How epidemic information and policy information impact anti-infection behaviors: a cross-cultural study under social influence framing

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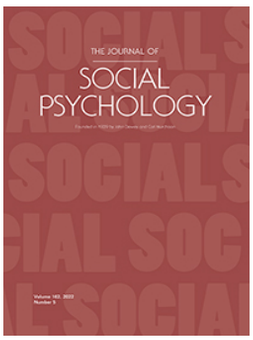

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How epidemic information and policy information impact anti-infection behaviors: a cross-cultural study under social influence framing

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ABSTRACT

Three preregistered experiments examined to what extent information about an epidemic situation provided by experts and information about anti-infection policies promoted by governments/media influenced anti-infection behaviors. The above effects were examined among populations from different countries (in Experiments 2 and 3) and across self-construals (in Experiment 3). In three experiments, participants (N =706) were presented with a scenario where experts provided (or did not provide) information about an epidemic situation and governments/media promoted (or did not promote) information about anti-infection policies. After that, participants indicated their willingness to adopt anti-infection behaviors. Results across three experiments showed that both types of information independently increased participants' anti-infection behaviors. In Experiments 2 and 3, we further found that the epidemic information had a larger impact on inducing anti-infection behaviors than the policy information, which was robust and consistent across countries and self-construals. Findings were discussed under the framework of social influence and in terms of practical implications for pandemic situations like the COVID-19.

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Social influence; culture; self-construal; anti-infection behaviors; COVID-19

Human beings have been suffering from the consequences of the COVID-19 since March 2020 (WHO, 2020). The effectiveness of reducing the spread of coronavirus depends on not only governments' efforts to introduce anti-infection policies but also individuals' anti-infection behaviors against the pandemic. People gain information relevant to the pandemic mainly from two sources – information about anti-infection policies promoted by governments/media and information about the pandemic situation provided by experts. For instance, governments and mass media promote some measures against the spread of COVID, such as keeping social distance and wearing masks. Besides, experts provide information about the pandemic, such as its infectious rate and lethality. People's decisions on adopting anti-infection behaviors may, therefore, be influenced by these two types of information.

It is important to assess whether these two types of information can increase people's anti-infection behaviors, and whether one information can influence people's anti-infection behaviors more than the other. Furthermore, because the COVID has been spreading all over the world across individuals, regions, and countries, it is also important to understand whether the impacts of the two types of information on people's anti-infection behaviors vary between different countries and across individuals.

Therefore, the present research aims to investigate whether information type – expert information about the epidemic situation and governmental/media information about the anti-infection policy – would independently influence people's willingness to adopt anti-infection behaviors. In addition, we aim to compare which type of information would have a larger impact. To extend the generalizability

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of our findings, we explore whether the above effects would differ between or be consistent across populations from different countries and with different self-construals. By studying this, we aim to contribute to effective strategies for facilitating people's anti-infection behaviors, by providing expert information about the pandemic situation and/or providing governmental/media information about the promotion of anti-infection policies under a pandemic situation like COVID.

Policy information and normative social influence

During the pandemic, governments promoted anti-infection policies that they believe can prevent the COVID from further spreading to the public. For instance, almost all governments around the world have promoted wearing-mask and keeping-social-distance policies. Some governments advertised anti-infection policies like working from home or self-quarantine. This type of information may affect people's anti-infection behaviors since governments' policies and advertisements signal which actions are common and desired (Tankard & Paluck, 2016), and people tend to behave following this promotion in order to be accepted by the society (Homans, 1961).

The impact of anti-infection policies promoted by governments can – at least partly – be explained by the process of normative social influence. Normative social influence can be described as the process by which people tend to behave in line with social norms in order to be accepted by the group. More specifically, normative social influence has been defined as "influence to conform to the positive expectations of another" (Deutsch & Gerard, 1955; see also Park, 1998). Cialdini and Goldstein (2004) suggested that normative social influence operates via people's compliance with the norms of the group or society, rather than their judgments of reality.

Governments and mass media are often an important source of normative information (Hodgson, 2006; Silverblatt, 2004). Posner and Rasmusen (1999) stated, governments have a role in promoting "good" norms and combating "bad" norms. Kübler (2001) also implicated that "norm entrepreneurs," such as government agencies, regulate (create new or destroy old) social norms by advertising policies. We, therefore, reason that governments' promotion of anti-infection policies can be regarded as a (new) norm in the society, and the policy information promoted by governments (and media) may affect people's anti-infection behaviors since people have the motive to conform to social norms.

