To distance or to help: People's ambivalent attitude towards residents from the COVID-19 epicenter

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Abstract

The COVID-19 pandemic has led to drastic changes in the world. One prominent aspect has been the transformation in interpersonal relations, especially people's attitude towards residents from COVID epicenters. Using a 2-wave national study in mainland China during the pandemic outbreak, this study examined Chinese people's distancing and helping intentions towards residents from Hubei Province, the epicenter of China at that time. Results suggested that individuals had an ambivalent attitude towards denizens from the epicenter. Specifically, people felt greater risk when they perceived a higher severity of the pandemic and so were more likely to distance from epicenter residents. However, individuals showed greater empathy towards epicenter residents when they felt a higher severity of the pandemic and, therefore, were more likely to help them. Group identity moderated these effects: those with a higher identification as Chinese were more inclined to help Hubei residents, but those with a lower identification as Chinese were more prone to distance from them. The findings provide important implications in understanding interpersonal relationships during the pandemic.

Keywords COVID-19 pandemic · Distancing · Helping · Perceived risk · Empathy

Introduction

Coronavirus 2019 (COVID-19) has changed the world profoundly and caused significant social problems, such as racism, prejudice, and xenophobia (Devakumar et al., 2020). A noticeable prejudice has been towards residents from epicenters—places where the outbreak of the pandemic is most severe and has a large number of reported cases (Chung & Li, 2020). In February 2020, for example, Chinese people rejected and isolated residents from Hubei Province, the epicenter of China during the initial outbreak of the pandemic. They did so merely because of those residents' locale (e.g., people driving cars with Hubei license plate number were not able to enter other provinces) (Xu et al., 2021). In February, moreover, Italy became the epicenter of the pandemic in Europe. As COVID initially affected northern Italy, people residing in that area were blamed for transmitting COVID to others (Villa et al., 2020). Furthermore, in March 2020, New York became the epicenter in the United States, and racist attacks against Asians were immediately reported (Garcia et al., 2021). In contrast to individuals engaging in distancing and rejection behaviors, people outside the epicenter also have undertaken efforts to help denizens from the epicenter (Ceylan & Hayran, 2021). For instance, people have donated money, masks, and medical supplies to those living in the pandemic's epicenters (United Nations, 2020).

The antipodal responses to epicenter residents led to the current investigation. The present research attempted to understand *why* people exhibited towards residents from epicenters both distancing and helping behaviors, two seemingly contradictory reactions. Moreover, it identified factors *when* people were more likely to exhibit positive helping behaviors. Understanding *why and when* the general public

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displays distancing or helping behaviors towards residents from epicenters is not only theoretically important, but also has practical implications for policy making and mass communication.

Theoretical Foundation and Hypothesis Development

Our theorizing is built on the premise that human beings, as social animals, not only care about their own needs but also are concerned about the well-being of others (Bergsieker et al., 2010; Crocker & Canevello, 2008; Crocker et al., 2009; Wolfe et al., 1986). Such dual needs correspond to the egosystem and the ecosystem motivational perspectives in viewing the relation between the self and others (Crocker & Canevello, 2008; Crocker et al., 2009). With an *egosystem* motivational perspective, people are narrowly self-interested and focus on their own needs. They view the relation between the self and others as competitive or zero-sum (i.e., another's gain is the self's loss) and try to protect themselves from potential threats (Crocker & Canevello, 2008). In contrast, with a broader *ecosystem* motivational perspective, individuals regard themselves as part of a larger system and take others into account (Baumeister & Leary, 1995; Crocker & Canevello, 2008).

Given these two motivational perspectives, people tend to have both a self-oriented goal and a compassionate goal in interpersonal interactions (Bergsieker et al., 2010; Crocker & Canevello, 2008; Crocker et al., 2009). Applied to the context concerning the treatment of epicenter residents during the pandemic, people also are likely to have both kinds of goals: the goal to protect the self and satisfy one's personal needs, and the goal to be supportive and care about the well-being of others. The two goals co-exist and drive different psychological feelings and behaviors towards residents from epicenters (Crocker et al., 2010). More specifically, we propose that, during the pandemic, people outside the epicenter exhibit ambivalent attitudes toward denizens from the epicenter: (1) they perceive risk over having contact with epicenter residents and thus are likely to distance from them; *and* (2) they feel empathetic towards epicenter residents and thus are willing to help them.

