

Prejudice and Its Causes during the Outbreak of COVID-19

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Abstract: The In 2020, a new type of disease – called COVID-19, spread across China and the globe in general. Because of its high contagious and mortality, COVID-19 would potentially trigger people’s psychological response as a protective mechanism, including a high degree of prejudice and discrimination towards those from areas with a high infection rate. This phenomenon is described in the theory of behavior immune system, which is believed to arise from the evolution of human beings. Prejudice, though biologically might reduce the risk of being infected, sets obstacles to the community, and breaks its unity. The current research aims to evaluate, in the context of Chinese society, the degree of prejudice towards the people from the center of the pandemic (i.e., Wuhan residents) and further investigate the underlying mechanisms. Through extensive surveys and a set of regression analyses, we found that the approval of government policy – but not the perceived vulnerability to the disease - had a significant effect on the degree of prejudice. The implications, limitations, and future directions were also discussed.

1. Introduction

Millions of years ago, our ancestors were vulnerable mammals that should survive through giant dinosaurs, unpredictable environments, deadly diseases, as well as uncontrollable disasters. For survival and reproduction, they gradually developed protective mechanisms – both biologically and psychologically – to keep themselves on track of reproduction. Of course, not all *homo sapiens* enjoy these protective mechanisms, and this exact feature largely affects the fate of their offspring: according to evolutionary theories, those who have successfully developed the protective mechanisms have a significantly higher chance of survival compared to their unfortunate peers. These psychological mechanisms – once invented by our ancestors to guard against various dangers – have such a strong impact on the evolution of human beings that they were still served as one of the dominating mechanisms of human behaviors.[1] Meanwhile, our ancestors – for the purpose of fighting against the environment – formulated societies and cooperated together to defense predator, and to seek food.

However, although the inventions of societies brought great advantages, such as stronger powers to defend against common enemies, it also placed our ancestors into bigger danger that they were not able to figure out previously. They had to face higher risks of infectious diseases, conflicts, as well as endless wars between different groups of human beings. Then, again, those who adjusted well – developed dedicated protective mechanisms against these threats - were more likely to survive and reproduce. In other words, some new sorts of psychological mechanisms have been gradually developed during the process of evolution that facilitated learning of cues that are indicative of conspecifics who potentially posed specific forms of threat (Neuberg & Schaller, 2015)[2].

Nowadays, these psychological mechanisms that have been developed during the evolution of human beings persist, yet act upon other forms, including prejudices, stereotypes, and discrimination. Evolved from the evolutionary perspective, these psychological mechanisms constitute the core of the behavioral immune system, which predicts when people are exposed to threats or they feel like they are in danger, for example, if they detect infection risk from the local environment, they respond to these perceptual cues of risk through the activation of aversive emotions, cognitions and behavioral impulses [3](e.g., prejudice and discrimination).

From a social psychology perspective, prejudice is an unjustified negative attitude towards a social group and its individual members and discrimination is the behavior or actions towards an individual or a group of people [4](McLeod, 2008). To protect themselves, people show these emotions to other individuals or groups in order to set a psychology boundary.

In January 2020, a horrible catching disease, the new form of coronavirus named COVID-19, burst in China. It's a new virus and the scientist had yet produced effective drugs to treat it. The disease could spread easily by droplet transmission with a high mortality rate of 1% [5](by Hassan, et al., 2020). By January, clusters of cases of mysterious pneumonia were reported in Wuhan, the center of South-West China, and, in the following weeks, the person-to-person spread of the virus was reported around the world. In early March, the World Health Organization (WHO) declared COVID-19 a pandemic on a global scale [6](Katella, 2020). According to the theories of evolutionary psychology, the scary disease has grown into a significant threat to human beings and could therefore potentially trigger human behavior immune systems and further result in the adaptive reactions rooted in our genes (e.g., prejudice and discrimination). During the outbreak of the pandemic, we have indeed observed these undesirable social responses to people coming from the areas with high infection rates (and thus were more likely to be considered as potential threats). For example, on February 8th, Chunxiang Hao, a Chinese student studying in the Netherlands, said that the lift in his dormitory had been spray-painted with the words "DIE CHINESE"[7]. Also, the Secretary of Wuhan Municipal Party Committee has admitted that Wuhan citizens have been prejudiced and discriminated (e.g., rejected by hotels and restaurants) by those living in nearby provinces[8].