Epidemic information and informational social influence

During the pandemic, experts provide the public with factual information about the COVID. For instance, experts inform the public about the new variants of COVID and its features, including transmission areas, infectious rate, lethality, and cure rate. Experts may also provide information about the corresponding vaccinations and treatments against the virus. This type of information may affect people's anti-infection behaviors because this information affects people's assessment of the pandemic, such as its threat and severity, which may affect their subsequent behaviors.

The impact of epidemic information provided by experts can be explained by the process of informational social influence, in which people behave based on their judgment of the evidence and reality in order to behave in a "correct" way (Turner, 1991). Informational social influence has been defined as the "influence to accept information obtained from another as evidence about reality" (Deutsch & Gerard, 1955). Burnkrant and Cousineau (1975) defined informational social influence as the "provision of credible evidence of reality." In addition, the adoption of intentions or behaviors through informational social influence depends on one's judgment and assessment of the usefulness of the knowledge and evidence (Davis, 1989; Eagly & Chaiken, 1993, p. 630; Feldman & Lynch, 1988; Kiesler & Sproull, 1982).

The information about the epidemic situation provided by experts is about the evidence and reality of the epidemic. Thus, people may assess this information in terms of its facticity and accuracy, and then people act according to their judgment of the epidemic situation in order to

behave in a "correct" way (Turner, 1991). In this sense, we argue that the epidemic information provided by experts would affect people's willingness to adopt anti-infection behaviors through informational social influence.

Therefore, the first purpose of the present research is to investigate whether the epidemic information provided by experts (through the process of informational social influence) and the policy information promoted by governments/media (through the process of normative social influence) would independently increase individuals' willingness to anti-infection behaviors. Additionally, we aim to assess whether one type of information would have a larger impact than the other.

Social influences, cultures, and self-construals

Previous studies suggested that people in individualist and collectivist cultures are differently affected by informational and normative social influences. It has been found that people from individualist cultures (e.g., a Western culture) value individual goals, needs, achievements, and self-reliance, whereas people with a collectivist culture background (e.g., an Asian culture) identify themselves as members of a group and their individual goals are subservient to goals of their group (e.g., Fong & Wyer, 2003; Kim & Markus, 1999; Triandis, 2001). Evidence indicated that people from individualist cultures (e.g., America) reported higher levels of conformity under informational, rather than normative, social influence, whereas people from collectivist cultures (e.g., India) reported higher levels of conformity under normative, rather than informational, social influence (Oh, 2013).

The impact of informational and normative social influence differences between cultures could be explained by that people differently construe themselves in terms of independence and interdependence. Indeed, literature demonstrated that most Western people (i.e., those from individualistic cultures) have an independent self-construal, focusing on independence, internal qualities, and the uniqueness of the individual (Markus & Kitayama, 1991). On the other hand, most Eastern people (i.e., those from collectivist cultures) have an interdependent self-construal, emphasizing connectedness, social context, and interrelationships (Markus & Kitayama, 1991). Markus and Kitayama (1991) suggested that individuals constructing themselves as independent pays more attention to personal goals, inner needs, and desires, while individuals who construe themselves as interdependent are more motivated by the goals of the group in order to full fill their roles in the group as well as to fit in the society (see also, cf., Kagitcibasi, 2005; for a review see, Cross et al., 2011).

Literature, currently, lacks empirical evidence on whether individuals' conformity behaviors affected by informational and normative social influence differ depending on how the self is construed (i.e., self-construal). Specifically, it is unclear whether the impacts of the epidemic information (provided by experts) and the policy information (promoted by governments/media) on anti-infection behaviors would vary across individuals with different self-construals. Therefore, the second purpose of the current research is to explore whether the two types of information would be conditioned by individuals' self-construals.

For the current purposes, individuals with interdependent self-construal are more likely to behave according to what the government promotes in order to conform to the social norm, whereas individuals with independent self-construal are more likely to assess the information provided by experts and behave according to their judgment of the epidemic situation in order to fulfill their personal needs for safety and health.