Distancing from Epicenter Residents: Role of Perceived Risk

Distancing—keeping a certain physical distance from others—is an effective way to prevent infectious disease (Kelso et al., 2009). However, during the COVID-19 pandemic, many people have overreacted to residents from epicenters (Garcia et al., 2021; Villa et al., 2020; Xu et al., 2021). They have done so because they mentally associate the virus with the origin of the outbreak and consider epicenter residents as virus carriers (Chung & Li, 2020; Devakumar et al., 2020). As such, interacting with epicenter residents is perceived as threatening. Owing to an innate survival and safety need, individuals adopt an egosystem motivational perspective (Crocker et al., 2009; Hammitt & Haninger, 2010; Holt & Laury, 2002). Doing so leads them to focus on their own safety needs and emphasize the potential infection risks of interacting with those in the epicenter. This heightened risk perception leads to avoidance behaviors—such as social distancing—that helps people protect themselves from prospective risks (Oaten et al., 2017; Schaller, 2020). Therefore, we hypothesize the following:

> **H1:** The more severe individuals perceive that the pandemic is, the more likely they are to keep distant from epicenter residents.
> **H2:** Perceived risk mediates the relationship between perceived pandemic severity and distancing intention towards epicenter residents.

Helping Epicenter Residents: Role of Empathy

As theorized above, human beings are social animals and, consequently, not only have a motivation to protect themselves and satisfy their own safety needs, but they also are actuated to be supportive and care about the well-being of others during interpersonal interactions (Bergsieker et al., 2010; Crocker & Canevello, 2008; Crocker et al., 2009; Wolfe et al., 1986). With this ecosystem motivational perspective, people view epicenter residents as part of a larger system (i.e., all humans) and consider the well-being of epicenter residents as important in determining the welfare of the entire system. Accordingly, the self is closely interconnected with epicenter residents. Thus, people are likely to feel empathetic towards residents from epicenters; they feel this way because those denizens are victims of the pandemic and suffer both physical and psychological pain (Bhaskar et al., 2020). Abundant literature has shown that empathy is a strong predictor of helping and prosocial behaviors (Atkinson, 2019; Hauser et al., 2014; Lawrence et al., 2004; Penner et al., 2005; Spinrad & Gal, 2018). Thus, we hypothesize the following:

> **H3:** The more severe people perceive the pandemic is, the more likely they are to help epicenter residents.
> **H4:** Empathy mediates the relationship between perceived pandemic severity and helping intention towards epicenter residents.

Group Identity as a Moderator

Based on findings that different situations may lead to differential weights placed on egosystem and ecosystem motivational perspectives (for a review see Crocker et al., 2009), we further propose group identity as a moderator of the theorized effects. Group identity constitutes the cognizance of belonging and adhering to a particular unit (McClain et al., 2009). Prior research has suggested that an egosystem motivational perspective is likely to be activated when situations are construed as personally threatening. In these circumstances, individuals tend to interpret and respond to threats in a more preventive and self-interested way, as their well-being or survival is at stake (Crocker et al., 2009). Ecosystem motivational perspectives, in contrast, are effectuated when people realize that they are connected to each other. In such contexts, people believe that they must take care of each other and that considering the needs of others create positive outcomes.

Group identity should serve as a moderator that determines the extent to which people adopt an egosystem or an ecosystem motivation perspective in interacting with residents from epicenters during the pandemic. In the present work, we focus on group identity of Chinese, which reflects the extent to which people identify with the identify of being Chinese. We propose that those with a higher level of group identity understand and appreciate their connectedness to residents from epicenters as Chinese. Accordingly, they are more likely to adopt an ecosystem perspective and show caring and supportive attitudes towards others from epicenters. In contrast, individuals with a lower level of group identity do not perceive or appreciate the connection between themselves and residents from epicenters. Therefore, they are more prone to adopt an egosystem perspective—only caring about their own safety and risk. Therefore, we hypothesize the following:

H5: Group identity moderates the effect of perceived pandemic severity on distancing intention via perceived risk. Specifically, for people with lower levels of group identity, perceived pandemic severity will result in greater perceived risk, which leads to greater distancing inten-

tion. For those with higher levels of group identity, the effect will be attenuated.

H6: Group identity moderates the effect of perceived pandemic severity on helping intention via empathy. Specifically, for people with higher levels of group identity, perceived pandemic severity will result in greater empathy towards residents from the epicenter, which leads to greater helping intention. For those with lower levels of group identity, the effect will be attenuated.

Our conceptual framework is as shown in Fig. 1.

Method

Study Design

To test the hypotheses, we conducted a two-wave longitudinal survey design at a one-month interval during the pandemic in China (i.e., February and March 2020). These two periods represented the outbreak and the stable stage of the pandemic in China, respectively (see Fig. 2; from National Health Commission of the P.R. China). During that time, Hubei Province was the epicenter in China; it reported the largest number of confirmed cases in China (67,801 cases as of March 31, 2020, accounting for 83.14% confirmed cases in China). We measured pandemic severity, perceived risk, felt empathy, and group identity in February 2020 (Time 1, T1) and assessed distancing and helping intention in March 2020 (Time 2, T2).

