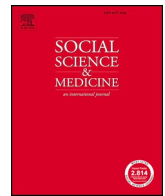




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Confidence in political leaders can slant risk perceptions of COVID-19 in a highly polarized environment



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1. Introduction

The COVID-19 virus poses an unprecedented level of risk to the health and well-being of the entire global population. As of the writing of this article (June 2020), the United States has the largest number of confirmed cases with more than 2 million and there are over 120,000 deaths (Johns Hopkins University). This public health crisis has since led to cascading effects such as a rapidly rising unemployment rate, deteriorating mental health (Ammerman et al., 2020), and disturbed stock market (Baker et al., 2020) among others. By several accounts, the U.S. government's response to this pandemic is judged to be inadequate (Science, 2020).

Because this coronavirus is novel, its full impact on the human population remains unknown. It represents a classic case of an unknown and dreadful risk that can generate heightened societal risk perceptions (Slovic, 1987). Under a great number of uncertainties surrounding this novel coronavirus, the American public has to rely on various authorities such as political leaders, governments, the media, and scientists for information about this disease. President Trump, to his credit, frequently communicates with the public about the evolving situation through the White House daily briefings. Key members of the coronavirus task force including its chair Vice President Mike Pence often appear on the side of the President. The public indeed shows a substantial level of confidence in officials at the Center for Diseases Control and Prevention (CDC), and state and local elected officials (Pew Research Center, 2020 a). The public evaluations for President Trump and the news media handling the coronavirus outbreak tend to be divided along a party-line (Pew Research Center, 2020 a). The COVID-19 pandemic seems to have become a politicized issue in this highly polarized political environment, along with a long list of issues such as immigration, abortions, and climate change.

Confronted with the historical challenges posed by COVID-19, how the American public perceives such risks warrants close investigation. Our overarching question is how does confidence in political leaders shape American public risk perceptions of COVID-19? Numerous studies have shown the link between risk perception and risk mitigation behaviors (Huang et al., 2012; Shao et al., 2017a, 2017b). Heightened

risk perceptions are conducive to the adoption of risk mitigation behaviors. In this study, we aim to examine how confidence in national political leaders, attitudes towards the media, along with socio-demographic characteristics and political predisposition influence American public risk perceptions of COVID-19. Further, we attempt to examine how confidence in national political leaders can slant risk perceptions of COVID-19 among different segments of the population, especially people with different political ideologies. We analyze a national sample of respondents to a survey conducted in early March, approximately two months after the first reported COVID-19 case in the U.S. on January 21. Results of this study can shed light on the formation of risk perceptions of this ongoing public health crisis. Furthermore, the results are believed to provide useful insights to policymakers.

2. Theoretical framework

The experiential-analytical dual modes of assessing risk have long been studied (Kasperson et al., 1988; Marx et al., 2007; Slovic, 1987; Slovic et al., 2004). The dominant mode of risk assessment utilized by the public is experiential, which is intuitive and automatic (Slovic, 1987; Slovic et al., 2004). Experts, on the other hand, tend to judge risks based on algorithms and normative rules through an analytical mechanism (Slovic et al., 2004). This process of analytical risk assessment requires effort and deliberation. These two modes represent two systems of thinking, system 1 and system 2 (Kahneman, 2011). These two modes can work together shaping individuals' risk perceptions. In the specific domain of health risks, empirical studies have shown risk perceptions differ between experts and the public (Lucia Kafui Hussey et al., 2019).

