

COVID-19 Risk Perception and Support for COVID-19 Mitigation Measures among Local Government Officials in the U.S.: A Test of a Cultural Theory of Risk

Administration & Society

2023, Vol. 55(3) 351–380

© The Author(s) 2023

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/00953997221147243

journals.sagepub.com/home/aas



Tamara Dimitrijevska-Markoski¹ 
and Julius A. Nukpezah² 

Abstract

This study relies on a cultural theory of risk to examine how cultural biases (hierarchy, individualism, egalitarianism, and fatalism) of local government officials affect their COVID-19 risk perception and support for COVID-19 mitigation measures. After controlling for partisanship, religiosity, and other factors, the analysis of survey data from county governments in the U.S. revealed that cultural biases matter. Officials with egalitarian and hierarchical cultural biases report higher support for adopting COVID-19 mitigation measures, while those with individualistic cultural biases report lower support. These findings highlight the need to understand cultural worldviews and develop cultural competencies necessary for governing traumatic events.

Keywords

cultural theory of risk, COVID-19, county, partisanship, religion

¹University of South Florida, USA

²Mississippi State University, USA

Corresponding Author:

Tamara Dimitrijevska-Markoski, School of Public Affairs, University of South Florida, 4202 E. Fowler Avenue, SOC 396 Tampa, FL 33620, USA.

Email: tamara77@usf.edu

Introduction

The COVID-19 pandemic took the lives of millions of people, brought devastating health and economic consequences, but has also divided, or at least heightened, many divisions within communities and across state lines (Soujaa et al., 2021). Soon after the onset of COVID-19 in the U.S., all states declared a “state of emergency or a public health emergency” (Bergquist et al., 2020, p. 628). However, in the months that followed, the adoption of mitigation measures such as social distancing and mask mandates varied widely (Bazzi et al., 2020), and states were reopening their economies at varying speeds (Bergquist et al., 2020).

As a federal system, the U.S. had a decentralized response to the COVID-19 pandemic, where the federal government led the economic and fiscal response, funding testing and vaccines research, and the state governments were primarily responsible for containment of the virus and testing with local governments providing immediate needs of their residents (Benavides & Nukpezah, 2020; Bergquist et al., 2020). While the premise of decentralized systems is that state governments are better positioned to decide what is best for their residents, data have shown regional differences in COVID-19 cases (Frey, 2021) and in COVID-19 prevention behavior (Desmon, 2020). The uncoordinated approach and lack of critical unified political commitment may have handicapped the COVID-19 pandemic response (Carter & May, 2020). Research has shown that mitigation measures reduce the transmission of the virus and lead to fewer hospitalizations and deaths (Courtemanche et al., 2020; Sears et al., 2020). Moreover, appointed and elected public managers are at the forefront in local COVID-19 response. They take the lead in developing policies and implementing them to address the challenges that the COVID-19 has unleashed on society. Consequently, this study aims to examine what factors drive the varying levels of COVID-19 risk perceptions and support for COVID-19 mitigation measures among county officials.

Most of the decisions to loosen the COVID-19 restrictions have followed party and geographic lines, with southern states and Republican governors reopened their economies faster (Manchester & Easley, 2020). Recent research has also shown strong partisan division in social distancing behavior, miles traveled, non-essential visits, mask-wearing, and concern over the virus (Allcott et al., 2020; Barrios & Hochberg, 2020; Fan et al., 2020; Kushner Gadarian et al., 2020). In addition to partisanship, religiosity negatively affects adherence to mitigation measures (DeFranza et al., 2021) and is associated with higher mobility (Hill et al., 2020). On the other hand, there is also evidence that political orientation and religiosity are inadequate explanations of behavior during the pandemic, and most people were very concerned

about the coronavirus, regardless of their political, religious, and income status (Koon et al., 2021, p. 3).

Elazar (1994) in his work, *The American Mosaic: The impact of space, time, and culture on American politics*, asserted that in addition to spatial location, time and culture are important considerations of behavior. Similarly, research has suggested that a person's cultural orientation serves as the sextant that charts their course through life and upon which decisions are primarily based. Since culture is not restricted to a specific political party, interest group, or country, and is tied to the two dimensions of cultural variation (grid and group), it exists cross-nationally (Johnson & Swedlow, 2020). Wildavsky and Dake (1990) argue that cultural biases do a better job in predicting various risk perceptions than political ideology. Other scholars have also concluded that cultural theory is robust and distinct from political ideology (Ripberger et al., 2012). Furthermore, Gastil et al. (2011, p. 713) have found that "cultural worldviews better predict political opinions on policy issues than do conventional conservative-liberal self-identification".

Building upon the cultural theory of risk, which postulates four types of cultural biases: (1) hierarchy, (2) individualism, (3) egalitarianism, and (4) fatalism (Dake, 1992), this study contends that these biases may lead to varying COVID-19 risk perceptions and different degrees of support for COVID-19 mitigation measures. Therefore, we seek to understand if specific types of cultural biases are predominant among public officials in particular U.S. regions. We also examine if the cultural biases of public officials influence their COVID-19 risk perception and support for adopting COVID-19 mitigation measures. The study controls for the impact of partisanship, religiosity, gender, regional differences, and age. Taking a cue from recent literature that focused on citizens' COVID-19 perceptions (Kushner Gadarian et al., 2020; Makridis & Rothwell, 2020; Wu & Huber, 2021) and high-profile federal and state officials, the study focuses on local elected and appointed officials. Local governments have a significant role in the containment of the virus, as they may adopt mask mandates and other mitigation strategies even in the absence of state-wide mandates. Therefore, examining the perceptions of local government officials allows for a more nuanced understanding of the varying levels of risk perceptions and local mitigation strategies.