In addition, Singelis (1994) suggested that the two dimensions of self-construal must be considered separately when the unit of analysis is the individual. Thus, we tested and analyzed the effects of independent self-construal and interdependent self-construal, separately.

Overview of the current research

Three preregistered experiments examined how information about the epidemic situation provided by experts and information about the anti-infection policy promoted by governments/media influenced people's willingness to adopt anti-infection behaviors. In Experiment 1, we collected data in China and investigated whether the epidemic information and the policy information independently influenced participants' willingness to adopt anti-infection behaviors, by presenting participants a scenario where experts provided information about an outbreak of epidemic and where governments/media promoted anti-infection policies. In Experiment 2, we replicated and extended our findings of Experiment 1 among the different populations from another culture, by collecting data in China and the UK, respectively. In Experiment 3, to explore the effect of self-construal, we collected data in China and the UK and added measures of independent-interdependent self-construals to see whether participants with different self-construals would be differently influenced by the epidemic information and the policy information.

Above experiments were all preregistered on the Open Science Framework (OSF). In the current paper, we report all experiments, conditions, measures, and data exclusions that were preregistered. Link(s) to the preregistration of specific experiments are provided in the Method section of Experiments 1, 2, and 3, respectively. All materials and raw data can be found on OSF: https://osf.io/ynp29

Experiment 1

The present experiment aim to investigate whether exposure to the two types of information – epidemic information provided by experts and policy information promoted by governments/media – would increase people's anti-infection behaviors. We predicted that participants in the epidemic situation condition would be more willing to adopt anti-infection behaviors than those in the control condition. Also, participants in the policy information condition would be more willing to adopt anti-infection behaviors than those in the control condition. In addition, we explore the interaction between epidemic information and policy information on the willingness to adopt anti-infection behaviors.

Method

Participants & design

We recruited 195 college students at Anhui University, China, who were between 18–23. After excluding participants who did not pass manipulation checks, 114 participants (M_{age} = 19.47, SD_{age} = 1.07) remained, including 78 women and 36 men.[1] Sensitivity power analyses with a power of .95 and an alpha of .05 showed that this sample size could detect a small to medium effect size, f = .21 of the interaction effect between epidemic information and policy information.

We employed a 2 (epidemic information vs. control) × 2 (policy information vs. control) between-participants design. Participants were randomly assigned to one of the four conditions and presented with the scenarios.

Procedure & materials

After reading and signing the informed consent, first, participants were asked to imagine that they were a resident of City A. Then, they were randomly assigned to one of the four conditions (scenarios) to receive information about an epidemic situation provided by experts and information about anti-infection policies promoted by governments/media in City A. In the epidemic information condition participants read "According to the experts' investigation and assessment, an infectious disease caused by a novel virus called 'TAE' is found in City A"; in the control condition participants read "According to

experts' investigation and assessment, no infectious disease has been found in City A, and City A is very unlikely to be confronted with an epidemic in the near future." In the policy information condition participants read "According to the documents introduced by the government and news published by the media in City A, the government and media suggest residents taking epidemic prevention and protection behaviors"; in the control condition participants read "According to the documents introduced by the government and news published by the media in City A, the government and media have not made any requirements or suggestions on epidemic prevention and protection behaviors to the public."

To ensure participants correctly understood the information presented, participants then answered two manipulation check items: "The above information shows that a certain epidemic has already broken out in City A" and "The above information shows that the government and media suggest residents to adopt self-protection measures (1 = *Yes*; 2 = *No*)." Answers that did not match the conditions that participants were assigned to were coded as incorrect, and data from these participants were excluded from analyses (following our preregistration, see osf.io/hdfb3).

Afterward, participants reported to what extent they would adopt anti-infection behaviors in the current situation as a resident of City A in the following items: "Wear a mask in the public area," "disinfect rooms regularly," "avoid visiting friends/relatives or having parties," "avoid traveling," and "work from home" (1 = *Not at all*, 7 = *Very much*). Scores were averaged in analyses, and the higher score indicates the higher willingness to adopt anti-infection behaviors (Cronbach's α = .92).

After that, participants completed some demographic items (i.e., gender and age). Participants were properly debriefed and thanked. The above procedures and all following experiments were approved by the Psychology Research Ethics Committee of Leiden University.

