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Fight Alone or Together? The Influence of Risk Perception on Helping Behavior

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Abstract: Will there be a greater sense of solidarity and friendship during public crises? This study aims to determine whether risk perception influences employees' willingness to assist in times of public crisis, taking COVID-19 as a specific research scenario and based on the theory of "tend and befriend". This study hypothesized that risk perception will influence employees' helping behavior via the in-group identity, with the degree of impact dependent on the COVID-19 pandemic's severity. A questionnaire survey of 925 practitioners from various industries in the pandemic area revealed that: risk perception has a positive influence on employees' helping behavior; in-group identity plays a certain mediating role in the process of risk perception that influences employees' helping behavior; and the severity of a local pandemic negatively moderates the relationship between risk perception and helping behavior, but positively moderates the relationship between risk perception and in-group identity. Specifically, employees in high-risk areas are more likely to "align" (higher degree of recognition by the in-group) but demonstrate less helping behavior, compared with those in areas with moderate and low risk from the COVID-19. By contrast, employees in low-risk areas display more helping behavior but have less in-group identity, compared with those in areas with moderate and high risk from the COVID-19. This study expands the research on the relationship between risk perception and helping behavior, enriches the research results on risk management theory, and provides a practical reference for risk governance.

Keywords: COVID-19; helping behavior; in-group identity; risk perception; severity of a local pandemic

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1. Introduction

Risk perception describes the attitude and intuitive judgment of people toward uncertain events under specific scenarios and is highly variable and dependent on scenarios. It comprises not only people's intuitive judgment in the face of risks but also subjective awareness based on rational and complex analysis. The subjective nature of risk perception explains why people have different responses to the same sources of risk. Risk perception concerning COVID-19 is a relatively new research topic. Severity of a local pandemic and different coping measures by health departments may lead to public differences in perceptions of COVID-19 risk (Wei 2020). However, as found by Zhang and Zhou (2021), compared with other potential health threats, people have higher risk perceptions about COVID-19. Excessive risk perception leads people to adopt excessive protective measures (Savadori and Lauriola 2021), such as irrational behavior, including panic buying of foods and medical supplies and discrimination against people in areas with more severe pandemic conditions (Zhang and Zhou 2021). Further confirmed, is a significant correlation between perceptions of COVID-19 risk and negative emotions, such as loneliness and anxiety (Han et al. 2021); it might also cause symptoms of depression among employees (Yan et al. 2021). Obviously, most of the existing research on psychology and behavior in

the aftermath of the COVID-19 pandemic focuses on negative emotions and self-centered behavior.

However, recent studies have state in that in the event of disasters, such as earthquakes, floods, and illness, individuals with an instinct for survival positively seek external support and comfort and demonstrate prosocial behaviors to enhance their social linkage with groups (Miao et al. 2021). (Taylor et al. 2000; Taylor 2006) call this response a "tend and befriend." As they state, stressed people long for social support to relieve their anxiety and help them obtain comfort and protection, etc. Therefore, people engage in more friendly and prosocial behaviors to maintain good social relations. COVID-19 features strong infectivity and a high morbidity, and 90% of Chinese residents have been influenced by the COVID-19 pandemic. Among them, two-thirds have expressed concern about infection, whereas one-third believe COVID-19 infection has high mortality. The degree of such mental panic reaches a high level of stress (Xue and Wang 2021). According to the "tend and befriend" response mode, employees tend to perform in a prosocial manner after perceiving the risks of COVID-19 pandemic. In fact, during the COVID-19 pandemic outbreak, the population demonstrated a high level of prosocial behavior.

Based on these ideas, we take the COVID-19 pandemic as the starting point, and introduces the theory of "tend and befriend" to establish a theoretical mechanism explaining how employees' risk perceptions influence helping behaviors. This phenomenon is examined not only due to its prevalence during the COVID-19 pandemic outbreak, but also because it contributes to the resolution of the following critical theoretical issues: (1) Do individuals exhibit prosocial tendencies in the face of a significant public crisis, such as demonstrating helping behaviors in organizations, and does the "tend and befriend" theory hold true in public crises? (2) What effect does risk perception have on an individual's willingness to assist others, and what is the underlying mechanism? (3) Is risk (i.e., the severity of the COVID-19 pandemic) a factor in the relationship between risk perception and prosocial behavior? Are there distinctions between high and low risk situations in terms of prosocial motivation and behavior? This study establishes a theoretical model for risk perception that influenced employees' helping behavior, with the in-group identified playing a mediating role and the severity of local pandemic acting as a moderating variable. The research hypothesis model in this paper is summarized in Figure 1. The research results can more comprehensively and accurately reflect real awareness and behaviors involved in employees' risk perception from the theoretical perspective, thereby providing beneficial references for the improvement of risk management and risk governance.