Because the full impact of COVID-19 remains unknown and the public has little relevant experience with a pandemic, an experiential mechanism may be largely absent in influencing risk perceptions of this disease. In addition to the two psychological modes of risk assessment, socio-demographic characteristics (e.g., gender, race, ethnicity, age, education, and income), world views, political predisposition, and trust in risk-management professionals can influence risk perceptions (Slovic, 1999). Specifically, racial/ethnic minorities and females are

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more likely than white people and males to perceive higher risks of environmental and health hazards, known as “white male” effect, which is largely attributed to sociopolitical factors (Finucane et al., 2000; McCright and Dunlap, 2011). Higher risk perceptions of racial/ethnic minorities are linked to their excessive exposure to environmental disruptions (Mohai and Bryant, 1998). Shao et al. (2014) find that African Americans and Hispanic Americans have higher risk perceptions of global warming than white Americans based on a series of survey data from 2006 to 2010. The biological difference is used by some researchers to explain the gender difference as females are more vulnerable to environmental threats and thus develop higher level of risk perceptions (Slovic, 1999). Some other scholars attribute the gender difference to societal roles played by men and women. Women are more likely than men to be nurturers and care providers even when many of them are involved in industries (Davidson and Freudenburg, 1996).

Age is usually found to be negatively correlated with environmental risk perceptions, meaning older people have lower environmental risk perceptions than younger people (McCright and Dunlap, 2011b; Shao et al., 2014). The relationship between age and health risk perceptions, however, seems to be positive, suggesting that people tend to perceive higher health risks when they get older, as the health risk increases (Kim et al., 2018). In the case of COVID-19, we expect the relationship to be positive as the risk increases with age as the mortality rate increases with age (Zhou et al., 2020).

Variables representing social status such as education and income are usually hypothesized to be positively associated with environmental risk perceptions, suggesting higher education and income lead to higher level of risk perceptions (Vanliere and Dunlap, 1980). This hypothesis is built upon the hierarchy of human needs, where pursuits of luxury needs such as self-actualization, arts, and environmental quality come after those of basic needs such as food, shelter, and economic stability. Recent protests for re-opening the economy across the U.S. seem to suggest that the rapidly growing unemployment, as a result of “stay home” measures, has caused many Americans to be concerned about the economic ramifications of COVID-19. Given that COVID-19 not only affects public health but also the economy, we suspect that people with lower income have higher risk perceptions of COVID-19.

Meanwhile, the formation of perceptions of largely unknown risks can be attributed to the combination of information and predisposition (Zaller, 1992). The public needs to seek information from the media. Because of its broad impact and seriousness, the public to a large extent relies upon authorities for information about COVID-19, much of which remains to be unknown. With so much uncertainty surrounding this disease, the framing environment (mass communication) is competitive, as conservative media outlets tend to facilitate the spread of misinformation of COVID-19 and downplay the risk of this disease compared to the others (Motta et al., 2020).

During the crisis, the authorities are the political leaders, the mainstream media, health professionals, and scientists. Confidence in these authorities largely determines how much of the information provided by various authorities can be turned into one's perceptions. Confidence is defined as “the expectation of not being disappointed” (Siegrist et al., 2005: 146). High confidence in authorities can relieve individuals' risk perceptions as they believe the situation is under control thanks to the leaders' competence (Siegrist et al., 2005). Confidence in political leaders is defined as “the extent to which the public believe that their political leaders are able to deal with existing challenges confronting the country, and the extent to which the public are willing to put their faith, trust, and commitment in their political leaders” (Zhu et al., 2012: 111). In a highly polarized political environment, confidence in political leaders is connected to one's political predisposition as a proxy of political loyalty. Recent surveys indeed demonstrate a clear party division on views of President Trump's handling of COVID-19, with Republicans largely approving and Democrats mostly disapproving (FiveThirtyEight, 2020; Pew Research

Center, 2020 b). Individuals tend to express more confidence in authorities that are believed to share their political predispositions. As such, political predisposition acts as a mental filter through which the information that is deemed to be inconsistent with one's existing predisposition is screened out. This mechanism is called partisan motivated reasoning which is stimulated by elite polarization (Druckman et al., 2013) and influenced by elite cues (Carmichael and Brulle, 2017). The ways that elites choose to frame various issues can largely affect public perceptions (Chong and Druckman, 2007).