The reason for collecting the data in two waves was that, in February 2020, the entire country (China) was locked down, and people were not allowed to go outside due to government policy (Miao et al., 2021). Therefore, distancing behavior was enforced, and physical contact with epicenter residents (i.e., Hubei Providence) was virtually impossible. Helping behavior aimed at epicenter residents was highly encouraged by the government in February 2020. As such, it was pervasive at the individual and societal level (Miao et al., 2021). In March 2020, the pandemic was under control and entered a stable stage. People returned to their work
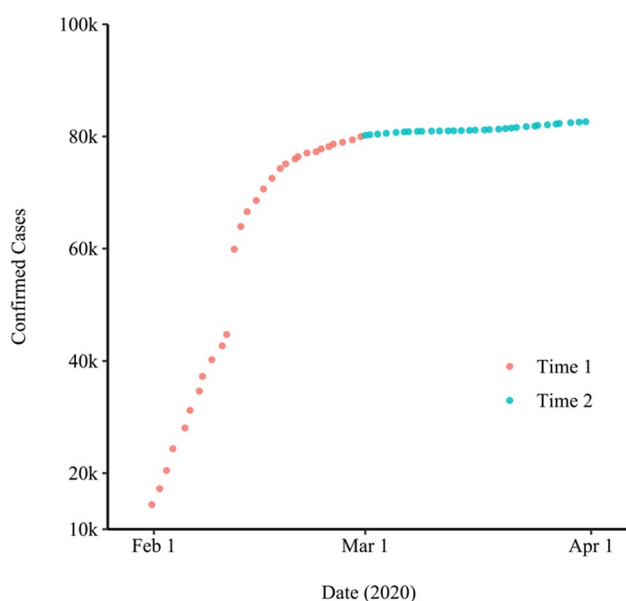
Fig. 1 Conceptual Model
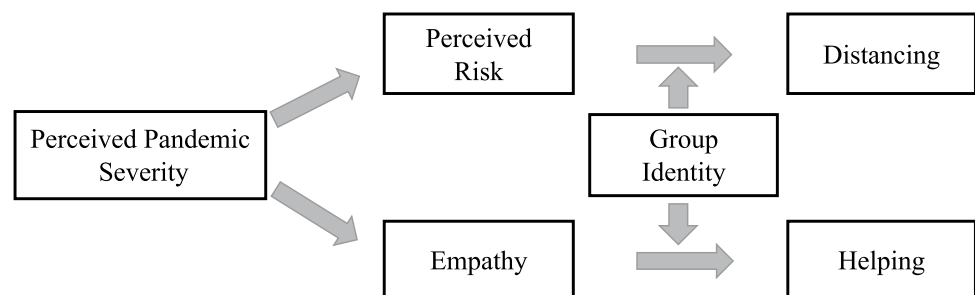
Fig. 2 Number of confirmed cases and time point of measures

sites, and mobility was possible. Therefore, assessing people's distancing and helping intention towards residents from the epicenter in March 2020 was appropriate and pragmatically feasible. In addition, a two-wave design helped attend to the potential for common method bias in a cross-sectional correlational study (Spurk et al., 2016). Moreover, by assaying the distancing and helping intention at a lagged time, we could test the effects of our predictors on the outcomes in a relatively conservative way.

Procedure and Data Collection

Data were collected through a widely used online survey company in China (www.credamo.com). In this platform, similar to Amazon Mechanical Turk, each participant was assigned an anonymous unique respondent ID when s/he registered the account (Gong et al., 2021; Wang et al., 2022). All participants were informed that their dynamic IP address was collected and recoded into city-level information. This research protocol was approved by the Institutional Review Board of Nankai University. All participants were fully informed of their rights and study benefits prior to completing the survey. Only those providing online informed consent continued in the study.

For the first-wave data collection (February 2020, Time 1, T1), we opened 1800 hits among premium participants of the platform. These premium participants had a credit score higher than 90 on the platform, which indicated that more than 90% of their submitted responses had been approved by researchers historically. Therefore, we did not include attention check questions. A total of 1796 participants completed the first-wave survey and were paid 10 RMB (approximately

1.57 US dollars). In this first survey, participants answered measures concerning pandemic severity, perceived risk, empathy towards epicenter residents, group identity, and demographic information.

For the second-wave data collection (March 2020, Time 2, T2), we reached the previous 1796 participants that submitted their responses during the first-wave survey by matching their unique respondent ID on the platform. This respondent ID was automatically generated with alphabetical and numeric characters when they registered their account on the platform for the first time. A total of 1644 completed our second-wave survey (response rate: 91.54%) and were paid another 10 RMB. In this second-wave survey, participants read two scenarios that measured their intention to distance from and to help residents from Hubei province.

Participants

Among the 1644 participants completing both surveys, 106 were located in Hubei Province (given their IP addresses recorded by the platform). Because our research examined how people *outside* the epicenter reacted to residents from the epicenter, we excluded these 106 participants in the final analyses. Our sample thus comprised 1538 participants.