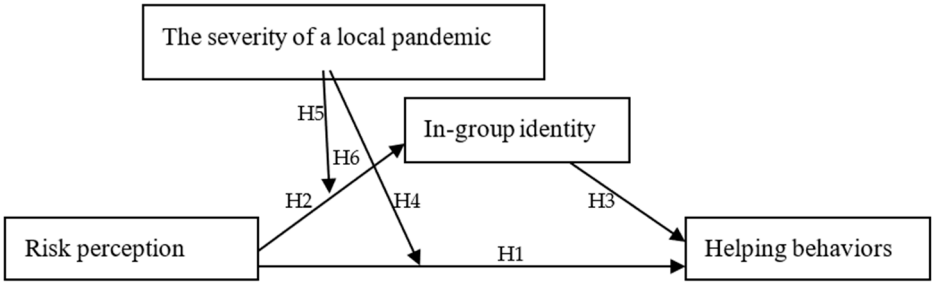

Figure 1. Research model.

2. Literature Review and Hypotheses Development

2.1. Risk Perception and Helping Behavior

The COVID-19 pandemic features rapid transmission, high infection rates, and high morbidity. The theory of "tend and befriend" assumes that people want social support to relieve their anxiety and comfort and protection through "alliances" under stress (Mai et al. 2021), thus people engage in more friendly behaviors in order to maintain good social relations (Taylor et al. 2000; Taylor 2006). This theory was first confirmed in the laboratory: Von Dawans et al. (2012) used a number of tasks to investigate individuals' prosocial

behaviors under stress and found that stress groups showed more trust in one another, more willingness to share, and placed a higher value on being trusted. Maier et al. (2015) also verified that subjects in stress groups were more generous than those in the control group. Levy et al. (2019) compared other reactions by men and women under stress and found that women and men were both more likely to demonstrate caring and make friends under stress. Not only adults but also children donate more money under stress than the non-stress group (Alen et al. 2021).

The theory of "tend and befriend" has also been confirmed in the public crisis scenario: through research on earthquake victims, Rao et al. (2011) found that they are more likely to demonstrate prosocial behavior, and the more serious the disaster was, the more money they gave to responders in the game. Wang and Sun (2021) also confirmed that people who have suffered in major disasters, such as wars, terrorist attacks, and natural disasters, display more helping behaviors, such as the donation of goods, money, and volunteering. These research results demonstrate that when people perceive risks and threats, they generally show more prosocial behaviors, and the "tend and befriend" reaction after stress may be common. Recently, Schneider et al. (2021) investigated the relationship between the perception of COVID-19 risk and prosocial behavior in the British public. They found that in the initial stage of the COVID-19 pandemic, people performed more prosocial behaviors to work together in fighting the spread of disease. Wang and Sun (2021) also compared the differences in volunteer activities between Chinese and American people during COVID-19 and found that respondents in China generally participated in more volunteer activities than those in the United States, while respondents in China participated in slightly fewer volunteer activities than those in the United States in areas where the pandemic was more severe.

Obviously, the relationship between perceived COVID-19 risk and prosocial behavior has been preliminarily confirmed. Employee helping behavior is typical prosocial behavior, which is embodied in helping colleagues solve problems and sharing work actively, sharing their professional knowledge and experience with colleagues, helping new colleagues adapt to the environment, and actively providing extra help to customers (Farh et al. 2007). The helping behavior represents a kind of cooperation-oriented, attribution-oriented behavior outside the role, which helps to establish efficient interpersonal relationships and strengthen social connections in a complex organizational environment (Tu et al. 2020). Based on these research results, it can be predicted that employees are likely to implement more helping behaviors after they perceive risks, so as to establish good social relations and withstand risks. Therefore, we posit the following hypothesis:

Hypothesis 1 (H1). *There is a positive relationship between risk perception and helping behavior.*

2.2. Mediating Effect of In-Group Identity

When individuals are threatened by natural disasters or pandemic diseases, such as earthquakes, typhoons, or floods, individuals often feel helpless and powerless. At this time, in order to survive, human beings must choose to cooperate with others to withstand external threats (Fowler and Christakis 2010). (Taylor et al. 2000; Taylor 2006) questioned the appropriateness of the "fight or flight" response model and broke through it from the perspective of social evolution and neuroendocrine, proposing, instead, the "tend and befriend" response model of individuals under stress. They think that positive social interaction after stress is conducive to mutual trust, dependability, and sharing behaviors, which play an important role in controlling adverse reactions after stress. Therefore, "tend and befriend" may be a protective reaction after stress, which can provide internal social support for individuals, enable individuals to better self-regulate under stress, weaken the sense of threat after stress, and cope with risk in a more positive way (Von Dawans et al. 2012). Rao et al. (2011) investigated the cooperative behavior of residents in disaster areas and nondisaster areas after the year of the Wenchuan earthquake and found that residents in disaster areas had a higher tendency toward cooperative behaviors than those

in nondisaster areas; the more serious the disaster was, the stronger was their cooperation tendency. Based on this, Rao et al. (2011) put forward the view that disadvantages make people more cooperative. When individuals encounter a crisis, their own strength is often limited. At this time, seeking the cooperation of others is the best option. It can be said that external crisis enhances people's sense of belonging and recognition of the group to a certain extent, as they hope that "we" can jointly withstand risks, instead of facing of the crisis alone.