Elite cues from prominent political leaders can exert substantial power in shaping followers' opinions about certain issues. Thus, elite cues along with partisan motivated reasoning facilitate the diffusion of polarization from elites to the general public. Recent years have witnessed a growing polarization in the American public discourse, turning many issues highly contestable (Abramowitz and Saunders, 2008). A previous study has found that the approval of President Trump can slant views about climate change among conservatives (Shao and Hao, 2020). During the public health crisis of COVID-19, President Trump has been inconsistent in his concern about this disease and his messages to the public. He has mostly downplayed the risk of this disease. A recent survey indeed shows that people who rely on Trump and the task force for coronavirus outbreak information are most likely to think the impact was exaggerated (Pew Research Center, 2020 c). In counties with higher shares of Trump voters, individuals are less likely to search for information related to COVID-19 and engage in social distancing behaviors (Barrios and Hochberg, 2020). Thus, we expect that political conservatives perceive lower level of risk associated with COVID-19. Further, we expect that political conservatives who have more confidence in the political elites (President Trump, Vice President Pence, officials in the Center for Diseases Control and Prevention) perceive even lower risks of COVID-19.

Drawing from the literature, we propose the following three hypotheses regarding relationships between one's confidence in political leaders, their political ideology on the one hand, and risk perceptions of COVID-19 on the other:

Hypothesis 1. People who have more confidence in the political leaders (e.g., President Trump, Vice President Pence, and officials in the Center for Diseases Control and Prevention) perceive lower risks of COVID-19.

Hypothesis 2. Political conservatives perceive lower risks of COVID-19.

Hypothesis 3. Individuals' confidence in political leaders can slant risk perceptions of COVID-19 among political conservatives. That is: political conservatives who have more confidence in the political leaders perceive lower risks of COVID-19 compared to political conservatives who have less confidence in the political leaders.

3. Method

The data used in this study is the Pew Research Center's Election News Pathways Survey. The survey was conducted through the internet from March 10 to March 16, 2020 on the American Trends Panel, which is a national, probability-based online panel of adults (age 18 and over) living in the United States. Invitations to join the panel were sent to a random, address-based sample of households selected from the U.S. Postal Service's Delivery Sequence File, which has been estimated to cover as much as 98% of the population. People who have internet access completed the survey online while households without internet access were contacted by telephone and sent a tablet if they agreed to participate. The sample was weighted to population benchmarks on several sociodemographic dimensions such as sex, age, education, race and ethnicity, political party affiliation (Pew Research Center: The American Trends Panel Survey Methodology). In total, 8914 people (both English-language and Spanish-language respondents) completed

Table 1
Descriptive statistics.

Variables		Mean	SD	Min	Max
<i>Endogenous Variable</i>					
Perceived Threats of Covid-19	A threat to the health of the U.S. population	2.402	0.606	1	3
	A threat to personal health	2.057	0.663		
	A threat to the U.S. economy	2.710	0.510		
	A threat to personal financial situation	2.118	0.720		
	A threat to day-to-day life in local community	2.246	0.651		
<i>Primary Exogenous Variable</i>					
Confidence in the Political Leaders' Handling of the Coronavirus Outbreak	Donald Trump	2.185	1.233	1	4
	Mike Pence	2.351	1.145		
	CDC officials	3.212	0.789		
<i>Other Exogenous Variables</i>					
Follow news about the outbreak of the coronavirus		3.524	0.635	1	4
Perceived quality of media coverage of the coronavirus		2.941	0.951	1	4
Political ideology		2.975	1.075	1	5
Age	18–29				10%
	30–49				31%
	50–64				31%
	65+				28%
Sex (1 = Female)	Male				46%
	Female				54%
Race (1 = White)	Non-White				18%
	White				82%
Ethnicity (1 = Hispanic)	Non-Hispanic				84%
	Hispanic				16%
Income		6.032	2.300	1	9
Education		4.335	1.469	1	6

the survey. Based on the American Association for Public Opinion Research's (AAPOR) standard, the response rate of the survey is 80.8%.

We first use the latent mean comparison approach to compare risk perceptions of COVID-19 between people with different demographic backgrounds. We then use the Structural Equation Modelling (SEM) technique for statistical estimation. This approach can help specify a conceptual model to investigate connections between latent-constructed variables and estimate both direct and indirect effects from exogenous variables to the endogenous variable (Acocck, 2013; Bollen, 1989). We introduce the endogenous and exogenous variables below and the summary statistics are presented in Table 1.