Results

We employed two-way ANOVA in the General Linear Model (GLM) in R (version 4.2.0) to test the main effects of epidemic information and policy information and their interaction on the willingness to adopt anti-infection behaviors. Means and standard deviations for the willingness to adopt anti-infection behaviors in the epidemic information and policy information conditions see, Table 1.

Results showed that participants in the epidemic information condition (M= 5.82, SD = 1.34) reported higher willingness to adopt anti-infection behaviors than those in the control condition (M= 5.33, SD = 1.42), $F(1, 110) = 6.26$, $p = .014$, $\eta_p^2 = .04$,. In addition, participants in the policy information condition (M= 5.90, SD = 1.15) reported higher willingness to adopt anti-infection behaviors than those in the control condition (M= 5.07, SD = 1.61), $F(1, 110) = 10.32$, $p = .002$, $\eta_p^2 = .09$.

The above main effects were qualified by the interaction, $F(1, 110) = 7.58$, $p = .007$, $\eta_p^2 = .06$. Simple effect tests showed that participants in the control/control condition reported lower willingness to anti-infection behaviors than those in all other conditions (the control/policy information condition, $t(110) = -4.25$, $p < .001$; the epidemic information/control condition, $t(110) = -3.35$, $p = .007$; the epidemic information/policy information condition, $t(110) = -4.13$, $p < .001$).

Table 1. Means and standard deviations for willingness to adopt anti-infection behaviors in the epidemic information and policy information conditions in Experiment 1.

Epidemic information		Control	
Policy information *M* (*SD*)	Control *M* (*SD*)	Policy information *M* (*SD*)	Control *M* (*SD*)
5.87 (1.28)	5.75 (1.48)	5.93 (1.10)	4.44 (1.50)

Discussion

We observed main effects of epidemic information and policy information on the willingness to adopt anti-infection behaviors, which supported our argument that epidemic information provided by experts and policy information promoted by governments/media independently influence people's willingness to adopt anti-infection behaviors.

Results of the interaction between epidemic information and policy information suggests that participants in the experimental conditions were more willing to adopt anti-infection behaviors than those in the control condition. In addition, participants received information either about the epidemic situation or about the anti-infection policy indicated similar willingness to adopt anti-infection behaviors, rather than one type of information had a larger impact than the other (See, Table 1). However, an alternative explanation of this similarity was that the scenario materials of epidemic information and policy information were differently perceived in intensities. For instance, participants may perceive that the epidemic situation described in the scenario was severe (i.e., high intensity) while the anti-infection policies described in the scenario was loose (i.e., low intensity); or vice versa. The difference in impacts between the two types of information may then be confounded by the difference in their perceived intensities. In the following study we, therefore, investigate whether the epidemic information and policy information would differently influence the willingness to adopt anti-infection behaviors when controlling for their perceived intensities.

Experiment 2

We conduct the present study with two aims: First, we aim to investigate whether different types of information – the epidemic information provided by experts and the policy information promoted by governments/media – would differently influence people's anti-infection behaviors when controlling for the perceived intensity. Second, we aim to replicate and extend our findings of Experiment 1 among populations from different countries (cultures), by collecting data from China and the UK.

Method

Participants & design

We recruited 161 participants in China from wjx.cn and 150 participants in the UK from prolific.co. After excluding participants who did not pass manipulation checks, 140 Chinese participants (M_{age} = 31.12, SD_{age} = 8.35) including 72 men and 68 women remained; 150 British participants (M_{age} = 32.52, SD_{age} = 11.83) including 48 men, 101 women, and one who did not indicate the gender remained. Sensitivity power analyses with a power of .95 and an alpha of .05 showed that this sample size could detect a medium effect size, d = .50 of the main effect of information type.

We employed a one-factor (information type: epidemic information vs. policy information vs. control) between-participants design. Participants were randomly assigned to one of the three conditions and presented with the scenarios.

Procedure & materials

We employed a similar procedure as in Study 1. Scenario materials were based on those used in Study 1 but slightly modified to provide more detailed information to participants, aiming to make participants understand the scenario more clearly as well as increase the validity of manipulations. We translated scenario materials from Chinese to English by employing the reverse translation strategy to ensure that the translations were accurate and information presented to participants from different countries was equivalent.