Prior researchers have also conducted examined the public crisis still ongoing and found that in the face of sudden major threats, members of a group have greater cohesion, which enhances internal effectiveness and group efficacy, thus maintaining the continuity of ethnic groups (Xie et al. 2017). In this case, reducing interpersonal interaction leads to more serious psychological problems. Zhu et al. (2020) found through investigation that COVID-19 caused negative emotions, such as public anxiety, panic, and helplessness. Interpersonal alienation played a positive role in regulating these emotions and posttraumatic stress disorder (PTSD). A high level of interpersonal alienation leads to more serious PTSD, so they suggest that families, enterprises, and communities actively build social support systems and provide social support resources to individuals in various ways to reduce their interpersonal alienation and expand people's psychological energy. Among some survivors of natural disasters, we find that their need for belonging increased significantly compared with those in normal situations (Miao et al. 2021). Based on this analysis, we infer that when employees perceive risks, they have a stronger in-group identity, and they are more eager to obtain the warmth and support of the group, so as to reduce their perception of real threats; thus we propose Hypothesis 2.

Hypothesis 2 (H2). *There is a positive relationship between risk perceptions and in-group identity.*

In-group identity refers to an individual's recognition of the identity of a certain social group to which he belongs and the values and emotions associated with the group identity (Cikara and Bavel 2014). According to social identity theory, employees distinguish their own group from other groups and pay more attention to the norms and values of their own group, and think more about problems related to the interests of the group and act in ways that are beneficial to the group, which result in more behavior that is consistent with the group and conform to its norms (Meng et al. 2021). When the members of a group have a higher recognition of the group, they maintain a higher-quality social exchange relationship and are more willing to share resources, and there are more prosocial behaviors in social interaction, such as cooperation and reciprocity (Hitlin et al. 2021). When individuals strongly identify with the group to which they belong, the phenomenon of in-group favoritism develops, which shows a more positive evaluation of the inner group and helps the members of the inner group in a targeted way (Leyens et al. 2016). For example, Vezzali et al. (2015) found that the higher an individual's identity with an in-group, the more intergroup helping behaviors were performed. In a further investigation of the types of willingness to help, it was found that group identity could positively predict self-directed willingness to help (Zhou et al. 2018). Moreover, a benign interaction arises between employees' identify with the group and altruistic behaviors. The stronger an individual's identification with the group is, the closer the connection between that person and the group. In the face of threatening situations, people with high identity are more inclined to adopt collective strategies, regarding group interests as the goal of emotional and behavioral responses to promote more altruistic behaviors (Miao et al. 2021).

Xie et al. (2017) thinks that the implementation of intragroup helping behavior can promote positive interaction between their bodies and minds, reduce the sense of body load, and help to improve their adaptability. Externally, altruism is a signal to an individual, which reflects that person's individual qualities and shows other members that this person is trustworthy and reliable, thus driving others in the group to choose opportunities to cooperate with one another and gain status within the group. In-group identity is also an

important way to satisfy people's sense of belonging, which can make individuals realize that they belong to a specific group and the emotional and value significance brought by a group identity (Miao et al. 2021). Human beings belong to a social species that lives in groups. Therefore, they offer assistance to others when they need help, perhaps through a direct or indirect reciprocity mechanism, so that personal interests can be enhanced (Rao et al. 2011). Therefore, mutual assistance and cooperation among groups affect one's entire social life and are key factors in human survival, development, and reproduction. In particular, when individuals perceive huge external risks, they withstand them through alliance and cooperation and perform more helping behaviors in the group, so as to strengthen cooperation among group members and withstand risks together. Based on this inference, we propose the following hypothesis:

Hypothesis 3 (H3). *In-group identity mediates the positive relationship between risk perceptions and helping behaviors.*

2.3. Moderating Effect of the Severity of a Local Pandemic

Rao et al. (2011) used a dictator game and volunteer questions to evaluate the prosocial behaviors of residents in earthquake-stricken areas and non-earthquake areas. The survey results demonstrate that residents in non-disaster areas allocated fewer funds to strangers and took part in volunteer activities less than those in disaster-stricken areas, while those in areas stricken by a less serious disaster did so less than those in areas affected by a moderate disaster. The most funds and volunteer activities came from people living in areas with either moderate or severe disasters. The results demonstrate that the degree of prosocial behaviors by residents increased with the degree of seriousness of a disaster. The research on the relationship between stress and sympathy in daily life demonstrates that the greater the severity of adversity experienced by an individual was, the more sympathy he received, which leads to more prosocial behaviors (Lim and DeSteno 2016). Xu (2018) believes that people who have experienced disasters change their feelings, such as becoming more compassionate, seeking meaning, social status, and factors, such as reciprocal social learning and a change in the environment, which lead to more prosocial behaviors.