3.1. Endogenous variable: risk perceptions of COVID-19

There are five variables in the data that measure one's perceptions of threats related to COVID-19. These five variables measure whether respondents think coronavirus outbreak is a threat to 1) the health of the U.S. population as a whole, 2) personal health, 3) the U.S. economy, 4) personal financial situation, and 5) day-to-day life in the local community. Responses are coded in three categories including not a threat (1), a minor threat (2), and a major threat (3). A higher value indicates a stronger perceived threat of COVID-19 than a lower value. The confirmatory factor analysis results in Table 2 show that the

Table 2
Confirmatory factor analysis results of perceived threats of COVID-19.

A threat to the health of the U.S. population	0.705***
A threat to personal health	0.702***
A threat to the U.S. economy	0.550***
A threat to personal financial situation	0.608***
A threat to day-to-day life in local community	0.768***

****p* < 0.001.

Table 3
Confirmatory factor analysis results of confidence in political leaders.

Donald Trump	0.825***
Mike Pence	0.975***
CDC officials	0.369***

****p* < 0.001.

standardized factor loadings of all individual items are statistically significant, and the loadings are reasonable in magnitude (all above 0.3). The results suggest adequate reliability of using these variables to construct a latent measure of one's risk perception of COVID-19. The Cronbach's alpha score for these five indicators is 0.78.

3.2. Primary exogenous variable: confidence in political leaders

Three variables measure whether respondents think each of the following government representatives is doing a good job responding to the coronavirus outbreak: 1) Donald Trump, 2) Mike Pence, and 3) public health officials at the CDC. Response categories include not at all confident (1), not too confident (2), somewhat confident (3), and very confident (4). A higher value indicates a greater level of confidence than a lower value. We use these three variables to construct a latent measure of perceived confidence about the federal government responds to the coronavirus. The confirmatory factor analysis results in Table 3 show adequate reliability of this measure. The Cronbach's alpha score for these three indicators is 0.76.

3.3. Other exogenous variables

There are two variables about the media's connection with COVID-19. One variable measures the intensity of respondents following news about the coronavirus outbreak. Responses range from not at all close (1) to very close (4). The other variable measures the perceived quality of media coverage of the coronavirus outbreak. Responses range from not at all well (1) to very well (4). We also include the following control variables: political ideology (1 = very liberal, 2 = liberal, 3 = moderate, 4 = conservative, and 5 = very conservative), age (1 = 18–29, 2 = 30–49, 3 = 50–64, and 4 = 65+), sex (1 = female), race (1 = white), ethnicity (1 = Hispanic), income (coded in 9 categories with 1 refers to less than \$10,000 and 9 refers to \$150,000 or more), and education (coded in 6 categories with 1 refers to less than high school and 6 refers to postgraduate).

4. Results

4.1. Latent mean comparison analyses and results

We use the latent mean comparison approach to analyze the varying levels of risk perception between the conservative and the rest (liberal and moderate), the old (65 and older) and the rest, female and male, white and non-white, Hispanic and non-Hispanic, the high-income group (\$100,000 and higher) and the rest, and people with a college degree and people without a college degree.

Specifically, we fix the means of the latent variable (risk perceptions of COVID-19) for liberal and moderate, people below 65, male, non-white, non-Hispanic, people with income below \$100,000, and people without a college degree at 0 and make them the reference groups. We then estimate the means for the counterparts and if the means are significant, then they are likely being different from (higher or lower than) the corresponding means of respondents from the reference group. However, it is worth noting that the difference in statistical terms does not necessarily mean a real difference. We force the intercepts to be equal, and thereby any differences in means of the indicators are reflected in the means of the latent variables. We adopt the

Table 4
Latent mean comparison results.