The data for the analysis were gathered through an online survey administered to elected and appointed officials in 295 counties across the U.S. The results indicate that even though there are no significant differences in the cultural biases among the regions, cultural biases are essential predictors of support for COVID-19 mitigation measures. Contrary to expectations, the results indicate that partisanship and religiosity are not relevant or robust predictors of risk perception and support for mitigation measures among

local government officials as portrayed in some recent studies. It may be that cultural biases do a better job explaining local government officials' support for COVID-19 mitigation measures.

The study offers several policy and managerial implications for response to the COVID-19 pandemic. The study's main contribution is underscoring the need to understand the cultural views of residents better and identify strategies that may be effective in combating the COVID-19 virus without negating one's cultural predispositions. Since the evidence suggests that individuals with hierarchical and egalitarian cultural biases report higher support for COVID-19 mitigation strategies, managers should actively seek ways to understand individualistic cultural biases. Since this group does not respond well to "orders" or "mandates," it may be worthwhile to incentivize compliance rather than punish non-compliance with mitigation strategies. Another implication of the study is that the cultural competency of local officials is essential when dealing with public emergencies or health crises. Therefore, county governments should acknowledge that partisanship differences cannot explain the broad spectrum of behaviors, and therefore should develop cultural competencies that will enable them to better respond to crises while bearing in mind the views of their residents.

The remainder of the article is organized as follows. The next section of the study briefly outlines decision-making in emergencies and provides background information on COVID-19 mitigation measures, followed by discussing COVID-19 risk perceptions and the cultural theory of risk. This is followed by sections discussing the methodology and measurement of the study variables. Next, we present the analysis and discuss the results. Lastly, the conclusion includes the implications of the findings.

Decision-Making in Emergencies

Effective emergency and crisis management have generally relied on the three C's—communication, coordination and control (Comfort, 2007), calm and strong leadership, and pragmatic decision-making (Van Wart & Kapucu, 2011). While various factors (e.g., social, political, economic, and cultural) affect preparedness and response (Mileti, 1999), Comfort (2007) argued that cognition, is necessary and essential to activate the response to an emergency. Cognition is "the capacity to recognize the degree of emerging risk to which a community is exposed and to act on that information" (Comfort, 2007, p. 189). For example, she suggests that the response to Hurricane Katrina, was not lack of information but rather the lack of the "cognition of the risk posed by the storm" (Comfort, 2007, p. 190).

However, in addition to understanding the risk, emergency managers should also be culturally competent; that is, they should develop knowledge about the people they serve, transform this knowledge into actionable standards/procedures and use those to provide better quality services (Bergeron, 2015; Edwards, 2012). While the literature on emergency management has been greatly expanded (Waugh & Streib, 2006) and studies on cultural competencies in disasters (Bergeron, 2015; Edwards, 2012) and collaborative decision making (Kapucu & Garayev, 2011) have started to boom, the focus has been on the cultural competencies of the administrators and their understanding of the populations they serve. The culture and cultural biases of administrators have been underexplored (Weare et al., 2014; Yeo et al., 2018). Investigating these issues with regard to COVID-19 risk perception and support for COVID-19 mitigation measures is timely and relevant.

COVID-19 Mitigation Measures

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2)—the causative agent for COVID-19—first appeared in November of 2019 in Wuhan, Hubei province in China and quickly spread worldwide (Barrios & Hochberg, 2020). On January 30, 2020, the World Health Organization declared COVID-19 a public health emergency of international concern and, on March 11, 2020, it updated it to a global pandemic (Barrios & Hochberg, 2020). By March 16, 2020, all U.S. states had declared a state of emergency (Bergquist et al., 2020). Early in the pandemic, there was strong momentum for “flattening the curve” and containing the spread of the virus.

California was the first state with a stay-at-home order (Carter & May, 2020), and other states followed suit. In addition to shelter-in-place orders, state and local governments adopted other measures to contain the virus, such as introducing mask mandates; closing schools, non-essential businesses, and entertainment venues (e.g., gyms, bars); banning large social gatherings; and issuing social distancing guidelines, travel limitations, and testing (Bergquist et al., 2020; Carter & May, 2020; Courtemanche et al., 2020). By April 7, 2020, 95% of the U.S. population was under four measures: shelter-in-place orders, bans on large social gatherings, school closures, and closures of entertainment venues (Courtemanche et al., 2020). However, these measures did not enjoy uniform public support, and there were protests to reopen the economy and an “ideational tug of war between “flattening the curve” and “opening the economy” (Bergquist et al., 2020; Carter & May, 2020, p. 269). Some states did not impose “strict closure of non-essential businesses,” and southern states adopted some mitigation measures later than northeastern counterparts (Bergquist et al., 2020, p. 628).

Implementing mitigation measures had an impact on infection rates. For example, Makridis and Rothwell (2020) found that stay-at-home-orders and mask mandates were associated with a decline in infections, while the closure of non-essential businesses was not related to the spread of the virus. Further, Courtemanche et al. (2020, p. 1237) estimated that social distancing measures decreased the daily growth rate of COVID-19 cases by 5.2% points over 5 days, and further declined to 6.8% points after about 10 days. The study showed that COVID-19 cases dropped by more than 9% points after 16 to 20 days. While there is evidence of drastic reductions in mobility before adoption of state-wide mandates, Sears et al. (2020) have found that once a mandate is issued, it further reduced mobility, which they estimated resulted in between 0.13 and 0.17 fewer deaths and between 5.6 and 6 fewer hospitalizations per 100,000 residents. This is equivalent to 23–30,000 averted deaths and 42–54% lower death rates (Sears et al., 2020). Since specific COVID-19 mitigation measures are associated with lower infections, it is crucial to examine how local officials perceive the COVID-19 risk and what factors affect their support for mitigation measures.