Before presenting experimental materials, participants first read the background knowledge and were asked to imagine:

> Now, you are in the year 2025. The city you work and live in is City A, a medium-sized city in the UK [China]. You work for a medium-sized company, which is located in the urban areas of City A. So, you commute to the company and share an office with a few colleagues during weekdays. During the weekends and in your spare time, you like to do recreational activities and go on outings. You sometimes read books, play games, watch films, etc., at home, sometimes have dinner and go shopping with friends, and sometimes visit relatives, . . .

Then, participants were randomly assigned to one of the three information type conditions. In the epidemic information condition participants learned:

> Recently, experts claimed that a large-scale infectious disease caused by a novel virus called "TAE" is erupting in City A. This epidemic features a rapid onset, short course, fairly rapid deterioration, moderately high mortality, rather strong infectivity, multiple transmission routes, and low self-healing rate. There have been cases identified in a wide range of susceptible people among children, the youth, and older people. This virus has been spreading in many cities across the country.

In the policy information condition participants learned:

> Recently, the local government and media in City A issued the following announcement: The incidence of infectious diseases is high in spring. The government, therefore, suggests the public to take self-protection and anti-infection policies: wearing masks in public places, disinfecting indoor areas regularly, working and studying from home whenever possible. The government also advises against visiting friends, going to parties, and non-essential travel.

Participants in the control condition were only presented with the background information.

After that, participants answered the manipulation check item "Please briefly summarize the content of the above materials (around 10 words)." Two research assistants evaluated participants' answers in terms of whether they correctly understood the scenario presented to them. Answers that were evaluated to be incorrect by both assistants (Cronbach's $\alpha = .80$) were identified as invalid, and data from these participants were excluded from analyses (following our pre-registration, see osf.io/fyte9).

Then, participants assessed the perceived intensity of scenarios. In the epidemic information condition, participants assessed on the item "In your view, how severe is the epidemic caused by the 'TAE' virus?" (1 = *Not severe at all*, 7 = *Very severe*); in the policy information condition, participants assessed on the item "In your view, how strongly do the government and media suggest these anti-infection measures?" (1 = *Not strongly at all*, 7 = *Very strongly*); in the control condition, participants assessed on the item "In your view, how healthy and secure is the current situation?" (1 = *Not healthy and not secure at all*, 7 = *Very healthy and secure*).

Then, participants reported their willingness to adopt anti-infection behaviors on the same items used in Study 1 (Cronbach's $\alpha = .83$) and completed demographic items (i.e., gender and age). Participants were fully debriefed and thanked. Chinese and British participants received ¥2 and €0.6 as rewards, respectively.

Results

We employed a mixed model in R (version 4.2.0) by including country as the random effect, information type as the fixed effect, and perceived intensity as the covariate. Country was included as the random effect because participants from different countries would be under different situations of COVID and anti-infection policies, and hence they would differ in baselines of adopting anti-infection behaviors. Thus, the effect of information type on anti-infection behaviors would not be compared between countries, but within countries instead. Means and standard deviations for the willingness to adopt anti-infection behaviors in information types and countries see, Table 2.

Results showed a random effect of country, Variance = .02, ICC = .03. The fixed effect of information type was significant, $F(2, 284.42) = 36.44$, $p < .001$, indicating that participants in both experimental conditions reported higher willingness to adopt anti-infection behaviors than

Table 2. Means and standard deviations for willingness to adopt anti-infection behaviors in information types and countries in Experiment 2.

China			UK		
Epidemic information *M* (*SD*)	Policy information *M* (*SD*)	Control *M* (*SD*)	Epidemic information *M* (*SD*)	Policy information *M* (*SD*)	Control *M* (*SD*)
6.22 (0.87)	5.78 (0.76)	5.19 (0.97)	6.12 (1.00)	5.24 (1.04)	4.49 (1.14)

those in the control condition. In addition, planned comparisons indicated that participants in the epidemic information condition (M = 6.16, SD = 0.94) were more willing to adopt anti-infection behaviors than those in the policy information (M = 5.52, SD = 0.94) condition, $t(283.92) = 2.36$, $p = .019$.

Discussion

The present experiment replicated and extended the findings of Experiment 1. Specifically, we found that participants in the epidemic information or policy information condition were more willing to adopt anti-infection behaviors than those in the control condition. More importantly, participants who received the epidemic information provided by experts were more willing to adopt anti-infection behaviors than those who received the policy information promoted by governments/media. The above effects were found to be across countries (cultures).