The 1538 participants were from 29 regions of China. Their mean age was 29.42 years (SD = 5.87); 711 (46.22%) were female. One hundred sixty-two participants had only a high school diploma; 285, a junior college degree; 1961, a bachelor's degrees; and 130, a graduate degree. Also, 1226 were employed in organizations, and 142 were self-employed. In addition, nine were retired or unemployed, two did not report their occupation, and 159 were students.

Measures

Measures of pandemic severity, perceived risk, empathy, and group identity were adapted from previous validated scales to be suitable for the COVID-19 pandemic context. They were originally in English and thus were subsequently translated into Chinese following the standard back-translation process with the help of a bilingual research assistant (Brislin, 1970). Specifically, the procedure entailed translation, back-translation, comparison of versions, and pretesting. First, the authors translated the original English scales into Chinese. Then, all items were back-translated by the bilingual research assistant. In comparison of versions, the bilingual made revisions to ensure the equivalence of meaning and structure. Distancing and helping intention were measured with two scenarios designed specifically for the COVID-19 context in China. Before the final version of the questionnaire, we pretested it among a small set of participants (n = 10) to make sure all items are easy to understand and without ambiguity.

Perceived pandemic severity was measured with a two-item scale from Tang and Wong (2004). The statements were adapted to the COVID-19 context: "How severe do you think the COVID-19 pandemic is in China?" and "How serious do you think the COVID-19 pandemic is in China?" (1 = not at all, 7 = very much; r = 0.44).

Perceived risk was evaluated with a two-item scale (Teasdale et al., 2012). It was adapted for use in the COVID-19 context: "To what extent do you worry that you and your family members get infected by COVID-19?" and "How likely do you think you and your family members may be infected by COVID-19?" (1 = not at all, 7 = very much; r = 0.59).

Empathy was assessed using a shortened two-item scale adopted from a previous study (Zhou et al., 2012). These two items measured a sympathetic-related feeling ("I can feel the pain of residents from the epicenter") and a distress-related feeling ("I feel upset when watching news about residents from the epicenter"). Participants indicated their agreement to the statements on seven-point scales (1 = strongly disagree, 7 = strongly agree; r = 0.52).

Group identity was measured by a two-item scale (Lipponen & Leskinen, 2006). The scale was adapted for use in the pandemic context: "I feel good about being a Chinese," and "In general, I am proud to be a Chinese" (1 = strongly disagree, 7 = strongly agree; r = 0.73).

Distancing and helping intention were measured at T2 (March 2020) with two author-designed scenarios which took into consideration the Chinese situations during the pandemic. To illustrate, at the time we measured distancing and helping intention (i.e., March 2020), COVID-19 in China entered a stable stage, and most people returned to work. Therefore, we assessed *distancing intention* in a workplace context. Specially, participants read the following scenario: "Due to the government's recent removal of the lock down of the entire country, people are going back to work and starting to socialize with friends. Imagine that, if your colleagues or friends come back from Hubei Province, how likely would you be to keep your distance from them?" Participants responded on a seven-point scale (1 = very unlikely, 7 = very likely).

For *helping intention*, participants read the following scenario: "Due to the impact of the pandemic, the economy of Hubei Province is now facing great challenges, and a large number of Hubei residents have lost their jobs. The situation is especially hard for low-skilled migrant workers. If you are a recruiter, how likely would you be to provide job opportunities for these people?" Participants responded on a seven-point scale (1 = very unlikely, 7 = very likely). We used an employment scenario to capture people's helping intention for two reasons. First, during the pandemic outbreak (i.e., February 2020), most Chinese people throughout the country had been encouraged

or required to donate materially and monetarily to victims in the epicenter and/or participate in some form of volunteering. As the pandemic entered a stable stage in March 2020, the top priority for epicenter residents was to return to their normal lives rather than receive donations. Second, in China, the Chinese Spring Festival (when the survey was implemented) is usually the peak time to search for jobs and to recruit employees. This is especially critical for low-skilled migrant workers, as they often do not have stable jobs; plus, many had lost their jobs because of the pandemic. Because Hubei is a major province in China for migrant workers, many Hubei residents also search for jobs in places outside of Hubei province (Xinhua, 2020). Therefore, providing job opportunities in a recruitment scenario was a suitable and realistic context in which to measure helping intention towards epicenter residents.

Data Analysis

A path analysis model in Mplus 8.0 was used with distancing and helping intention as the outcomes, perceived pandemic severity as the predictor, and control variables (i.e. age, sex, and education). Listwise deletion was employed to handle missing values, as our drop-out rate was relatively low. Next, the mediating effects of empathy and perceived risk were estimated through a Monte Carlo simulation approach (Preacher & Selig, 2012). Moreover, group identity was added as a moderator. The moderated mediation effects were estimated by the Monte Carlo simulation approach. Last, a simple slope analysis was conducted.

Results

Descriptive Statistics

The descriptive information of all variables is presented in Table 1.