During the current pandemic, people's behavioral tendency to prejudice and discriminate certain outgroups originated from the areas of high risks has caused significant disruptions to personal lives as well as the psychological well-being of those affected. For example, those who suffered from prejudice and discrimination reported significant distress, felt isolated, and lost meaningful social contact. Therefore, it is of vital importance for psychologists to identify mechanisms that could effectively mitigate the unfavorable responses of prejudice and discrimination. The current research serves as the first attempt to explore how and to what extent people, in the current pandemic of COVID-19, show attitudinal bias to vulnerable people who have been linked closely with the virus (i.e., those who came from the origin city of the virus, Wuhan), and further explores effective ways

to protect from such an adverse effect. More specifically, we will consider the potential effects of personal characteristics as well as the governmental policies on the degrees of attitudinal biases.

In what follows, we first outline the theoretical framework – the evolutionary theory of the behavioral immune system – and the main hypotheses of the current research. We then presented the samples, measures, and analysis procedures of the current survey research. Then, the main results will be illustrated and reported. Last, we propose discussion, limitations, and future research directions.

The evolutionary theory of the behavioral immune system. Humans cannot process the threats of diseases straightforward. Humans are, biologically, not able to judge whether one is a carrier of the diseases because the microorganisms are not visible by naked eyes. As a result, people must typically rely on superficial morphological or behavioral cues (such as skin lesions, cough, sneeze) to detect the presence of pathogens and the diseases they cause. (Duncan & Schaller, 2009)[9]. People’s tendency to detect and process these cues was a major process involved in the evolutionary theory of the behavioral immune system.

The effects of perceived vulnerability of COVID-19. However, these clues are not effective all the time; in other words, the correspondence between the onset of the disease and the superficial clues is imperfect and it is common that people misjudge the circumstance they are into. This is because the behavioral immune systems are prone to bias towards minimizing the threat or cost [10](Haselton & Nettle, 2006; Nesse, 2005). More specifically, the cost of regarding healthy people as an infectious individual (i.e., false negative) is much graver than avoiding an individual who is actually healthy (i.e., false positive). Consequently, people tend to overestimate the probability of being infectious. To put it simply, any gross deviation from species-typical morphological norms may be implicitly interpreted as evidence of possible parasitic infection, and thus may trigger an aversive response [11](Kurzban & Leary, 2001).

We argue that the tendency of overestimating the risk of infection in the presence of suspicious cues is potentially affected by an individual’s perceptions of her vulnerability to COVID-19. If one conceived the disease as highly threatening, the psychological stress might result in a high level of avoidance with regard to the contacts of the disease-related items. Therefore, they might be very sensitive to the behavioral cues, such as to the ones coming from an area with a high infection rate (Neuberg, & Schaller, 2016)[12]. Therefore, we hypothesized that the degree of prejudice towards the outgroups coming from risky areas was greater in a specific group who perceived themselves to be highly susceptible to the disease, as opposed to those who considered themselves as not at all susceptible.

The effects of the approval of government policy. Besides personal characteristics, the societal factors could also possibly affect one’s prejudice toward the vulnerable group. According to the evolutionary theory of the behavioral immune system, people tend to reach out to the authority in the presence of pathogens, as they have a stronger desire for social order compared to normal time (Schaller & Park, 2011; Terrizzi, Shook, & McDaniel, 2013)[13]. If this desire could be met, their psychological stress could be reduced, and thereby they could be less sensitive to the behavioral cues. Therefore, we hypothesized that the ones who approved the government policy with a higher degree prejudiced to a lesser extent towards the suspicious outgroup.