COVID-19 Risk Perception

Risk perception is a subjective judgment about the probability of an occurrence of an undesired event. An individual's summative risk perception may be derived from their social and personal risk perceptions (Duong et al., 2021; Xiaohua & Xigen, 2017). Although both are attitudinal, social risk perception is perceived loss or susceptibility that accrues to others, while personal risk is concerned with loss or susceptibility that accrues to oneself (Duong et al., 2021; Xiaohua & Xigen, 2017). A person that perceives that people in one's social circles, such as family and friends, are at a higher risk of contracting an infection may practice social distancing to protect them ("society"). However, they may take similar steps – for example, wearing masks - but the motive may be to reduce their personal vulnerability to infection—personal risk perception.

Individuals' risk perception influences behavioral change (Barrios & Hochberg, 2020), and therefore understanding COVID-19 risk perception is necessary for understanding adherence to or support for COVID-19 mitigation measures. Using ethnographic interpretative framing analysis, Koon et al. (2021) identified four frames that surrounded COVID-19: (1) concern, (2) crisis, (3) constraint, and (4) conspiracy. Most people view the pandemic through a concern (44%) or crisis frame (36%) where they feel that they could be uniquely affected by the virus or as a big problem requiring an unprecedented response. Others viewed it through a constraint frame (24%)

and were concerned with negative economic consequences, while the conspiracy frame (16%) was held by some who believe that it is a “hoax” and did not follow public health recommendations (Koon et al., 2021, p. 4). Although the various viewpoints of the pandemic are documented, there is scarce information on the factors that shape COVID-19 risk perception.

The emerging literature on COVID-19 supports the assertion that political beliefs, religiosity, and gender influence risk perceptions and behavior (Brenan, 2020; Papageorge et al., 2020). Namely, individuals that identify with the conservative values of the Republican party perceive the COVID-19 pandemic as less severe than those that identify with the liberal Democratic party (Allcott et al., 2020; Brenan, 2020). Consequently, areas with more Republicans have lower levels of social distancing expectations, while Democrats have a more significant reduction of their interactions with others (Allcott et al., 2020). Barrios and Hochberg (2020) analyzed the impact of political partisanship and concluded that counties with a higher share of Trump votes are associated with lower COVID-19 risk perceptions and lower levels of social distancing behavior.

Moreover, Kushner Gadarian et al. (2020) surveyed 3,000 citizens and found that “political differences are the single most consistent factor that differentiates’ American health behaviors and policy preferences.” Their findings reveal that relative to Republicans, Democrats reported higher adoption of the health recommendations of the C.D.C. (e.g., social distancing), are more worried about the pandemic, and are more likely to support mitigation measures (e.g., canceling events) Furthermore, the effect of political affiliation is even stronger than the factors associated with the virus, such as the age of the respondents and local levels of infections (Makridis & Rothwell, 2020), and is significant even when controlling for demographic characteristics (Wu & Huber, 2021). However, Wu and Huber (2021) found that when controlling for social norms and beliefs, the effect of partisan influence disappears.

In addition to partisanship, gender and age also affect COVID-19 risk perception (Fan et al., 2020; Wu & Huber, 2021). Women, the elderly, the more educated, and individuals with higher incomes are more likely to social distance, while Black and Hispanic individuals are less likely to do so (Papageorge et al., 2020; Wu & Huber, 2021). Furthermore, Democrats and women are more likely to social distance and take other precautionary measures such as “wiping down groceries, washing hands, and wearing masks” (Fan et al., 2020, pp. 2–3).

Recent research also supports the thinking that religiosity influences an individual’s COVID-19 risk perception and adherence to mitigation measures (DeFranza et al., 2021; Hill et al., 2020). Existing studies found that communities with higher religiously have lower adherence to shelter-in-place

orders (DeFranza et al., 2021) and “exhibit higher average mobility scores and slower average decline in mobility” (Hill et al., 2020, p. 2229). On the other hand, Perry et al. (2020, p. 405) argued that it is not religiosity per se, but “an ideology that connects disregard for scientific expertise, a conception of Americans as God’s chosen and protected people, distrust for news media and allegiance to Trump-Christian nationalism.” Perry et al. (2020) found that Christian nationalism is the leading predictor for engaging in incautious behavior (large gatherings, eating in restaurants) and the second strongest predictor for talking precautionary measures (such as wearing a mask; hand-washing). Once controlling for Christian nationalism, religiosity leads to more precautionary behavior (Perry et al., 2020).

While extant scholarship has demonstrated the effects of religion, partisanship, gender, and socio-economic factors on risk perception and support for mitigation strategies, the cultural dimension of risk has received less attention. Recent literature suggests that cultural and social factors affected preventive behavior during COVID-19 (Li et al., 2022). The next section examines the cultural theory of risk as a theoretical context for understanding COVID-19 risk perception and support for mitigation measures. It also advances testable hypotheses.

Cultural Theory of Risk

Various theories explain risk perceptions: knowledge theory, personality theory, economic theory, political theory, and cultural theory (Wildavsky & Dake, 1990). However, Wildavsky and Dake (1990) found that in many cases, cultural biases are the best predictors of risk perception and are a better indicator of risk perception than knowledge and personality and “at least as predictive as political orientation” (Wildavsky & Dake, 1990).

The cultural theory of risk, initially expounded by Douglas and Wildavsky (1982, 1983), explains why some people perceive some hazards as dangerous while others view them otherwise (Oltedal et al., 2004). The premise of the theory is that risk is socially constructed (Dake, 1992) and that perceived risk is connected with a person’s cultural adherence and social learning (Oltedal et al., 2004). Such a view of risk asserts that people’s risk judgments are not rational and that their perceptions of risk may deviate from the objective level of risk based on their social construction that is informed by cultural biases (Oltedal et al., 2004). The existing scholarship contends that “conflicts over risk are best understood in terms of plural social constructions of meaning, that is, that competing cultures confer different meaning on situations, events, objects, and especially relationships” (Dake, 1992, p. 27). Further, some people may focus on the probability (or risk) or the consequences (Oltedal et al., 2004).

