 22*, 103–122. https://doi.org/10.1002/ejsp.2420220202.

Navarrete, C. D., & Fessler, D. M. T. (2006). Disease avoidance and ethnocentrism: The effects of disease vulnerability and disgust sensitivity on intergroup attitudes. *Evolution and Human Behavior, 27*, 270–282. https://doi.org/10.1016/j.evolhumbehav.2005.12.001.

Ockenfels, A., & Werner, P. (2014). Beliefs and ingroup favoritism. *Journal of Economic Behavior & Organization, 108*, 453–462. https://doi.org/10.1016/j.jebo.2013.12.003.

O'Connor, D. B., Aggleton, J. P., Chakrabarti, B., Cooper, C. L., Creswell, S., ... Armitage, C. J. (2020). Research priorities for the COVID-19 pandemic and beyond: A call to action for psychological science. *British Journal of Psychology*. https://doi.org/10.1111/bjop.12468 Advanced online publication.

Rand, D. G., Pfeiffer, T., Dreber, A., Sheketoff, R. W., Wernerfelt, N. C., & Benkler, Y. (2009). Dynamic remodeling of in-group bias during the 2008 residential election. *Proceedings of the National Academy of Sciences of the United States of America, 106*, 6187–6191. https://doi.org/10.1073/pnas.0811552106.

Roccas, S., & Schwartz, S. H. (1993). Effects of intergroup similarity on intergroup relations. *European Journal of Social Psychology, 23*, 581–595. https://doi.org/10.1002/ejsp.2420230604.

Scheepers, D., Spears, R., Doosje, B., & Manstead, A. S. R. (2006). Diversity in in-group bias: Structural factors, situational features, and social functions. *Journal of Personality and Social Psychology, 90*, 944–960. https://doi.org/10.1037/0022-3514.90.6.944.

Schmitt, M., & Maes, J. (2002). Stereotypic ingroup bias as self-defense against relative deprivation: Evidence from a longitudinal study of the German unification process. *European Journal of Social Psychology, 32*, 309–326. https://doi.org/10.1002/ejsp.91.

Singelis, T. M., Hubbard, C., Her, P., & An, S. (2003). Convergent validation of the social axioms survey. *Personality and Individual Differences, 34*, 269–282. https://doi.org/10.1016/S0191-8869(02)00043-0.

Taiwo, A. O. (2015). The role of gender and psychosocial factors on perceived vulnerability to HIV/AIDS infection among young and middle aged adults in Benin City, Nigeria. *Journal of Psychology and Psychotherapy, 5*, 175. https://doi.org/10.4172/2161-0487.1000175.

Taylor, D. A., & Moriarty, B. F. (1987). Ingroup bias as a function of competition and race. *Journal of Conflict Resolution, 31*, 192–199. https://doi.org/10.1177/0022002787031001011.

Trumbo, C. W., McComas, K. A., & Kannaovakun, P. (2007). Cancer anxiety and the perception of risk in alarmed communities. *Risk Analysis, 27*, 337–350. https://doi.org/10.1111/j.1539-6924.2007.00886.x.

World Health Organization (2020a). *WHO coronavirus disease (COVID-19) dashboard.* Retrieved from https://covid19.who.int/.

World Health Organization (2020b). *COVID-19 Solidarity Response Fund.* Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/donate.

Wu, W. C., Chen, S. X., & Ng, J. C. (2020). Does believing in fate facilitate active or avoidant coping? The effects of fate control on coping strategies and mental well-being. *International Journal of Environmental Research and Public Health, 17*, 6383. https://doi.org/10.3390/ijerph17176383.

Zagefka, H., & James, T. (2015). The psychology of charitable donations to disaster victims and beyond. *Social Issues and Policy Review, 9*, 155–192. https://doi.org/10.1111/sipr.12013.