2. Methods

Participants. We have recruited a total of 983 participants from the online platform Wechat who was compensated with an assessment of personality and well-being. Among all participants, 768 (78%) have completed the survey while the rest dropped out halfway. The completion rate is

acceptable in psychological research. All of the participants stayed in China during the peak of the pandemic. The average age of the participants was 28.12, and in total 434 participants (57%) were male.

Measures

Perceived vulnerability to COVID-19. The perceived vulnerability to COVID-19 was measured via two items (e.g., “I feel vulnerable to Ebola infection”) on a seven-point Likert scale. These items were adapted from Kim et al., (2016) that were initially used in the context of the Ebola outbreak. The two items were correlated moderately ($r = .28, p < .01$). The average of the two items was used as the indicator of the perceived vulnerability, with a higher score indicating a higher level of perceived vulnerability.

Approval of the government policy. We have used two self-designed items to measure the participant’s perception and approval of the government policy with regard to the prevention of the current COVID-19 outbreak and instructed the participants to respond on a 7-point Likert scale. The two items measure the two important yet different perspectives of the judgment: whether the policy was efficient and whether the policy was concise. A similar design has been adopted in previous studies (e.g., Murray & Schaller, 2012) to test residents’ conformity to the authority in the context of a pandemic [14]. The correlation between the two items involved was moderate-to-high ($r = .28, p < .01$). The average if the two items were used as the indicator of personal approval towards the government policy, with a higher score indicating a more favorable opinion.

Prejudice towards people from the risky areas. To measure the level of prejudice, we adapted the scale from Brandt [15](2017). The original scales included a total of 8 items, however, to fit with the current context, a total of 6 items was adapted. More specifically, the participants were instructed to report their perceptions of the residents coming from Wuhan (i.e. the center of the pandemic) with regard to (1) acceptance, (2) hatred, (3) rejection, (4) likeability, (5) compassion, and (6) disgust. Among the six perceptions, 3 (1, 4, 5) were positive perceptions while the rest were negative perceptions. The responses on the positive framing items (i.e., 1, 4, and 5) are subsequently reversed coded and averaged across all six items, such that a higher score indicating a higher level of prejudice towards Wuhan residents.

Control variables. Several personal and social background variables that could influence people’s aversion have been added in the current analysis and served as control variables. These variables include gender, age, academic background, and monthly income. The questions on gender were binary choices, such that the males were recorded as “1”, and the females were recorded as “0”.

Analysis Procedures. To test the proposed hypotheses, a sequential regression analysis strategy was applied. We built three models with increasing complexities. More specifically, in model 1, only control variables and dependent variables were included; in model 2, both control variables and the two independent variables (i.e. perceived vulnerability and approval of the policy) were added; finally, the interaction term of the two independent variables was added to the prediction model.

3. Results

The means, standard deviations of all variables as well as the correlations between these variables are shown in Table 1. There is no obvious correlation between prejudice and the perceived vulnerability ($r = .02, n.s.$). However, the r between prejudice and the approval of government policy is relatively high, equaling $-.08$ with a p -value smaller than the significant level ($= .05$). In other words, the correlation between the two variables has been preliminarily validated by the

means of a zero-order Person correlation. Also, interestingly, we found the approval rate of the government policy was higher among individuals who (1) had a lower education level ($r = -.11, p < .01$). and (2) were older ($r = .09, p < .01$).

4. Tables

Table 1: Means, standard deviations and correlations of the variables involved in the current study.