		Risk Perception of COVID-19
Political Ideology	Liberal and Moderate	0
	Conservative	-0.480***
Age	Below 65	0
	65 and Over	0.024
Sex	Male	0
	Female	0.130**
Race	Non-white	0
	White	-0.290***
Ethnicity	Non-Hispanic	0
	Hispanic	0.423***
income	Below \$100,000	0
	\$100,000 and Higher	-0.203***
Education	Without College Degree	0
	College Graduate and Higher	-0.001

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

maximum likelihood estimation that allows the analysis to use all the information available in the presence of missing values for one or more variables (Acock, 2013).

As displayed in Table 4, the means of risk perceptions of COVID-19 for females and Hispanics are significantly higher than the corresponding means for males and non-Hispanics. Also, conservative, white, and high-income respondents generally have significantly lower means risk perceptions of COVID-19 than their counterparts (liberal, non-white, and low-income respondents). There are no significant differences of means in risk perceptions between different groups of age and education.

4.2. Structural Equation Modeling analyses and results

Risk perceptions of COVID-19 are the endogenous variables that are measured by five indicators. The endogenous variable receives effects from exogenous variables, including the confidence in the political leaders handling of the coronavirus outbreak (measured by three indicators), attention to the news about coronavirus, perceived quality of media coverage of the coronavirus, political ideology, and six variables about one's sociodemographic characteristics (age, sex, race, ethnicity, income, and education). In other words, these exogenous variables are hypothesized to have direct effects on the endogenous variable. In addition to the direct effects, we analyze how the confidence in political leaders mediates the effects of other variables on one's risk perceptions of COVID-19. We create indirect paths from other variables to the endogenous variable through the confidence in political leaders variables. Thus, these other exogenous variables, which are independent from each other, have direct effects as well as indirect effects channeled through the variable of confidence in political leaders. For example, as Fig. 1 shows, one's political ideology affects risk perceptions of COVID-19 and such effects are also influenced by one's confidence in political leaders. We have weighted the data when performing SEM analysis by using the survey weight variable for the total responding sample (WEIGHT_W63_5).

The standardized SEM coefficients are presented in Table 5 and the analyses are performed in Stata 16. We use SEM with maximum likelihood estimation for analysis. Instead of listwise deletion, this approach provides an option to use all the information available in the presence of missing values on one or more variables. This method assumes joint normality and that the missing values are missing at random (Acock, 2013). Missing values do not constitute a significant issue because most variables used in the analyses have over 8800 valid responses. To check the robustness of the results, we run the SEM by using the listwise deletion option and the results are parallel.

The analyses produce several findings. First, confidence in the political leaders' handling of the coronavirus outbreak is negatively

related to one's risk perceptions and the coefficient is statistically significant ($\beta = -0.148$, $p < 0.001$). Thus, people have lower risk perceptions of COVID-19 if they have greater confidence in Trump, Pence, and officials in the CDC responding to the coronavirus outbreak. This finding provides support for Hypothesis 1.

Second, the two measures about media are positively and significantly related to one's risk perceptions of COVID-19. People who follow closely the news on the coronavirus outbreak have higher risk perceptions ($\beta = 0.268$, $p < 0.001$). We caution that this relationship can be two-directional, as Americans who perceive higher risks of COVID-19 are more likely to follow the news closely. More studies are needed to reveal the causal relationship between following news and risk perceptions of COVID-19. Similarly, people who consider that the media has covered the outbreak well also have higher risk perceptions ($\beta = 0.238$, $p < 0.001$).

Third, regarding the sociodemographic variables, white and high-income respondents have lower risk perceptions. Hispanic respondents have higher risk perceptions than non-Hispanic respondents. Such findings are consistent with the findings from latent mean comparison. Early signs show that this disease exposes preexisting socioeconomic inequalities (UN News). Populations with less economic resources are more affected compared to those with more because of their inadequate access to health services and other services. Thus, this factor is likely one reason that low-income people are more concerned of the risk than high-income people as we found in this study. In addition, early research has shown that the relative risks of death from COVID-19 are much higher among African Americans and Hispanics than among whites (Gross et al., 2020). African Americans are far more likely to know someone whose health has been personally affected by COVID-19 (e.g., hospitalization or death) (Pew Research Center, 2020 d). Age, sex, and education do not have significant effects on one's risk perceptions of COVID-19. As for the effects of political ideology, people with conservative political ideology perceive lower risks of COVID-19 than people with liberal political ideology ($\beta = -0.063$, $p < 0.05$). The finding is consistent with Hypothesis 2.