The theory that altruism comes out of suffering (Staub and Vollhardt 2008) and the disadvantage hypothesis (Rao et al. 2011) both demonstrate that suffering makes individuals more motivated to help others. Research on common experience and common fate demonstrate that people tend to establish social connections with others who have the same experience (Nakayachi and Ozaki 2014). Having the same experiences or common risks put individuals and those who experience them in the same predicament, and they expect each other to want to establish friendly relations with others like themselves, so as to help each other and be together (Leyens et al. 2016). The COVID-19 continues to spread all over the world, and mankind has encountered an unprecedented public health crisis. Under those circumstances, the more serious the pandemic is, the more likely local employees are to bring themselves into the same group as colleagues, customers, and other stakeholders around them, and are willing to strengthen interaction and cooperation with them in order to seek mutual comfort and support. The more serious the pandemic is, the stronger people's identity with their specific group identification will be, and the more helping behaviors will be generated. Based on this, we propose the following hypothesis:

Hypothesis 4 (H4). *The severity of a local pandemic moderates the relationship between risk perceptions and helping behaviors such that the relationship is stronger when the severity of a local pandemic is high, rather than low.*

Margittai et al. (2015) found in the research that people's friendly behaviors under stress are conditional, not for everyone, and only for those who are closely related. Debono et al. (2020) hold the same view: humans choose objects discriminatively to establish social relations with them and tend to choose objects that are more likely to establish connections. Turner (1981) put forward the self-categorization theory on the basis of social identity theory, which holds that people automatically divide themselves and others into internal groups and external groups according to some clues, even some insignificant clues, thus forming membership in different groups. Self-classification is an important process of social identity, and social identity is an important mechanism for explaining the connection between group psychology and individual psychology (Crane and Ruebottom 2011). Group identity is activated by a certain stimulus, and individuals will realize the value and emotional meaning of being group members. Specific identity cognition forms the identity of the group to which they belong (Vesa 2020).

Without external group comparison, common destiny and similarity among members can also enhance in-group identity (Miao et al. 2021). The experience of "sharing weal and woe" is an important adhesive in interpersonal relations. Miao et al. (2021) found that sharing negative events, such as pain and disaster, can stimulate people's need for belonging, thus enhancing cooperation among those who share it. In the face of a common threat, individuals turn greater attention to group identity (Kovoor-Misra 2009). This shift in attention is an instinctive reaction by human beings in the long-term struggle with nature. In the face of danger, people naturally band together and become more united. COVID-19 features rapid transmission and great harm after infection, which makes people avoid it. When a COVID-19 infection occurs in a certain place, disease prevention agencies usually quickly isolate the area and enforce measures, such as isolation and screening. As a result, many companies are seriously affected, and employees face not only the problem of whether their working resources can be sustained but also the risk of infection. This common experience is a very important and dominant social clue, according to which employees are likely to classify themselves and those who have experienced it together, showing greater in-group identity. Based on this analysis, we propose Hypothesis 5.

Hypothesis 5 (H5). *The severity of a local pandemic moderates the relationship between risk perception and in-group identity such that the relationship is stronger when the severity is high, rather than low.*

Furthermore, the severity of a local pandemic moderates not only the relationship between risk perception and in-group identity but also the indirect effect of risk perception on helping behavior through in-group identity. According to this reasoning, we posit the following hypothesis:

Hypothesis 6 (H6). *The severity of a local pandemic moderates the mediating relationship between risk perception and helping behaviors, such that in-group identity has a stronger positive effect when the severity is high, rather than low.*

3. Procedure

3.1. Sample and Procedure

In July 2021, the COVID-19 pandemic with the Delta variant were found in China. Because this strain is highly contagious, concealed, and harmful, a new round of COVID-19 pandemic broke out in many places in China. As of 10 August 2021, China has 224 moderate- and high-risk areas, mainly concentrated in the Hunan, Henan, and Sichuan provinces. The entire country immediately went into a state of preparedness, strictly locked down the pandemic areas, and prohibited unnecessary commercial activities to slow the rapid spread of the virus. Under these circumstances, we talked with the heads of 20 enterprises or departments engaged in retail, catering, tourism, consulting, education and training, health care, and other industries in Henan and Sichuan, explained the purpose of

the survey, and obtained their support. Afterward, we conducted a survey of the employees at these enterprises through an online questionnaire platform from 1 to 20 August 2021. This research was ethically approved by the Academic Committee of Henan University and by the appropriate department at the enterprise. All participants were promised that the survey results would be used only for academic research, and their answers would be kept strictly confidential. After completing the questionnaire, participants received cash compensation of 5 yuan. Before the questionnaire was distributed, we explained the purpose and requirements of this survey to the respondents in detail, and then the person in charge of the enterprise sent the link for the questionnaire to the employees. After the employees completed the questionnaire, they submitted it anonymously through the online questionnaire platform.

In this way, we collected a total of 952 questionnaires. Excluding 27 invalid questionnaires, we received 925 valid questionnaires, an effective rate of 97%. Among the 95 respondents, 55.3% were men (n = 512) and 44.7% were women (n = 413). The average age of the respondents was about 36 years; 48.43% of the respondents have a college degree or more (n = 448), and 2.4% have a postgraduate degree or more (n = 22); 92% of the employees worked at the company for more than one year (n = 851); 83.8% (n = 775) of the respondents are ordinary employees, and 16.2% (n = 150) hold management positions. Among the respondents, 10.3% (n = 95) were unmarried, and 84.6% (n = 783) were married or had children; 9.4% of the respondents lived or worked in areas at high risk of COVID-19 pandemic (n = 87). Among these respondents, 5% (n = 46) reported that they had been quarantined at home, and 95% (n = 838) said that their work and life were affected by the COVID-19 pandemic. On the whole, the distribution of the samples is suitable for subsequent data analysis.