Risk perception is legitimized by everyday social interactions (Dake, 1992), but is also shaped by the level of social prescriptions that constrain a person's behavior (Dake, 1992). The cultural theory of risk postulates that an "individual's involvement in social life can be adequately captured by two dimensions of sociality—group and grid" (Thompson et al., 2018, p. 5). In this typology, group refers to the "extent to which the individual is incorporated into bounded units," and grid refers to "externally imposed restrictions" (Thompson et al., 2018, p. 5). Hence the group-grid taxonomy combines individual's relationships to others and the "extent of social prescriptions constraining behavior in a person's life" (Dake, 1992, p. 28).

According to cultural theorists, "individuals choose what to fear (and how much to fear it), to support their way of life" (Wildavsky & Dake, 1990, p. 43). There are five ways of life that are the result of the interaction of cultural biases and social relations. In this study, we use Thompson et al. (2018, p. 1) to refer to cultural biases as "shared values and beliefs," and social relations refer to patterns of interpersonal relations. The combinations of these cultural biases and social relations create five "ways of life": (1) hierarchy, (2) egalitarianism, (3) fatalism, (4) individualism, and (5) autonomy (Thompson et al., 2018). Autonomy is not a widely available way of life and has often been excluded in developing a typology (Price et al., 2014).

For example, a meta-analysis examining environmental risk perceptions has found that people with higher egalitarian cultural bias had a higher environmental risk perception than people with higher hierarchical and individualistic cultural biases, while fatalists did not have statistically significant associations with their environmental risk perceptions (Xue et al., 2014). Furthermore, cultural biases are also useful in explaining collaborative preferences where egalitarians are more likely to engage in collaborative behavior (Conner et al., 2016). A recent study that examined cultural worldviews and risk perception on the acceptance of COVID-19 measures among the public in Switzerland also confirmed that people with individualist world views have lower acceptance of COVID-19 measures (Siegrist & Bearth, 2021). Cultural biases are related as well to compliance with social distancing norms (Davy, 2021). Thus, we propose that the four categories lead to different levels of COVID-19 risk perceptions among elected and appointed officials and inform support for COVID-19 mitigation strategies.

Hierarchical Cultural Bias

Those with hierarchical cultural bias (high grid, high group) as shown in Figure 1 exhibit stratified prescriptions and strong group boundaries (Dake,

	High Grid (Less Similar)	Low Grid (More Similar)
High Group (Strong Bond)	Hierarchical <ul style="list-style-type: none"> Individuals are not capable of regulating behavior without external influence COVID-19 mitigation measures introduce measures that stabilize society 	Egalitarian <ul style="list-style-type: none"> Need for social order to create equal society COVID-19 restrictions introduce order that contribute to equality
Low Group (Weak Bond)	Fatalistic <ul style="list-style-type: none"> Individuals are ambivalent and indifferent to the needs of society COVID-19 restrictions has no effect on their preferences 	Individualistic <ul style="list-style-type: none"> Nature can preserve itself without external influence COVID-19 mitigation measures interfere with nature and restrict individual rights and freedoms and should be resisted

Figure 1. Cultural biases that affect COVID-19 risk perception and support for COVID-19 mitigation measures.

Note. Group refers to the “extent to which individual is incorporated into bounded units” and grid refers to “externally imposed restrictions” (Thompson et al., 2018, p. 5).

1992; Thompson et al., 2018). Furthermore, hierarchists do not like social deviance as this may infringe upon their preferred social relations (Wildavsky & Dake, 1990, p. 44). Those with hierarchical preferences are personally risk-averse but socially-pro risk (at least when it comes to environment and technology) (Wildavsky & Dake, 1990). Moreover, hierarchists have faith in expert knowledge (Oltedal et al., 2004). Persons who prescribe to hierarchical cultural bias assert that institutionalized authority from the government that coerces citizens to act in prescribed ways is appropriate. Those with such thinking would also find it justified when governments intervene to bring order and restriction because they believe that human actions are flawed unless regulated (O’Riordan & Jordan, 1999).

With the declaration of COVID-19 as a global pandemic, many national, state, and local governments introduced authoritarian approaches in controlling behavior. These include mandates for wearing of masks in public places, stay at home orders, social distancing requirements, curfews, and limiting travels to only important ones, among others (Allcott et al., 2020; Barrios & Hochberg, 2020; Benavides & Nukpezah, 2020; Fan et al., 2020; Kushner Gadarian et al., 2020). Persons that identify with hierarchical cultural biases would perceive government prescriptions for the COVID-19 pandemic as

justified. This is because their cultural orientation is that a higher authority is needed in regulating society to bring order. If such people are in government, they likely would make policies and support those that restrict behavior. It is, therefore, reasonable to suggest that stronger hierarchical cultural bias is associated with stronger risk perception and support of COVID-19 mitigation measures. Therefore, we hypothesize as follows:

H1a: Hierarchical cultural bias positively influences COVID-19 risk perception.

H1b: Hierarchical cultural bias positively influences support for COVID-19 mitigation measures.

Egalitarian Cultural Bias

Egalitarian cultural bias (high group, low grid) has strong group boundaries but minimal prescriptions (Dake, 1992; Thompson et al., 2018). Egalitarians view nature as fragile and when it comes to risk, they frame the issues in ethical terms and are concerned with the equality of the outcomes (Dake, 1992). They are politically left and see nature as fragile (Olteidal et al., 2004). While their risk perception “varies with the object of attention,” often egalitarians are socially risk-averse (Wildavsky & Dake, 1990, p. 51).