Effects on Distancing Intention and Helping Intention

We first conducted path analysis with distancing intention and helping intention as the dependent variable and demographic variables (i.e., age, sex, and education) as control variables. The model fit the data well ($\chi^2 < 0.001$, $df = 0$, CFI = 1.00, TLI = 1.00, RMSEA <0.001) (Hu & Bentler, 1999). Our results showed that, when considering the predictors of distancing intention, there was a significant relationship for women ($\beta = -0.07$, $s.e. = 0.03$, $p = .004$, 95%CI [−0.12,-0.02]) and educational background ($\beta = -0.11$, $s.e. = 0.03$, $p < .001$, 95%CI [−0.16,-0.06]), but not for age ($\beta = 0.01$, $s.e. = 0.03$,

Table 1 Means, standard deviations, and Pearson correlation coefficients for all variables ($n = 1538$)

Variable	M ± SD	1	2	3	4	5	6	7	8
1.Age	29.42 ± 5.87								
2.Sex	0.54 ± 0.50	−0.06*							
3.Education	2.69 ± 0.77	−0.10**	−0.09**						
4.Pandemic severity	6.30 ± 0.81	0.09**	−0.07*	0.02					
5.Perceived Risk	5.24 ± 1.25	−0.01	−0.02	0.02	0.37**				
6.Empathy	6.13 ± 0.86	0.04	0.03	0.01	0.29**	0.11**			
7.Group Identity	6.48 ± 0.82	0.05*	0.01	−0.10**	0.15**	0.01	0.19**		
8.Distancing	4.85 ± 1.76	0.02	−0.06*	−0.11**	0.08**	0.11**	−0.04	−0.01	
9.Helping	4.62 ± 1.53	−0.05	0.05*	0.02	0.02	0.01	0.18**	0.11**	−0.39**

* $p < .05$, ** $p < .01$; Sex: 0 = women, 1 = men; Education: 1 = high school, 2 = junior college; 3 = bachelor's degree; 4 = graduate degree

$p = .886$, 95%CI [−0.05,0.05]). For helping intention, there was a significant association for women ($\beta = 0.05$, s.e. = 0.03, $p = .047$, 95%CI [0.001,0.10]), but not for education ($\beta = 0.02$, s.e. = 0.03, $p = .429$, 95%CI [−0.03,0.07]) or age ($\beta = −0.04$, s.e. = 0.03, $p = .100$, 95%CI [−0.09,0.01]).

Next, we included perceived pandemic severity as the independent variable and perceived risk and empathy as mediators. The model fit the data well ($\chi^2 = 13.93$, $df = 9$, CFI = 0.99, TLI = 0.98, RMSEA = 0.019). As H1 and H2 hypothesized, perceived pandemic severity positively predicted both perceived risk ($\beta = 0.37$, s.e. = 0.02, $p < .001$, 95%CI [0.33,0.41], $\Delta R^2 = 0.14$) and empathy ($\beta = 0.29$, s.e. = 0.02, $p < .001$, 95%CI [0.24,0.33], $\Delta R^2 = 0.09$), which subsequently positively predicted distancing intention ($\beta = 0.09$, s.e. = 0.03, $p < .001$, 95%CI [0.04,0.14], $\Delta R^2 = 0.01$) and helping intention ($\beta = 0.16$, s.e. = 0.02, $p < .001$, 95%CI [0.11,0.21], $\Delta R^2 = 0.02$). The indirect effect was 0.04 (s.e. = 0.01, $p < .001$, 95% CI [0.02, 0.05]) for perceived risk on the relationship between perceived pandemic severity and distancing intention and 0.05 (s.e. = 0.01, $p < .001$, 95% CI = [0.03, 0.06]) for the relationship between perceived pandemic severity and helping intention. The findings suggested that pandemic severity

increased perceived infection risk, which then enhanced distancing intention towards epicenter residents. However, perceived pandemic severity augmented empathy towards epicenter residents, which led to a stronger helping intention.

Moderating Effect of Group Identity

Next, to test the moderating role of group identity, we conducted a moderated mediation model with perceived pandemic severity as the independent variable, perceived risk and empathy as the mediators, and group identity as the moderator (see Fig. 3). The model fit the data well ($\chi^2 = 64.79$, $df = 25$, CFI = 0.95, TLI = 0.94, RMSEA = 0.032). In support of H3 and H4, the results showed that group identity not only moderated the effect of perceived risk on subsequent distancing intention ($\beta = −0.07$, s.e. = 0.02, $p = .001$, 95%CI [−0.13,-0.03], $\Delta R^2 = 0.01$), but it also moderated the impact of empathy on helping intention ($\beta = 0.08$, s.e. = 0.02, $p = .001$, 95%CI [0.04,0.12], $\Delta R^2 = 0.02$).