3.2. Study Variables

The questionnaire is written in Chinese. According to the standard "translation-back translation" procedure, these scales were translated from the original English into Chinese and then translated back into English. After repeated revisions, 15 employees were used as pretest subjects, and the Chinese version of the questionnaire was preliminarily tested to evaluate the reliability, validity, and usability of the scale. According to the results of the pretest, the language used in the questionnaire was modified to make it more consistent with the perspective of the interviewee. All items were measured from 1 (very inconsistent) to 5 (very consistent). Risk perceptions are subjected to the psychological measurement paradigm, based on the risk perception scale designed by Williams and Voon (1999), and they were slightly modified to be suitable for the specific conditions in the COVID-19 pandemic. We used eight items, such as "COVID-19 pandemic makes me worried" and "I think I am likely to be infected with COVID-19 pandemic." In-group identity was subjected to the scale compiled by Zheng et al. (2021), which consists of three items, including "I am very similar to everyone else's living conditions under the pandemic" and "I have similar experiences with everyone under the pandemic." The helping behaviors were subjected to the scale compiled by Yue et al. (2017), involving five items, such as "Help other employees when it is clear their workload is too high" and "Lends a helping hand to coworkers when needed." According to the COVID-19 pandemic prevention and control requirements issued by the National Health Commission of the People's Republic of China, the severity of the local pandemic is divided into low-risk (no verified cases or no newly verified cases for 14 consecutive days), moderate-risk (newly verified cases within 14 days, no more than 50 cumulative verified cases, or more than 50 cumulative verified cases, with no pandemic cluster within 14 days), and high-risk (more than 50 cumulative cases, with an pandemic cluster within 14 days), which became the standard for measuring the severity of the COVID-19 pandemic in China.

4. Results

4.1. Reliability and Validity Tests and Correlation Analysis

In this study, Cronbach's α coefficient was used to verify the reliability of each scale. In general, the Cronbach's α coefficient greater than 0.7 is considered acceptable, and a coefficient greater than 0.8 is ideal. The test results demonstrate that Cronbach's α coefficients of risk perception, in-group identity, and helping behavior are 0.76, 0.86, and 0.94, respectively, which indicates that the internal consistency of each variable is high and meets the measurement requirements. Then, the composite reliability (CR) and average variance extracted (AVE) were used to test the validity of the scale. In general, the CR value of a latent variable should exceed 0.7, but is acceptable over 0.6. The normal AVE should be greater than or equal to 0.5 and is acceptable at 0.36–0.5. The test results demonstrate that the CR values of the three variables are all above 0.8, indicating that the aggregate validity of each variable is high. The AVE values of the three variables are all above 0.5, which indicates that each scale has high differential validity.

Because the research conducted measurement at the same time point and adopted the method of employee self-evaluation, it is necessary to further test for discrimination between these variables. Mplus7.0 was used for confirmatory factor analysis. The fitting effect of the three-factor measurement model (risk perception, in-group identity, and helping behavior) is better (χ^2 = 223.997, df = 41, χ^2/df = 5.46, CFI = 0.956, TLI = 0.941, $RMSEA$ = 0.086). Furthermore, this study uses two-factor and one-factor measurement models to test the discriminant validity. The test results show that the fitting effect is significantly worse with one and two factors than with the three-factor model. The results of this analysis demonstrate that the three variables in this study have significant differences, which also demonstrates the absence of any serious problem with common method deviation in this study.

Then, Pearson correlation analysis is used to test the correlation among the variables. Table 1 shows the mean, standard deviation, and correlation coefficient of each variable. Risk perceptions are positively correlated with helping behaviors (r = 0.20, p < 0.01), and the risk perceptions are positively correlated with in-group identity (r = 0.42, p < 0.01). There is a significant positive correlation between in-group identity and helping behavior (r = 0.31, p < 0.01).

Table 1. Means, standard deviation, and correlations among variables (n = 925).

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
Gender	1.39	0.49									
Age	2.84	0.99	−0.45 **								
Education	2.58	1.03	0.25 **	−0.45 **							
Tenure of employment	4.30	1.29	−0.21 **	0.42 **	−0.20 **						
Marital status	2.79	0.65	−0.11 **	0.41 **	−0.31 **	0.48 **					
Experience with the pandemic	3.95	0.24	0.02	0.05	0.02	−0.01	−0.01				
Severity of the local pandemic	2.88	0.40	−0.04	0.11 **	−0.01	0.05	0.12 **	0.03			
Risk perceptions	4.13	0.89	−0.02	−0.05	−0.01	0.03	0.02	−0.03	−0.03		
In-group identity	3.86	0.94	−0.08 *	0.09 **	−0.12 **	0.10 **	0.11 **	−0.01	−0.02	0.42 **	
Helping behaviors	4.69	0.58	0.01	0.09 **	−0.15 **	0.09 **	0.17 **	0.01	0.06	0.20 **	0.31 **

Note: ** p < 0.01, * p < 0.05.