Egalitarians perceive traumatic events as emphasizing inequality in society, and as such, there is the need to address those differences through interventions. For example, COVID-19 affects minority races more; older people are more likely to succumb to the disease, and people with pre-existing conditions are more vulnerable. Contrary to the assertion that nature has a self-preserving ability to return to normalcy, egalitarians believe that if left to nature, the vulnerable who need protection would be hurt more. Prescriptions that are often given in responding to COVID-19 pandemic, such as mask-wearing, disinfecting, and social distancing, are favored by those that embody egalitarian cultural views because it introduces equality and harmony in society. Furthermore, a recent study has shown that there is a “positive relationship between egalitarian beliefs and public mask-wearing” (Moyer et al., 2021, p. 623). Hence, it is hypothesized that:

H2a: Egalitarian cultural bias positively influences COVID-19 risk perception.

H2b: Egalitarian cultural bias positively influences COVID-19 mitigation measures.

Individualistic Cultural Bias

Individualistic cultural bias (low-grid, low-group) is against constraints; when it comes to the management of risk, deregulation is the preferred choice (Dake, 1992). Individualists are not incorporated in groups or prescribed roles (Thompson et al., 2018). Politically, they tend to lean toward the right and “fear things that might obstruct their individual freedom” (Oltedal et al., 2004, p. 19). The individualist sees nature as self-preserving, with the ability to re-establish its own status quo” (Oltedal et al., 2004, p. 20). As such, the person that embodies more of an individualistic cultural bias values independence. Individualists view being overly dependent upon others, such as government or authority as a weakness. Individual rights is paramount, and any effort to limit such freedoms are resisted.

As such, COVID-19 restrictions such as stay-at-home orders, wearing masks, social distancing, and limiting travels are interferences with nature’s self-preserving ability to re-establish the status quo (Oltedal et al., 2004). Those who embody individualistic cultural bias assert that mitigation strategies are not only unnecessary but also threaten freedoms and rights and should be resisted. We can reason that persons with such cultural views are likely not to report high COVID-19 risk perception or support COVID-19 mitigation measures. When the authority rests with them, they are less likely to perceive higher risk and less likely to support COVID-19 mitigation measures. Recent studies found that countries with predominantly individualistic values have higher numbers of COVID-19 deaths (Güss & Tuason, 2021), and there is negative relationship between individualism and mask wearing (Moyer et al., 2021).

H3a: Individualistic cultural bias negatively influences COVID-19 risk perception.

H3b: Individualistic cultural bias negatively influences COVID-19 mitigation measures.

Fatalist Cultural Bias

In fatalistic cultures (high-grid, low-group), there is minimal collective participation, and people “rationalize isolation and resignation to stringent controls on their behavior”(Dake, 1992, p. 30). Their risk management view is ““Why bother?”” (Dake, 1992, p. 30). Thus, fatalistic cultural bias is characterized by weak bonding among people with the consequence that people in that culture feel little obligation toward the vulnerable (Dake, 1992). Because there is no concerted effort to address the needs of society in a collective way,

outcomes for individuals could be positive or negative (Price et al., 2014). Persons that embody more of such traits are ambivalent and tend to be apathetic (Oltedal et al., 2004).

Whether a higher authority intervenes to establish social order, such as issuing (or not issuing) COVID-19 pandemic restrictions, a fatalist is indifferent to them. Fatalism has been attributed to people's ignorance of medical advice (Entwistle, 2021). Moreover, fatalists are indifferent about risk (Oltedal et al., 2004). Therefore, we do not expect that fatalistic cultural bias has an impact on the COVID-19 risk perception or support for COVID-19 mitigation measures. Local government officials that embody such traits would be indifferent about risk perception and support for COVID-19 mitigation measures.

H4a: Fatalistic cultural bias has no influence on COVID-19 risk perception.

H4b: Fatalistic cultural bias has no influence on COVID-19 mitigation measures.

Data and Methods

Data and Sources

Data for the present study are from a survey of local government officials across counties and county-equivalents in the 50 states. We selected six counties from each state. Since research has shown that the size of government affects core managerial processes (Dimitrijevska-Markoski, 2021), we selected the two largest county governments and four randomly selected counties from each state. However, since some states have fewer than six counties in total, we selected all counties in those states. (Examples include Delaware with three counties, and Hawaii and Rhode Island with five counties each.) In the states that do not have county governments (Connecticut, Kentucky, Massachusetts, Rhode Island, and Vermont), we selected the municipalities that serve as county seats or are the largest in a county. From October through December 2020, the survey was mailed to elected and appointed officials from 295 county governments. Responses from 98 counties in 43 states were received. The county response rate is 33.24%, which compares favorably with ICMA and other surveys of local governments (Dimitrijevska-Markoski et al., 2021; Dimitrijevska-Markoski & French, 2019; ICMA, 2021). While some respondents chose not to answer the demographic questions, the results that were collected indicate that the sample is balanced.

Table 1. Indices for COVID-19 risk perception and support for COVID-19 mitigation measures.

Variables and items	Mean	SD
COVID-19 risk perception Cronbach's alpha .725		
How worried are you personally about the COVID-19 at present?	4.27	0.897
I will be directly and personally affected by COVID-19 in the next 6 months?	3.89	0.994
My friends and family will be directly affected by COVID-19 in the next 6 months?	4.18	0.842
COVID-19 will NOT affect very many people in my county (reverse coded for the index)	1.48	0.881
I will probably get sick with the COVID-19	3.09	0.892
Getting sick with the COVID-19 can be serious	4.68	0.817
There is a high risk to be exposed to COVID-19	4.32	0.860
Support for COVID-19 Mitigation Measures Cronbach's alpha 0.922		
I would support a county-wide mask mandate	4.09	1.450
I would support a curfew	3.08	1.544
I would support stay at home orders	3.18	1.549
I would support reduced indoor capacity of restaurants, museums, gyms, etc.	4.11	1.205
I would support limits of large gatherings (places of worship, movie theaters, etc.)	4.08	1.284
I would support limits on large gatherings at a private residence	3.63	1.520

Group refers to the "extent to which individual is incorporated into bounded units" and grid refers to "externally imposed restrictions." (Thompson et al., 2018, p. 5).