A simple slope analysis showed that the effects of perceived risk on subsequent distancing intention was stronger for people with lower levels of group identity ($\beta = 0.18$, s.e. = 0.07, $p = .013$, 95%CI [0.04,0.33], $\Delta R^2 = 0.10$) compared
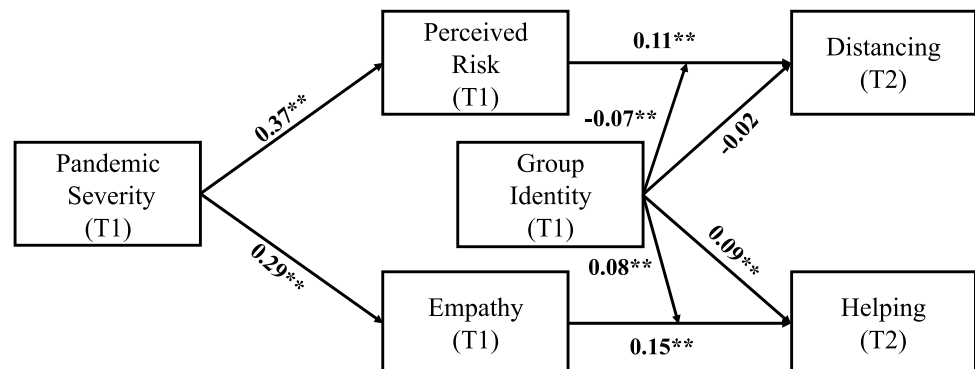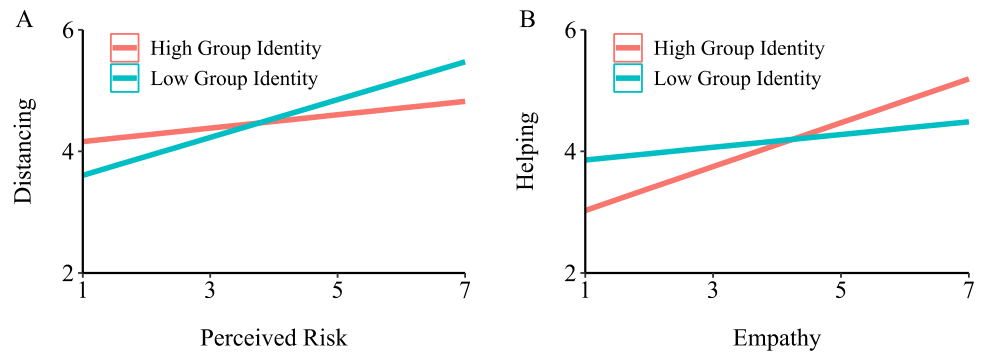
Fig. 3 Moderating effect of group identity

Fig. 4 Simple slope analysis

A

Distancing vs Perceived Risk
- High Group Identity
- Low Group Identity

B

Helping vs Empathy
- High Group Identity
- Low Group Identity

to those with higher levels of group identity ($\beta = 0.06$, $s.e. = 0.03$, $p = .050$, 95%CI [0.001,0.12], $\Delta R^2 = 0.005$; Fig. 4A). In contrast, the impact of empathy on helping intention was significant for individuals with higher levels of group identity ($\beta = 0.16$, $s.e. = 0.03$, $p < .001$, 95%CI [0.11,0.22], $\Delta R^2 = 0.03$) but was not significant for those with lower levels of group identity ($\beta = 0.002$, $s.e. = 0.07$, $p = .975$, 95%CI [−0.19,0.20], $\Delta R^2 = 0.001$; Fig. 4B). These findings suggested that individuals who felt a greater sense of connectedness with residents from the epicenter (i.e., Chinese group identity) were more inclined to help residents from the epicenter in recruitment decisions. However, those with a lower level of Chinese group identity were more likely to care about their own personal risk during the pandemic and keep distant from epicenter residents.
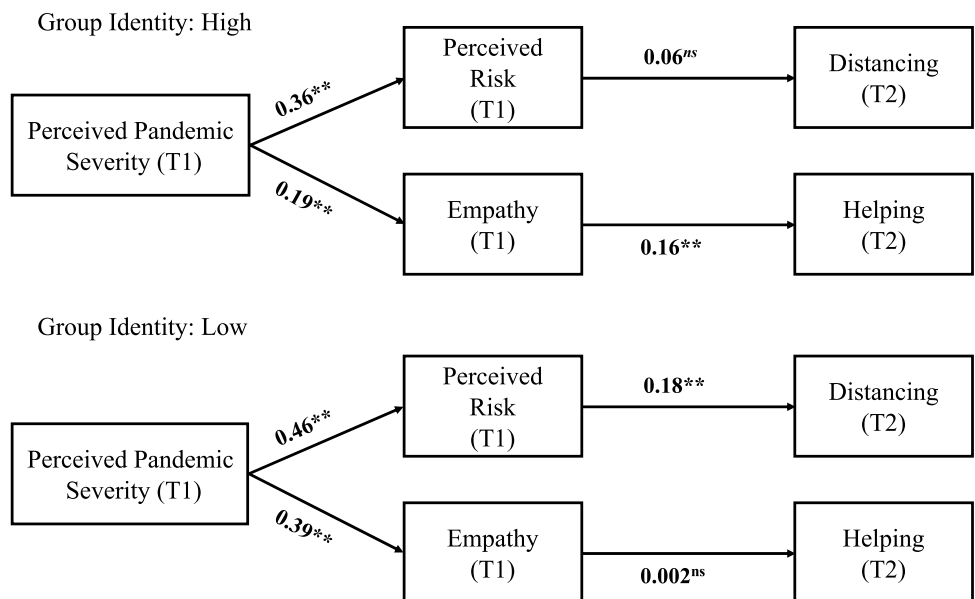
Moderated Mediation Effects