In addition to the direct effects, we identify four significant indirect paths. Foremost, conservatives who have confidence in the political leaders handling of the coronavirus outbreak perceive even lower risks of coronavirus compared to those conservatives who have less confidence in political leaders ($\beta = -0.083$, $p < 0.001$). The finding provides support for Hypothesis 3. Also, the confidence in political leaders reduces whites' risk perceptions of COVID-19. Furthermore, the confidence in political leaders variable mediates how people with different ages and education perceive the risks of COVID-19 despite that these two variables have insignificant direct effects.

5. Discussion

5.1. Predominate patterns from current study

As the ongoing COVID-19 has led to cascading effects on the American public health and economy, much remains unknown about public risk perceptions of this disease. In a highly politicized era, COVID-19 seems to share the same destiny with a long list of issues such as immigration, abortion, and climate change. In this study, we have found some evidence for the politicization of COVID-19, where conservatives show lower risk perceptions than liberals and moderates (see Table 4). We have also found confidence in political leaders' handling of this disease can reduce risk perceptions of this disease (see Table 5). Moreover, we have found the mediating effects of confidence in the political leaders' handling of this disease among various segments of the population (see Table 5). White Americans who have confidence in the political leaders' handling of COVID-19 perceive lower risks than white Americans who have less confidence. Likewise, conservatives who have more confidence in the political leaders' handling of this disease perceive lower risks than conservatives who have less confidence. These

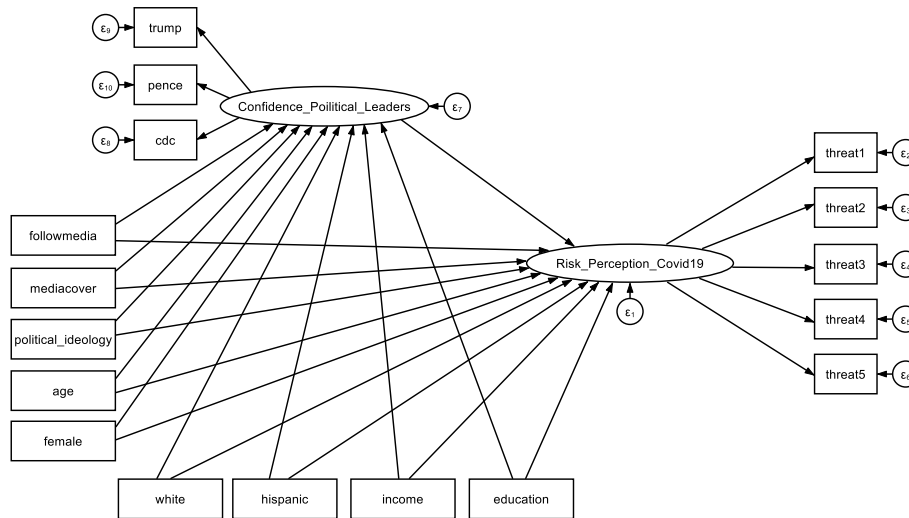


Fig. 1. Structural equation modeling diagram.

Table 5
Structural equation modeling results.

	Risk Perception of COVID-19	
	Direct Effects	Indirect Effects
Confidence in the political leaders' handling of the coronavirus	-0.148***	-
Follow news about the outbreak of coronavirus	0.268***	-0.003
Perceived quality of media coverage of coronavirus	0.238***	0.005
Political ideology	-0.063*	-0.083***
Age	0.008	-0.019***
Female	0.030	-0.003
White	-0.049*	-0.016***
Hispanic	0.110***	-0.003
Income	-0.081***	-0.005
Education	-0.021	0.017***

Note: *p < 0.05; **p < 0.01; ***p < 0.001.

findings are the predominant patterns revealed in the present study (see Fig. 2). In addition, attention to news about the outbreak of COVID-19 is positively correlated with risk perceptions (see Table 5). Perceived quality of media coverage can lead to heightened risk perceptions of COVID-19 (see Table 5), indicating that the media coverage, in general, tends to send urgent messages to the public.