As discussed, people from Eastern culture, such as China, tend to construe themselves as interdependent, while people from Western culture, such as the UK, tend to construe themselves as independent (Markus & Kitayama, 1991). In the following experiment we therefore also explore whether the effect of information type on anti-infection behaviors would differ between individuals with different self-construals.

Experiment 3

The current experiment aims to replicate the effects of information type on anti-infection behaviors found in Experiments 1 and 2. Also, we explore whether individuals' self-construal would condition the effect of information type on anti-infection behaviors, with independent individuals influenced more by the policy information promoted by governments/media and interdependent individuals influenced more by the epidemic information provided by experts. Alternatively, as we found across cultures (countries) that the epidemic information provided by experts had a larger impact on anti-infection behaviors than the policy information promoted by governments/media, the two types of information may then influence anti-infection behaviors regardless of how the self is construed.

Method

Participants & design

We recruited 167 participants in China from wjx.cn and 152 participants in the UK from prolific.co. After excluding participants who did not pass manipulation checks, 156 Chinese participants (M_{age} = 28.89, SD_{age} = 6.92) including 56 men and 100 women remained; 146 British participants (M_{age} = 33.15, SD_{age} = 10.32) including 47 men, 99 women. Sensitivity power analyses with a power of .95 and an alpha of .05 showed that this sample size could detect a small to medium effect size, d = .34, of the interaction effect between information type and self-construal.

We employed a one-factor (information type: epidemic information vs. policy information vs. control) between-participants design. Participants were randomly assigned to one of the three conditions and presented with the scenarios. Participants' independent and interdependent self-construals were measured as two separate continuous variables (Singelis, 1994).

Procedure & materials

We employed the same procedure used in Experiment 2. Participants first read the background information, and then were randomly assigned to one of the information type conditions and presented with the corresponding scenario. After presenting scenarios, participants completed manipulation checks, indicated perceived intensity, and reported their willingness to adopt anti-infection behaviors (Cronbach's α = .85), which were the same as those in the previous experiments. Similar to Experiment 2, two research assistants evaluated participants' answers in terms of whether they correctly understood the information presented to them. Answers that were evaluated to be incorrect by both assistants (Cronbach's α = .77) were identified as invalid, and data from these participants were excluded from analyses (following our pre-registration, see osf.io/cp8av).

After that, participants indicated their self-construal in the independent and interdependent self-construal scales. We selected items from Self-construal Scale (SCS; Singelis, 1994) that were relevant to our scenarios. On the independent scale, participants rated on the four items: "Being able to take care of myself is a primary concern for me," "I act the same way no matter who I am with," "I enjoy being unique and different from others in many respects," and "My personal identity independent of others, is very important to me." On the interdependent scale, participants rated on: "I have respect for the authority figure with whom interact," "I will sacrifice my self-interest for the benefit of the group I am in," "I should take into consideration my parents' advice when making education/career plans," and "It is important to me to respect decisions made by the group" (1 = *strongly disagree*, 7 = *strongly agree*). Scores of interdependent self-construal and independent self-construal were averaged, separately.

Then, participants completed demographic items (i.e., gender and age). Participants were fully debriefed and thanked. Chinese and British participants received ¥2 and €0.6 as rewards, respectively.

Results

Similar to Experiment 2, we employed a mixed model in R (version 4.2.0) by including country as the random effect, information type and self-construal and their interaction as fixed effects, and perceived intensity as the covariate. Independent and interdependent self-construals were included in the mixed model as two separate variables. Means and standard deviations for the willingness to adopt anti-infection behaviors in information types and countries see, Table 3.

Results showed a random effect of country, Variance = .11, ICC = .08. The fixed effect of information type was significant, $F(2, 291.07) = 30.10$, $p < .001$, indicating that participants in experimental conditions reported higher willingness to adopt anti-infection behaviors than those in the control condition. Planned comparisons indicated that participants in the epidemic information condition ($M = 5.88$, $SD = 1.24$) were more willing to adopt anti-infection behaviors than those in the policy information ($M = 5.40$, $SD = 1.28$) condition, $t(291.07) = 3.49$, $p < .001$.

Table 3. Means and standard deviations for willingness to adopt anti-infection behaviors in information types and countries in Experiment 3.