4.2. Hypothesis Testing

H1 test. As shown in Table 2, after controlling for gender, age, education level, marital status, type of company, and experience with the pandemic, the standardized path coefficient of risk perceptions to helping behaviors is 0.230 (p < 0.001); the test results demonstrate that risk perceptions have a significant positive impact on helping behaviors, thus H1 is confirmed. The results of the influence of control variables on helping behaviors are shown in Table 2, with gender (β = 0.092; p < 0.05) having a significant influence on helping behaviors, which proves that women demonstrate more helping behaviors than men. The education level (β = −0.136; p < 0.01) has a significant influence on helping behaviors,

indicating that a higher education level is associated with less helping behavior. The type of company ($\beta = -0.101$; $p < 0.01$) has a significant influence on helping behaviors, which proves that employees at state-owned enterprises demonstrate more helping behaviors than employees at private enterprises; experience with the pandemic ($\beta = 0.112$; $p < 0.01$) has a positive effect on helping behaviors, which demonstrates that employees affected by COVID-19 engaged in more helping behaviors than those who are unaffected. Other variables, such as age ($\beta = 0.031$; $p > 0.05$), work tenure at the organization ($\beta = 0.008$; $p > 0.05$), and marital status ($\beta = 0.021$; $p > 0.05$) have no significant effect on helping behaviors.

Table 2. Direct effect and mediating role.

Variables	Estimate	S.E.	Est./S.E.	*p*-Value
Gender	0.092 *	0.037	2.531	0.011
Age	0.031	0.043	0.708	0.479
Education	−0.136 **	0.040	−3.418	0.001
Tenure of employment	−0.008	0.039	−0.217	0.828
Type of company	−0.101 **	0.033	−3.091	0.002
Marital status	0.112 **	0.039	2.886	0.004
Experience with the pandemic	0.021	0.077	0.651	0.515
RP → HB	0.230 **	0.036	6.467	0.001
RP → IGI	0.558 ***	0.068	8.249	0.000
Mediating effect of in-group identity	0.097 ***	0.021	4.636	0.000

Note: RP is risk perceptions, IGI is in-group identity, and HB is helping behaviors. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

H2 and H3 test. The latent variable modeling method was used to estimate the mediating effect of in-group identity between risk perception and helping behavior with Mplus7.0. The model tests the significance of the coefficient product directly with the bootstrap method, setting bootstrap resampling to 5000 times to test H2 and H3. The test results are shown in Table 2. Risk perceptions have a significantly positive impact on in-group identity ($\beta = 0.558$, $p < 0.001$), confirming H2. The coefficient for the indirect impact of risk perception on helping behavior through in-group identity was 0.097 ($p < 0.001$), and the 95% bias-corrected confidence interval ranged from LLCI = 0.084 to ULCI = 0.178, excluding 0, which proves that the mediating effect of in-group identity between risk perception and helping behavior was established, confirming H3.

H4 test. The severity in the local pandemic is a variable divided into high, moderate, and low-risk. In this study, the structural equation model was constructed with Mplus7.0 to compare whether significant differences exist between employees' risk perception and helping behavior in areas with high, moderate, and low-risk, and if significant differences emerged, the moderating effect was confirmed. The test results are shown in Table 3. The regression slope of employees' risk perception to helping behavior in high-risk areas is 0.015 ($p > 0.05$), which fails to satisfy the test for significance. The regression slope of employees' risk perception to helping behavior in areas with moderate risk is 0.064 ($p > 0.05$), which also does not satisfy the significance standard. The regression slope of employees' risk perception to helping behavior in low-risk areas is 0.135 ($p < 0.001$), which satisfies the significance standard. A further comparison demonstrates that the difference in the slopes among the three groups is −0.072 ($p < 0.001$), satisfying the significance standard, and the 95% bias-corrected confidence interval ranged from LLCI = −0.114 to ULCI = −0.038 (5000 bootstrap resamples); it does not contain 0, which confirms that the severity in the local pandemic has a negative moderating effect on the relationship between risk perception and helping behavior—that is, the higher the risk level, the less helping behavior employees perform after perceived risk; the empirical results are the opposite of our research hypothesis, thus H4 is rejected.

Table 3. Results of moderated mediation analysis for the severity of the local pandemic.

	Model	Estimate	S.E.	Est./S.E.	*p*-Value	95% CI	
						Lower	Upper
H4	High-risk areas	0.015	0.082	0.185	0.853	−0.120	0.217
	Areas with moderate risk	0.064	0.036	1.751	0.080	−0.003	0.144
	Low-risk areas	0.135	0.032	4.164	0.000	0.080	0.204
	Differences between groups	−0.072	0.019	−3.679	0.000	−0.114	−0.038
H5	High-risk areas	0.790	0.151	5.245	0.000	0.430	1.048
	Areas with moderate risk	0.413	0.047	8.845	0.003	0.318	0.501
	Low-risk areas	0.428	0.040	10.645	0.001	0.325	0.506
	Differences between groups	−0.805	0.153	−5.255	0.002	−1.070	−0.441
H6	High-risk areas	0.056	0.067	0.830	0.406	−0.028	0.238
	Areas with moderate risk	0.070	0.013	5.211	0.000	0.047	0.100
	Low-risk areas	0.245	0.177	1.381	0.167	0.090	0.737
	Differences between groups	0.119	0.189	0.627	0.531	−0.118	0.623