Measurement of Study Variables

Dependent Variables

There are two dependent variables. The first is *COVID-19 risk perception*, which is measured with seven items developed by Dryhurst et al. (2020). (The survey questions are reported in Table 1.) All items were measured using a five-point Likert scale. The seven items used in constructing the individual risk perception index include personal risk perception and social risk perception items (Duong et al., 2021; Xiaohua & Xigen, 2017). The Cronbach's alpha score confirmed the reliability of the index with a score of

.725. [A Cronbach's score of .7 is considered acceptable to create an index (Cronbach, 1951).] The second dependent variable is *support for COVID-19 mitigation measures*. This variable was measured with six questions asking respondents whether they would support the COVID-19 mitigation measures of their local governments. The high inter-item correlation and Cronbach's alpha score of .922 suggests this also is an appropriate index.

Independent Variables

There are several variants of cultural theory (Six & Swedlow, 2016), and two main ways to measure cultural variation (Johnson & Swedlow, 2020; Johnson et al., 2020; Kahan, 2012). The four cultural biases—(1) hierarchy, (2) individualism, (3) egalitarianism, and (4) fatalism—were measured with selected questions from Dake's (1992) Cultural Biases Questionnaire. The cultural statements have been found to have higher predictive validity than similar survey measures employed by cultural cognition theory (Johnson & Swedlow, 2020) and served as better predictors of both personal risk and US risk (Johnson et al., 2020). The list of questions, along with descriptive statistics, is presented in Table 2 and tapped respondents' perceptions about cultural biases. *Hierarchy* was measured using five questions. The reliability analysis revealed that one item had a low item-total correlation, and it was removed from the construct. The updated hierarchy score had four items, and its Cronbach alpha score is .672. While lower than the threshold of .7, this score was deemed acceptable for the analysis. *Individualism* was measured with five items, and the Cronbach's alpha score of this construct is .804. *Egalitarianism* was measured with five items, and its Cronbach alpha score is .893. *Fatalism* initially was measured with five items, but because of low item-total correlation one item was removed. The Cronbach alpha score of this construct is .735.

Control Variables

To measure partisanship, we coded as 1 those who identify as Democrat and 0 otherwise. Similarly, those identifying as Republican are coded as 1 and 0 otherwise. The reference group is independent. We measured *religiosity* by asking respondents to indicate how religious they are on a scale of 1 to 10, where those scoring 1 are least religious while 10 are most religious. Religiosity is independent of whether a person identifies with Christianity (e.g., Methodist, Baptist, Catholic, Mormon, or other Christian denomination), Jewish, Buddhist, or some other faith. Religiosity is treated as a continuous variable. We controlled for the assertion that males assess risk differently from females,

Table 2. Cultural bias variables.

Variables and items	Mean	SD
Hierarchy Cronbach's alpha .672		
I think there should be more discipline in the youth of today.	3.84	0.962
I would support the introduction of compulsory National Service. (removed)	2.90	1.237
People should be rewarded according to their position in society.	2.11	1.161
I am more strict than most people about what is right and wrong.	3.52	1.040
We should have stronger armed forces than we do now.	2.97	1.133
Individualistic Cronbach's alpha .804		
In a fair system people with more ability should earn more.	3.62	1.009
A free society can only exist by giving companies the opportunity to prosper.	3.67	0.981
People who are willing to work hard should be allowed to get on.	3.95	0.861
In this country, the brightest should make it to the top.	3.39	1.083
If a person has the get-up-and-go to acquire wealth, that person should have the right to enjoy it.	3.98	0.966
Egalitarian Cronbach's alpha .893		
If people in this country were treated more equally we would have fewer problems.	3.68	1.297
The government should make sure everyone has a good standard of living.	3.29	1.366
Those who get ahead should be taxed more to support the less fortunate.	3.23	1.286
I would support a tax change that made people with large incomes pay more.	3.45	1.339
I support government efforts to get rid of poverty.	3.98	0.996
Fatalism Cronbach's alpha .735		
There is no use in doing things for people—you only get it in the neck in the long run.	1.64	0.871
Cooperating with others rarely works.	1.52	0.852
The future is too uncertain for a person to make serious plans.	1.69	0.927
I have often been treated unfairly. (removed)	2.55	1.170
A person is better off if he or she doesn't trust anyone	1.59	0.960

with the former having lower risk perceptions (Oltedal et al., 2004) using a dummy where gender is coded 1 if the respondent identifies as *female* and 0 otherwise. Similarly, we use a dummy for *old age* (55 or older) coded as 1 when the respondent is 55 years or older and 0 otherwise. Older individuals are disproportionately affected by the COVID-19, and hence differences in risk perception and support for mitigation measures are expected. Regarding the

Table 3. Descriptive Statistics.

Variables	Mean	Std. deviation	Minimum	Maximum
COVID-19 risk perception	4.1665	0.52175	2.29	5.00
Support for mitigation measures	3.6959	1.21300	1.00	5.00
Hierarchy	3.1057	0.76489	1.00	5.00
Individualism	3.7223	0.73637	1.60	5.00
Egalitarianism	3.5244	1.06022	1.00	5.00
Fatalism	1.6092	0.67463	1.00	3.75
Religiosity	5.75	3.214	0.00	10
Republican = 1a	0.3193	0.46819	0.00	1.00
Democrat = 1b	0.4874	0.50195	0.00	1.00
Female = 1c	0.4463	0.49917	0.00	1.00
Northeast = 1d	0.1571	0.36524	0.00	1.00
Midwest = 1e	0.3143	0.46590	0.00	1.00
South = 1f	0.3143	0.46590	0.00	1.00
White = 1g	0.7000	0.45990	0.00	1.00
College or higher = 1h	0.8115	0.39274	0.00	1.00
55 years or older = 1i	0.6198	0.48745	0.00	1.00

Note. Reference groups are: (a) independent; (b) independent; (c) male; (d) west; (e) west; (f) west; (g) other races; (h) less than college; (i) less than 55 years old.

participants' race, those who identify with majority race (*White*) were coded as 1, and 0 otherwise. Respondents with college education or higher are coded as 1, and 0 otherwise.