As H5 and H6 hypothesized, there were significant moderated mediation effects of group identity on the indirect route from perceived pandemic severity on distancing

intention via perceived risk (Effect = −0.03, $s.e. = 0.01$, 95%CI [−0.05, −0.01]) and on the indirect route from perceived pandemic severity on helping intention via empathy (Effect = 0.02, $s.e. = 0.01$, 95%CI [0.01, 0.04]). For people with lower group identity, perceived risk significantly mediated the relationship between perceived pandemic threat and distancing intention (Effect = 0.09, $s.e. = 0.03$, 95%CI [0.02, 0.15]). However, the mediating effect of empathy between perceived pandemic threat and helping intention was non-significant (Effect = 0.001, $s.e. = 0.03$, 95%CI [−0.05, 0.05]; Fig. 5). Conversely, for those with higher group identity, the mediating effect of empathy between perceived pandemic threat and helping intention was significant (Effect = 0.03, $s.e. = 0.01$, 95%CI [0.02, 0.05]).

Also, the mediating effect of perceived risk between perceived pandemic threat and distancing intention was non-significant (Effect = 0.02, $s.e. = 0.01$, 95%CI [−0.001, 0.05]). The results suggested that, when individuals had higher levels of Chinese identity, perceived pandemic severity enhanced their empathic concern for epicenter residents, which augmented helping intention toward them. In contrast,

Fig. 5 Moderated mediation effects

Group Identity: High

Perceived Pandemic Severity (T1) →[0.36^{**}]→ Perceived Risk (T1) →[0.06^{ns}]→ Distancing (T2)

Perceived Pandemic Severity (T1) →[0.19_{**}]→ Empathy (T1) →[0.16^{**}]→ Helping (T2)

Group Identity: Low

Perceived Pandemic Severity (T1) →[0.46^{**}]→ Perceived Risk (T1) →[0.18^{**}]→ Distancing (T2)

Perceived Pandemic Severity (T1) →[0.39_{**}]→ Empathy (T1) →[0.002^{ns}]→ Helping (T2)

when they possessed lower levels of group identity, perceived pandemic severity increased perceived infection risk, which led to a higher distancing intention towards epicenter residents.

Discussion

We investigated Chinese people's attitudes and reactions toward residents from China's COVID-19 epicenter, Hubei Province, by conducting a two-wave longitudinal survey. During the pandemic, we observed both distancing and helping behaviors towards epicenter residents. Findings revealed that greater perceived pandemic severity led to both a higher perceived risk of infection and an augmented empathetic concern towards epicenter residents, which resulted in increased distancing *and* helping intentions. Group identity served as a moderator that mitigated the impact of perceived risk on distancing intention and strengthened the effect of empathy on helping intention. Our results offer theoretical contributions and implications for policy makers and mass communications.

Theoretical Contributions

To the best of our knowledge, this is the first empirical attempt to explore people's attitudes and reactions toward residents from COVID-19 epicenters. We focused on this specific group (i.e., epicenter residents) because they are the most influenced by the pandemic, suffering not only physical challenges but also psychological pressures. The psychological distress partly arises from the treatment they receive from those outside the epicenter. Experts have argued for maintaining a certain physical distance during the pandemic (Anderson et al., 2020). Consequently, judging and distancing others merely based on whether they come from COVID epicenters has become a new form of social prejudge that may result in serious social and inter-group problems. Therefore, academic attention is requisite to understand individuals' reactions and attitudes towards epicenter residents and to promote positive helping behaviors and reduce hostile distancing behaviors.

Second, our findings revealed that perceived risk and empathy were the underlying mechanisms that induced distancing and helping behaviors towards epicenter residents. This study highlighted the mediating effects of health-related risk aversion on social prejudice in response to a pandemic. When survival needs are threatened, adopting distancing to maintain and protect one's own health is seemingly a salutary adaptive behavior. However, social prejudice towards some people also emerges, merely due to their "different" features (residing in the epicenter here) (Schaller, 2020). Therefore, efforts to eliminate such

prejudice should be taken during and after a pandemic. Specifically, we found a mediating effect of empathy on the relationship between perceived pandemic severity and helping intention. Importantly, empathy varied under conditions of subjective pandemic severity. We observed that the perceived COVID threat could promote empathetic concern towards people residing in these most at-risk regions. Moreover, our efforts confirmed the important role of empathy in prosocial behaviors during a pandemic (Penner et al., 2005; Vardy & Atkinson, 2019).