H5 test. The structural equation model was constructed using Mplus7.0 to compare whether the employees' risk perception in areas with high, moderate, and low risk was significant for in-group identity. The test results are shown in Table 3. The regression slope of the risk perception of employees in high-risk areas for in-group identity is 0.790 ($p < 0.001$), which satisfies the significance standard. The regression slope of employees' risk perception for in-group identity in areas with moderate risk was 0.413 ($p < 0.01$), which satisfies the significance standard; and the regression slope of employees' risk perception for in-group identity in low-risk areas was 0.428 ($p < 0.01$), which also satisfies the significance standard. A further comparison shows that the difference in slope among the three groups is −0.805 ($p < 0.01$), which satisfies the significance standard, and the 95% bias-corrected confidence interval ranges from LLCI = −1.07 to ULCI = −0.44 (5000 bootstrap resamples); it excludes 0, which indicates significant differences among the three groups. H5 is confirmed—that is, the more severe the local pandemic is, the higher the employee's risk perception of in-group identity will be.

H6 test. Because the severity of a local pandemic is a variable divided into three groups, multigroup analysis is used to compare whether significant differences exist in the mediating effect of in-group identity in the three conditions, and the regression model is constructed using Mplus7.0. The test results are shown in Table 3: In high-risk areas, the mediating effectiveness is not significant ($\beta = 0.056$, $p > 0.05$); in areas with moderate risk, the mediating effectiveness ($\beta = 0.070$, $p < 0.001$) satisfies the significance standard; in low-risk areas, the mediating effectiveness is not significant ($\beta = 0.245$, $p > 0.05$). The intergroup difference coefficient of three-group mediating effectiveness is 0.119 ($p > 0.05$), which fails to satisfy the significance standard, and the 95% bias-corrected confidence interval ranges from LLCI = −0.118 to ULCI = 0.623 (5000 bootstrap resamples) and includes 0; therefore, H6 is rejected.

5. Discussion

First, the results discovered that risk perception caused by the COVID-19 pandemic would motivate employees to engage in helping behaviors within the organization, thereby confirming the "tend and befriend" theory's applicability to public crises. Employees actively help colleagues, customers, and other stakeholders around them because of their perception of risk due to an external public crisis. Cannon first proposed the "fight or flight" response pattern in individual behavior due to stress, stating that individuals under stress react by either fighting or fleeing (Taylor et al. 2000). Therefore, existing research results mainly discuss risk perception and negative emotion related to the COVID-19 pandemic, such as fear, loneliness, anxiety, and depression (Han et al. 2021; Yan et al. 2021), and is significantly related to self-interested protective behavior (Zhang and Zhou 2021). However, the theory of "tend and befriend" assumes that people want social support to relieve their

anxiety, comfort, and protection through "alliances" under stress, so people engage in more friendly behaviors in order to maintain good social relations (Taylor et al. 2000; Taylor 2006). During the outbreak of COVID-19 pandemic in China, many stories emerged about a large number of ordinary heroes and touching interactions, and behaviors such as helping and cooperating became commonplace. In view of these facts, the research introduces the "tend and befriend" theory, which explains the mechanism of risk perception in helping behavior, helps to enrich the explanatory framework of risk perception in altruistic behavior, and expands the research on risk perception.

Second, this paper verified that risk perception influences helping behavior via the mediating mechanism of in-group identity. This indicates that when a public crisis increases individuals' risk perception, they will first turn their attention to the organization in the hope of obtaining the organization's support and protection to jointly resist risks and crises. As a result, their trust in the organization and sense of belonging are enhanced. They become more willing to assist their colleagues and other stakeholders when they have a stronger sense of identity and belonging to the organization. While the "tend and befriend" theory has been widely accepted, the underlying mechanism underlying the relationship between stress and prosocial behavior is primarily based on physiological indicators. For example, Taylor thinks that humans demonstrate tending and befriending responses to stress responses underpinned by the hormone oxytocin, by opioids, and by dopaminergic pathways. Based on cognitive psychology, this paper elucidates the internal mechanisms underlying risk perception and prosocial behavior. This is in line with views of Yang et al. (2021): the prosocial behaviors displayed by stressed individuals are more likely to be protective mechanisms. Additionally, individuals can acquire additional instrumental resources by engaging in more prosocial behaviors that mitigate threats and pressures. The research results enrich the theoretical research on "tend and befriend" to a certain extent.