China			UK		
Epidemic information *M* (*SD*)	Policy information *M* (*SD*)	Control *M* (*SD*)	Epidemic information *M* (*SD*)	Policy information *M* (*SD*)	Control *M* (*SD*)
6.26 (0.57)	5.70 (1.02)	5.30(1.07)	5.48 (1.59)	5.08 (1.44)	4.02 (1.38)

The fixed effect of independent self-construal was not significant, $F(1, 291.89) = 0.05$, $p = .830$. The fixed effect of interdependent self-construal was significant, $F(1, 279.10) = 34.42$, $p < .001$, indicating that individuals with higher (vs. lower) interdependent self-construal were more willing to adopt anti-infection behaviors. However, the interaction between information type and independent self-construal, $F(2, 291.09) = 1.64$, $p = .196$ or between information type and interdependent self-construal, $F(2, 291.05) = 0.30$, $p = .742$, was not significant.

The above results suggest that the effect of information type on anti-infection behaviors is observed regardless of individuals' self-construals. To test this, we conducted another mixed model by including independent self-construal, interdependent self-construal, and country as random effects, information type as the fixed effect, and perceived intensity as the covariate. In this mixed mode, we aim to compare the effects of the two types of information within countries and within self-construals. If we still found the effect of information type, we could then conclude that its effect on anti-infection behaviors was consistent across cultures and self-construals.

Results showed random effects of independent self-construal, Variance = .02, ICC = .01, interdependent self-construal, Variance = .19, ICC = .13, and country, Variance = .17, ICC = .11. The fixed effect of information type was significant, $F(2, 282.51) = 25.07$, $p< .001$. Also, participants in the epidemic information condition were more willing to adopt anti-infection behaviors than those in the policy information condition, $t(281.95) = 3.14$, $p = .002$.

Discussion

The present experiment replicated our previous findings that participants in the epidemic information or policy information condition were more willing to adopt anti-infection behaviors than those in the control condition across countries. In addition, participants in the epidemic information condition were more willing to adopt anti-infection behaviors than those in the policy information condition.

Moreover, we extended the above effects by showing that the epidemic information had a larger impact on anti-infection behaviors than the policy information, even regardless of how the self was construed by individuals (i.e., self-construals). Namely, the larger impact of the epidemic information provided by experts, compared to the policy information provided by governmental/media, on anti-infection behaviors was consistent across countries and self-construals. Furthermore, we found in general that participants who construed themselves as higher (vs. lower) in interdependence were more willing to adopt anti-infection behaviors.

General discussion

The present research investigated how people's willingness to adopt anti-infection behaviors was influenced by the two types of information – information on the epidemic situation provided by experts and information on the anti-infection policy promoted by governments/media – under the framework of social influence. We argue that either type of information could independently increase people's willingness to adopt anti-infection behaviors. In addition, we explore whether one type of information would be more impactful than the other among populations from countries and across self-construals.

Theoretical implications

Findings consistently indicated that the epidemic situation provided by experts independently influenced participants' anti-infection behaviors. In other words, participants were more willing to adopt anti-infection behaviors in the case where experts informed the outbreak of an epidemic, even if the government and mass media did not promote anti-infection policies. As discussed, the information about an epidemic situation provided by experts may impact through the process of informational social influence as it signals evidence and reality of the epidemic situation (Deutsch & Gerard, 1955).

During this process, people assess the severity of the epidemic, and then, they choose to adopt anti-infection behaviors based on their assessment (e.g., Davis, 1989; Eagly & Chaiken, 1993) in order to avoid being infected by the virus.

In addition, findings consistently indicated that the policy information promoted by governments/media independently influenced participants' anti-infection behaviors. In other words, participants were more willing to adopt anti-infection behaviors in the case where the government and mass media promoted anti-infection policies, despite the absence of an epidemic. As discussed, the information about anti-infection policies promoted by governments and/or media may impact through the process of normative social influence (Hodgson, 2006; Silverblatt, 2004). During this process, people perceive governments' promotion or advertisement as a new social norm (Tankard & Paluck, 2016), and then, they behave in tune with this new norm in order to be accepted by the group (Homans, 1961). Classic research (Asch, 1955) has explained this seemly "nonsensical" phenomenon that, even if one perceives the norm as obviously "incorrect" when in private, one may still conform to the norm in order to be accepted, or at least avoid disapproval, by the group when in the situation.