Furthermore, we controlled for the four regions in the U.S. Dummies are created for Northeast, Midwest, and South, coded as 1 and 0 otherwise; West was the reference group. Differences exist among the regions of the U.S. concerning the frequency of disasters (Nukpezah & Soujaa, 2018). The South has more disaster declarations, followed by the West, Midwest, and Northeast (Nukpezah & Soujaa, 2018). This suggests that this may have influenced local government managers' risk perception and support for COVID-19 mitigation measures.

The descriptive statistics are reported in Table 3. The four cultural bias variables, COVID-19 risk perception scores, and religiosity are continuous variables. The mean of a dummy refers to the percentage of the respondent that report it as 1. For example, 44% of the respondents identify as females, 70% are whites, 61% are 55 years and over and 81% are college-educated. Overall, 31% of the respondents came from the Midwest, and another 31% from the South; the remainder were from the West (21%) and the Northeast (15%). Survey data have been criticized for common source bias (Harman, 1976; Podsakoff & Organ, 1986). We used the Harman's

(1976) one factor test to check for its presence and found that one factor was extracting about 24% of the variance in the variables. Since this is less than the 50% that raises concern, we conclude that common source bias is not a problem in the models.

Data Analysis

Because the dependent variables are measured as index variables, OLS regression is appropriate in predicting the coefficients of the regressions. OLS, however, comes with a few assumptions. We examined the data for multicollinearity. Table 4 shows that only one correlation coefficient exceeded the .7 threshold that signals multicollinearity may be a problem. The high correlation between egalitarian cultural bias and Democrat (.757) suggests that Democrats tend to espouse egalitarian values, and these two are correlated. However, the Tolerance (0.287) and VIF (3.488) scores do not indicate a concern, especially since Democrat is a dummy variable. The second assumption is absence of heteroskedasticity, which we tested using the Modified Breusch-Pagan test for heteroscedasticity; heteroscedasticity is present in both models ($p < .05$). Therefore, we report the robust standard errors and corresponding statistics. The model estimating the effect of cultural bias (hierarchy, individualism, egalitarianism, and fatalism) on the dependent variable is:

$$y = \beta\chi + \alpha$$

Where y is COVID-19 Risk Perception in model 1 and Support for Mitigation measures in model 2. χ is the set of predictors in model 2.

Results and Discussion

The first aim of our study was to examine if certain cultural biases are dominant in the U.S. and whether there are statistically significant differences in the cultural biases across geographic regions. To address this, we performed analysis of variance (ANOVA) tests of differences in cultural bias among the four regions of the U.S. The results are reported in Table 5; they suggest no differences in cultural bias among the four U.S. regions (Northeast, Midwest, South, and West). The findings also reveal that individualism (mean = 3.72), egalitarianism (mean = 3.52), and hierarchism (mean 3.11) biases are the more predominant orientations among local government officials across all regions in the U.S. The fewest officials identified as fatalists, suggesting

Table 4. Correlation Matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Support for mitigation measures	0.299**														
2. COVID-19 risk perception	-0.294**	-0.171													
3. Hierarchy	-0.351**	0.034	0.403**												
4. Individualism	0.637**	0.207*	-0.411**	-0.371**											
5. Egalitarianism	-0.241**	-0.215*	0.300**	-0.043	-0.349**										
6. Fatalism	-0.222*	-0.097	0.345**	-0.010	-0.141	0.198*									
7. Religiosity	-0.544**	0.006	0.380**	0.523**	-0.662**	0.132	0.145								
8. Republican = la	0.578**	0.013	-0.418**	-0.378**	0.757**	-0.195*	-0.026	-0.668**							
9. Democrat = lb	0.216*	0.024	-0.342**	-0.224*	0.124	-0.037	-0.075	-0.173	0.254**						
10. Female = lc	0.101	-0.104	-0.082	-0.121	0.083	-0.070	-0.107	-0.022	0.130	0.092					
11. Northeast = ld	-0.125	0.031	0.040	-0.006	0.086	0.004	0.072	0.085	-0.110	-0.178	-0.292**				
12. Midwest = e	0.032	-0.014	0.048	0.045	-0.060	0.021	0.160	0.007	0.035	0.090	-0.292**	-0.458**			
13. South = lf	-0.054	0.089	-0.131	0.176	-0.119	-0.049	-0.096	0.244**	-0.161	-0.031	0.026	0.040	-0.094		
14. White = lg	0.140	0.217*	-0.234*	0.071	0.229*	-0.331**	-0.218*	-0.167	0.222*	0.011	0.082	-0.083	0.053	-0.028	
15. College or higher = lh	-0.081	-0.302**	0.232*	0.100	0.050	0.041	0.087	0.067	0.091	-0.085	0.184*	0.016	0.002	0.098	-0.249**
16. 55 years or older = li															

Note. Reference groups are: (a) independent; (b) independent; (c) male; (d) west; (e) west; (f) west; (g) other races; (h) less than college; (i) less than 55 years old.

**Correlation is significant at the .05 level (two-tailed).

*Correlation is significant at the .01 level (two-tailed).

Table 5. Results of Analysis of Variance for Cultural Biases across U.S. Regions.