Third, this paper discovered that the severity of a local pandemic modifies the relationship between risk perception and helping behavior in a negative manner. Specifically, employees in high-risk areas engage in less helping behavior than those in moderate and low-risk areas, while employees in low-risk areas engage in the most helping behavior. This contradicts the research hypothesis, but it makes sense. This might be because employees in areas with high and moderate risk are at constant risk of infection because of the severity of the pandemic. This anxiety and concern might cause them to pay more attention to their own needs and less attention to that of others. At the same time, because of the measures intended to prevent and control the spread of infection, such as reducing unnecessary contact and isolation at home, the opportunities to help others are reduced to a certain extent. However, employees in low-risk areas live in a relatively safe environment, so they are more likely to display altruistic behavior in groups after they perceive risks and assist colleagues and customers, so as to build good social connections and collectively withstand risk. The findings corroborate those of Wang and Sun (2021) regarding the voluntary activities of Chinese citizens during COVID-19: the voluntary activities in high-risk areas decreased. That is, the relationship between individual risk perception and prosocial behaviors might be influenced by the intensity of risk stimuli. The boundary further demonstrates that employees' helping behaviors are not produced out of thin air, and the relationship between risk perception and helping behaviors cannot be separated from specific situational factors.

Forth, this paper verified that the severity of the local pandemic positively moderates the relationship between risk perception and in-group identity. In other words, employees in low-risk areas have a lower in-group identity than those in medium- and high-risk areas, while employees in high-risk areas have the highest in-group identity. Through a combined analysis of the research results on H4 and H5, we find an interesting phenomenon: when risk is low, individuals fall into the "tend and befriend" response mode, they are not only willing to "align" (i.e., improve their in-group identity), but also to engage in more helpful behaviors. However, as the risk level increases, individuals do not fully engage in the "tend

and befriend" response mode. They are fervent in their desire to "align" (i.e., in-group identity is significantly improved), but significantly reduce helping behaviors. According to the "tend and befriend" theory, individuals experiencing stress have two primary behavioral responses: caring and alliances. This study adds to the body of knowledge regarding the "tend and befriend" theory and further states that individuals exhibit distinct behavioral responses to varying degrees of perceived risk. That is, "alliance" and "caring" do not have to occur concurrently, and both can occur in low- and moderate-risk scenarios. People are more likely to "forge an alliance" and less likely to "care" in high-risk situations. As such, the prosocial behaviors of individuals under stress (e.g., helpful behaviors) might also be a protective mode, and individuals can mitigate the threats and pressures they face by participating in more prosocial behaviors (Steinbeis et al. 2015). The research in this paper makes up for the lack of research on the role of the degree of risk between risk perception and behavioral response in previous empirical studies and can further deepen the discussion on the mechanism in the relationship between risk perception and altruistic behavior.

6. Conclusions

This paper focuses on the COVID-19 pandemic, a major risk event. We obtained data on 925 employees of 20 enterprises in August 2021, through an investigation of enterprises in the Henan and Sichuan provinces, which experienced severe pandemic conditions. Using structural equation modeling, we tested our research hypotheses. The results confirm, first, that risk perceptions have a positive impact on helping behaviors. Second, risk perception has a positive impact on in-group identity, and in-group identity plays a mediating role in the relationship between risk perception and helping behavior. Third, the severity of the local pandemic negatively moderates the relationship between risk perception and helping behavior, but positively moderates the relationship between risk perception and in-group identity.

In real life, people face various crises and risks, such as earthquakes, typhoons, floods, and infectious disease. Studying the influencing mechanism in employees' risk perceptions on helping behaviors in public crises and explaining employees' psychological and behavioral performance after risk perception under different risk levels can give managers experience in risk management: in the face of huge external risks, employees often tend to "huddle together for warmth" and engage in altruistic behaviors. At this time, managers should strengthen the management of employees' organizational identity and prosocial behavior, form a good atmosphere for teamwork in the company, jointly withstand risks, and help enterprises to survive difficulties. The research in this paper also provides an explanation for various prosocial and altruistic behaviors, such as charitable donations and volunteerism, which offers theoretical guidance to relevant government agencies on how to effectively organize social forces and jointly confront risks in a time of crisis, and help to further improve the national risk management system.

Our study has some limitations. First, the sample comes mainly from China, and no similar work has been conducted in other countries around the world with a COVID-19 outbreak. Countries and regions have different cultural backgrounds, which vary from that of China, whose culture is collectivist and subordinates individual interests to collective interests. By contrast, the culture in Western countries emphasizes individualism and advocates independence and freedom. Such differences in cultural background could affect the results, so the generalizability of this study needs to be tested. Second, the data used come from employees' self-reporting, which could limit their effectiveness, as self-reporting is easily influenced by variations in self-expression (self-deception; impression management). Although our results pass tests of reliability and validity, the problem of the common method deviation is inevitable. In the future, the empirical sampling method, experimental method, multipoint investigation method, and so on can be used to improve the accuracy and external validity of the results. Finally, this paper discusses the influence of employees' risk perception on helping behaviors, as

well as the corresponding mediating mechanism and boundary conditions, which have a certain theoretical value. However, the survey respondents are mainly employees of a company, and their helping behaviors mainly involve stakeholders, such as colleagues and customers. It is not clear whether they would display the same helping behavior in dealing with strangers; therefore, that offers an avenue for future research. Thus, the study could be expanded to encompass the general public to explore whether they also would help strangers, so as to further test the generalizability of the "tend and befriend" response model across risk scenarios.

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