Last, we found that group identity moderated the effect of perceived risk on distancing intention, as well as the effect of empathy on helping intention. Individuals with a higher level of group identity (e.g., "I feel good about being a Chinese") felt more similar to epicenter residents because both were in the same national group. This sentiment reduced prejudice and promoted concern for and volunteerism toward epicenter residents (Balliet et al., 2014; Chen & Li, 2009). Our research emphasized the consequential role of group identity in reducing prejudice and enhancing helping behavior in a pandemic.

Implications for Practice

As COVID-19 wanes, how to return to a normal life has become increasingly important. This is particularly crucial and difficult for epicenter residents, as they have suffered markedly both physically and psychologically during the pandemic. In fact, abundant reports of prejudice directed towards such epicenter residents from Hubei and New York City (Schwartzman, 2020) and Asians in general (Li & Galea, 2020) have been noted. Epicenter residents, though, are victims, rather than virus spreaders. They need to return to their normal life and not feel that they are being unfairly discriminated against. However, our findings suggested that in the post-pandemic era (albeit a short time period in our study—one month), epicenter residents still faced consequential challenges due to biased cognitions (perceived risk) and reaction (distancing) from those outside the epicenter. Therefore, government should confront this critical issue and help guide the citizenry to sympathize with epicenter residents rather than be hostile toward them. The denouement should be an enhanced commonweal.

Second, as an innate nature of human beings, people do not only perceive risk from interacting with epicenter residents, they also feel empathic towards them. Moreover, these empathetic feelings drive positive helping behaviors towards epicenter residents. Therefore, mass communications and policy makers should emphasize not only the infection risks and disease threats, but also underscore the suffering of epicenter residents. This focus shift should help elicit enhanced empathic feelings and facilitate favorable inter-group relationships.

Third, our findings showed that a higher level of Chinese group identity increased empathic feelings towards epicenter residents and helping behaviors, whereas a lower level augmented perceived risk and distancing behavior. Accordingly, we suggest that the government essay to unify the nation's people by highlighting the group identify of being Chinese. In fact, the Chinese government has been attempting this during the pandemic and has achieved favorable results (Xinhua, 2020); our study revealed support for such efforts. These implications may also be applicable to other countries and for inter-country helping behaviors during similar black swan events. For instance, public policy makers may emphasize the group identity of "being all humans" to promote empathy towards victims from other countries and facilitate inter-country collaboration.

Limitations and Future Research Directions

There are some limitations of this study that are suggestive of future research. First, although we investigated people's ambivalent reactions towards epicenter residents using a one-month interval two-wave longitudinal survey, the findings do not likely fully reflect the long-term impact of COVID on people's attitudes about epicenter residents. Will these obtained ambivalent attitudes (risk and empathy) generate any positive and/or negative discrimination against these residents in the long run? How might people change their attitude toward residents from the original epicenter, as an increasing number of regions report confirmed COVID-19 cases? These are interesting questions that need investigation with a broader time interval than this study utilized.

Second, although we only considered the situation in China, whether our findings can be generalized to other countries and cultures is unknown. Theoretically, the dual motivational perspectives (i.e., egosystem and ecosystem) in interacting with epicenter residents during the pandemic are universal across cultures (Crocker & Canevello, 2008; Crocker et al., 2009). Thus, we believe that our proposed effects—the ambivalent attitude towards epicenter residents (feelings of both risk and empathy)—are likely to hold across cultures. However, this needs further validation with samples from various countries and contexts. Moreover, due to variation in national group identity, the effects may have dissimilar characteristics in diverse countries.

Third, we used a single-item scenario-based measure to assess distancing and helping intention. Therefore, future research may develop a more comprehensive and validated scale to capture these behavioral outcomes. Although the reliability of single-item measures is unknown, our scenario-based measures reflected the behavioral consequences of the ambivalent psychological reactions towards epicenter residents—feelings of risk versus feelings of empathy. Scholars

might also develop other related behavioral consequences beyond distancing and helping. In addition, we assayed distancing and helping in a workplace context; the effects could be further validated in other contexts, such as public places. Another potential limitation of the distancing and helping intention measures is that the targets were different: in the distancing scenario, they were colleagues and friends; in the helping scenario, job applicants. Future research may examine the impact of the interpersonal closeness of the target on people's attitudes.

Data Availability and Code Availability The datasets and code used in the current study are available from the corresponding author on reasonable request.

Declarations

Ethics Approval All participants gave the informed consent which was approved by the Ethics Committee of Nankai University.

Conflict of Interest None.

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