Although both types of information could independently influence anti-infection behaviors, the epidemic information provided by experts was consistently found to have a larger impact than the policy information promoted by governmental/media. Under a pandemic situation, information about the outbreak of a pandemic provided by experts may threaten people's needs for safety and health, while persuasive messages of taking anti-infection measures promoted by governments/media may relate to people's needs for belonging to the group by acting in tune with group norms.

Practical implications

For practical implication, the current research suggests that providing information about the severity and situation of the epidemic may be advantageous in terms of facilitating people's anti-infection behaviors (e.g., wearing masks, keeping social distance) as compared to promoting anti-infection policies without providing information about the epidemic. The superiority of providing information about the epidemic was robust and consistent across people from different countries and with different self-construals. People may trust in their judgment based on the evidence and reality of the epidemic rather than simply follow governments and media's advice, especially under a pandemic situation. A recent study (Zajenkowski et al., 2020) emphasized the significance of providing information about the epidemic in supporting anti-infection behaviors. They found that situational cues, such as perceptions of the pandemic situation, predict people's compliance with restrictions of reducing the spread of COVID-19 more than dispositional tendencies like personality traits.

Limitations and future directions

In Experiment 1, a large number of participants did not pass manipulation checks and were excluded from analyses. This may have happened because participants in Experiment 1 were all college students and received course credits, rather than money, as their payments which may result in some "bad" performance like uncarefully reading or randomly answering during the process of participating in our experiments (Brase, 2009). To improve this, we collected participants from wxj.cn and prolific.co, and evaluated participants' manipulation-check answers manually by two research assistants in the rest of experiments. Through these approaches, we extensively increased participants' pass rate.

In Experiments 2 and 3, participants in the control condition only received the background information, compared to those in the experimental conditions receiving additional information about the epidemic situation or the anti-infection policy. The length of information might confound the effect of manipulation. However, participants in all conditions received the same background information. The significant difference between the two experimental conditions implies that the length of reading materials may not necessarily affect the effect of our

manipulation. In addition, the design and results of Experiment 1 also supports that the length of scenarios did not affect the dependent variable: The control conditions in Experiment 1 were of a similar length as those of experimental conditions, and participants in experimental conditions reported more anti-infection behaviors than those in the control conditions.

The present research was conducted via experimental scenarios where participants imagined an epidemic or normal situation in the future. There are limitations to scenario experiments. For instance, we could not measure participants' real behaviors related to anti-infection actions, but their willingness or intentions. Given the specific topic of an epidemic, it was not possible to credibly manipulate expert information about the epidemic situation or governmental/media information about anti-infection policies in real life or a lab without employing a hypothetical scenario. To help participants distinguish between the hypothetical scenario and the real COVID, we presented participants that this epidemic happens in the future (not the current COVID), and we gave the epidemic a new name "TAE." Future studies can investigate the effects of information type on anti-infection behaviors by conducting longitudinal studies, looking at how the dependent variable varies depending on the absence and presence of this two types of information.

Conclusions

The current research addressed the question of how two types of information – information about the epidemic situation provided by experts and information about the anti-infection policy promoted by governments/media – influenced people's willingness to adopt anti-infection behaviors. We found in three experiments that either type of information could independently increase people's anti-infection behaviors. The epidemic information provided by experts was consistently found to have a larger impact than the policy information promoted by governments/media. The above effects were robust across populations from different countries and with different self-construals.

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Note

1. Manipulation checks were factual questions, asking participants whether a given situation was presented in the scenario. Participants who did not pass manipulation checks, even though many, had to be excluded from analysis because they probably did not read the scenario or randomly answered questions, which was preregistered. We explained this in detail in the section of Limitations and Future Directions.

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No potential conflict of interest was reported by the author(s).

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Data availability statement

The data described in this article are openly available in the Open Science Framework at https://osf.io/ynp29; https://osf.io/hdfb3; and https://osf.io./vda26/

Open Scholarship

This article has earned the Center for Open Science badges for Open Data, Open Materials and Preregistered. The data and materials are openly accessible at https://osf.io/ynp29; https://osf.io/hdfb3; and https://osf.io./vda26/

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