Variable	M	SD	1	2	3	4	5	7	8
1 Gender	.06	.54	1						
2 Monthly income	4.09	1.63	.12**	1					
3 Education level	4.55	1.02	.03	-.01	1				
4 Age	26.5	10.68	.03	-.08	.18**	1			
5 Perceived vulnerability to COVID-19	4.93	.96	.02	0	.12**	.05	1		
7 Approval of the government policy	4.65	1.65	-.06	-.11	-.11**	.22**	.09*	1	
8 Prejudice towards Wuhan residents	2.61	1.06	-.04	.04	-.07	.06	-.02	-.08*	1

Table 2: The results of sequential regression.

	predictor	b	fit	difference	
Model 1	Intercept	2.72	.01	.01	
	Gender	-.08*			
	Age	.01			
	Education	-.09*			
	Income	.03			
Model 2	Intercept	2.76	.03	.02	
	Gender	-.10*			
	Age	.01			
	Education	-.11*			
	Income	.02			
	Perceived vulnerability of Approval of government policy	.00	-.08*		
Model 3	Intercept	2.76	.03	.00	
	Gender	-.10*			
	Age	.01			
	Education	-.10*			
	Income	.02			
	Perceived vulnerability of Approval of government policy	.00	-.08*		
	Interaction	.02			

We then conducted a sequential regression analysis with prejudice towards Wuhan residents as the dependent variable. The results of the sets of analyses were reported in Table 2. We found that the perceived vulnerability to COVID-19 did not affect the level of prejudice towards Wuhan residents at a significant level ($b=.00$, *n.s.*). However, the subjective approval of government policy did have a significant and negative effect on the level of prejudice towards Wuhan residents ($b=-.08$, $p < .05$). As expected, those who held a more positive view of the government policy illustrated a lower level of prejudice towards the residents from the center of the pandemic. Furthermore, we found two of the control variables - gender and academic background – also had significant relationships with the level of prejudice towards Wuhan residents.

5. Discussions

From the results reported, we found that the perceived vulnerability to COVID-19 did not affect the level of prejudice towards the population who were coming from the areas with high infections rate (i.e. in the current context, Wuhan residents). However, we did find a negative effect on the approval of government policy. Taken both into consideration, it is suggested that the social and economic factors – but not personal factors may play a dominating role in determining citizen's intergroup perceptions in the context of the disease outbreak. This interesting finding could be potentially explained in two distinctive ways. First, in handling the current pandemic, Chinese societies have exhibited a high level of conformity at the cost of personal interest. Therefore, it is expected that situational factors play a dominating role comparing to personal factors. Second, the potential prejudice towards the citizens coming from areas with high infection rates has been explicitly criticized in the most important state-owned media (e.g., Xinhua Net, People Daily) ever since the outbreak. Therefore, given the extremely high impact of these media, for those who generally approved the government policy, they may intentionally reduce their prejudice levels regardless of the perceived vulnerability of the disease.

The current study could be improved in a number of important ways. First, we collected all responses at the same time point, following a cross-sectional design. As a result, we could not deduce the causation – but only correlations - from the analyses. For instance, we could not say that government policy can definitely weaken citizens' prejudice and behavioral immune responses. Therefore, we advise future research to apply a longitudinal design to more closely examine the potential causality of these relationships. Furthermore, people living in different areas were facing different levels of risk during the pandemic, and the omission of this factor might introduce potential confounding effects in our interpretation of the results. Future research is encouraged to also account for the actual risk of being infected.

Although the Chinese government has made great success in controlling the breakout and placed most of the Chinese people onto safe ground, tones of business, especially the catering services and tourism, are still suffering from the cost brought by the outbreak. Researchers – especially those specialized in the field of mental health – should promptly conduct relevant researchers which might provide the people suffered enough resources to recover from the difficult situation and protect them from a serious mental health breakdown.

Meanwhile, according to our investigation result, prejudice was strongly related to government policy, which could provide important suggestions to China and other countries. In other words, the government plays a predominant role in helping its citizens to cope with the harness during the current time.

6. Conclusion

In the current research, we verified that, generally, the diseases could trigger human's behavior immune responses, and the effective government policies, through providing a sense of order to the society, will likely bring about confidence and harmony to the society and thereby reduce anti-social prejudice and discriminations that originated from the evolution of human beings.

What's more, we found two control variables - gender and education - had a significant relationship with the degree of prejudice. We suspect it was because the people with a higher education level may follow the logical and rational reasoning to a greater extent, and are less susceptible to the intuitive system that relies on the routine developed through the course of evolution.

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