5.2. Limitations

There are several limitations to the approach of the present study. First, this study is cross-sectional by nature, which makes it challenging to disentangle the causal relationship between confidence in political leaders and risk perceptions of COVID-19. Although we attempt to clarify the causal arrow from a theoretical perspective, experimental studies or longitudinal studies are better suited for this purpose and should be conducted to validate the causal direction laid out in the present study. Second, given the highly competitive framing environment (mass communication), the measures representing the influence of the media are limited in scope. Information sources from which people obtain news about COVID-19 need to be specified. Third, contextual effects such as the unemployment rate, mortality rate, confirmed COVID-19 cases in one's home county are not accounted for due to the unavailability of fine geographic identification of survey respondents (e.g., FIPS county code, zip code).

6. Conclusions

Using a rapidly evolving pandemic as a case study, the present study has contributed to the literature in the regard that it has added more empirical evidence to support: 1). Confidence in political leaders can reduce risk perceptions of environmental and health hazards; 2). Confidence in political leaders can mediate the effects of risk perceptions among people with different political ideologies in a highly

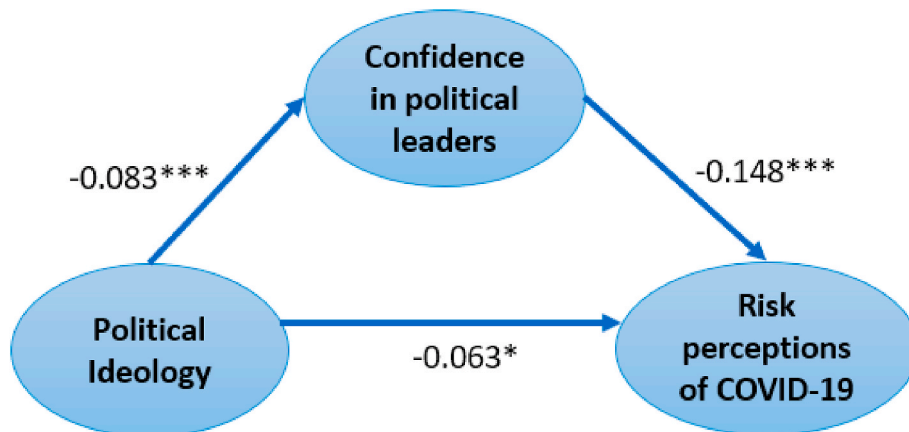


Fig. 2. Illustration of overall findings.

politically polarized environment. In addition to the contribution to the literature, this study highlights the challenges facing policymakers to implement national public health policies to address an urgent crisis in this polarized environment.

Research on the behavioral dimension of this unprecedented public health crisis in modern times is far from being complete. Future studies should investigate the role played by social media and social networks in influencing one's risk perceptions of COVID-19. Contextual influences should also be considered. Meanwhile, as the pandemic progresses, it would be of interest to examine whether personal perceived risks would decrease as documented in a large epidemic of mosquito-borne disease (Raude et al., 2019). Moreover, future studies should examine the factors shaping risk mitigation behaviors. It would be of interest to see how risk perceptions along with perceived efficacies (e.g., self-efficacy, efficacy of the political leaders and the government, efficacy of scientists) influence personal behaviors (e.g., wearing a mask, staying home, washing hands frequently) and public support for policies (e.g., social distancing, school closure, economic stimulus).

Author statement

Wanyun Shao (the first author and corresponding author) conceived this study, obtained the data, wrote and revised most of the manuscript. Feng Hao (the second author) analyzed the data, reported findings, and contributed to the writing and revising of the manuscript.

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