Regions	Hierarchy		Individualism		Egalitarianism		Fatalism	
	N	Mean	N	Mean	N	Mean	N	Mean
Northeast	19	2.8421	18	3.5444	16	3.7500	16	1.5156
Midwest	38	3.1316	37	3.6865	38	3.6316	38	1.6382
South	39	3.2115	39	3.7590	37	3.4486	37	1.6081
West	27	3.1019	27	3.8370	28	3.3500	28	1.6250
Total	123	3.1057	121	3.7223	119	3.5244	119	1.6092
<i>p</i> -value		.388		.601		.565		.943

(mean = 1.6). that local government officials are not indifferent about risk and support for mitigation measures (Oltedal et al., 2004).

In a previous study, Nukpezah and Soujaa (2018) find that exposure among the four regions of the U.S. differs in the number of disaster and emergency declarations. However, they find that household emergency preparedness in response to perceived risk does not vary across the four regions of the country. Extending that to our findings indicates that the presence of risk factors may not necessarily change a person's cultural orientation, since these may be deeply held values developed through a process of socialization over time (Dake, 1992; Oltedal et al., 2004). With increasing geographic mobility across the U.S., it is not surprising that cultural biases across the country are similar.

The second aim of the study examines how cultural biases affect (1) COVID-19 risk perception and (2) support for COVID-19 mitigation measures, while controlling for partisanship, religiosity, and other socio-economic factors. The results of the OLS regression are shown in Table 6 where two models are specified. Model 1 explains county officials' COVID-19 risk perceptions, while Model 2 explains county officials' support for adopting COVID-19 mitigation measures. Overall, both models are statistically significant and suggest that taken together, the independent variables at least partly explain variation in the dependent variables. The adjusted *R*-square of Model 1 is 0.147, and it is notably higher in model 2, where the independent variables explain 54% in the variation of support for COVID-19 mitigation measures.

Although COVID-19 risk perception is positively related with egalitarian cultural bias and college education and negatively associated with fatalistic cultural bias and old age (Table 4), these relationships disappear in the multi-variate regression. As reported in Table 6, the results from Model 1 indicate that neither cultural biases nor partisanship or religiosity explain the COVID-19

Table 6. Results of the Determinants of COVID-19 Risk Perception and Support for COVID-19 Mitigation Measures.

Parameter	Model 1: COVID-19 risk perception			Model 2: Support for COVID-19 mitigation measures		
	β	Robust std. error	p-value	β	Robust std. error	p-value
Intercept	3.729	0.670	.000	-.042	1.224	.972
Hierarchy	-.048	0.100	.632	.359	0.199	.075
Individualism	.011	0.106	.920	-.259	0.144	.076
Egalitarianism	.195	0.130	.138	.3	0.174	.031
Fatalism	-.112	0.135	.408	-.137	0.167	.415
Religiosity	-.008	0.020	.693	-.031	0.034	.359
Republican	.393	0.286	.172	-.297	0.363	.415
Democrat	-.052	0.243	.832	.565	0.397	.158
Female	.020	0.126	.875	.133	0.197	.500
White	.076	0.156	.627	.059	0.237	.803
Northeast	-.242	0.216	.265	.005	0.338	.989
Midwest	-.030	0.190	.874	-.457	0.278	.104
South	-.059	0.188	.753	-.190	0.299	.528
College or higher	.141	0.238	.555	-.232	0.270	.392
55 years and above	-.250	0.127	.052	-.037	0.243	.878
COVID-19 risk perception				.681	0.216	.002
Observations		95			95	
F-statistic		2.157			8.357	
p-value		0.017			0.000	
R square		0.274			0.613	
Adjusted R square		0.147			0.540	

risk perception. This finding is contrary to expectations. Research suggests that there are variations among elected officials, which affects their predispositions for collaboration and their risk perceptions (Skuzinski, 2018; Yuan, 2021). Yuan (2021) found that in China, cultural biases influence COVID-19 risk susceptibility. Potential explanation of the discrepancy between the findings in Yuan’s (2021) study and the present study in the U.S. could be explained by differences in political regimes in the two countries. Furthermore, the insignificant impact of cultural biases on COVID-19 risk perception may be attributed to the novelty, magnitude, and prevalence of COVID-19. This should not be interpreted to mean that cultural theory is an inadequate explanation for other types of risks. Yet that cultural bias is not significant is not surprising. Yuan (2020) finds that local officials’ cultural bias does not affect their procedural justice commitment in sustainability policy processes.

The only variable that reaches statistical significance in explaining COVID-19 risk perception was age (being at least 55 years old). One expects that because older people are more vulnerable to contract COVID-19 and are

at higher risk of dying due to the virus, age would positively affect COVID-19 risk perception. However, contrary to expectation, officials aged 55 years and older had lower COVID-19 risk perception. A potential explanation for the negative relationship between age and risk perception may rest in the experience of the local officials who, in their tenure, have dealt with different crises and, therefore, may not have been as worried about COVID-19. This relationship may not extend to the general population.

When it comes to support for COVID-19 mitigation measures, three of the cultural bias variables achieve statistical significance. Egalitarian cultural bias and hierarchical cultural bias have positive associations with support for adopting mitigation measures. The relationship with individualistic cultural bias is weakly significant and negative as expected. Fatalistic cultural bias is not significant, as also hypothesized.

We hypothesized that those with hierarchical cultural bias believe that external influence and authority are needed to bring social order and that local government officials that identify with this cultural bias would support COVID-19 mitigation measures. Our results suggest that a one unit increase in the hierarchical cultural bias score is associated with .359 unit increase in support for adopting COVID-19 mitigation measure ($p < .1$), controlling for other factors. Our finding suggests measures such as mandating wearing face masks, social distancing, washing hands frequently, and restricting social and economic activities would receive attention among local government officials that identify with this value and support mitigation measures. Our hypothesis 1b is supported.

With regards to egalitarian cultural bias that informs support for mitigation measures, we expected a positive relationship because egalitarians view nature as fragile (Dake, 1992); for ethical reasons and the desire to introduce equality, government intervention is necessary. Our results show that, on average, a unit increase in egalitarian score is associated with a .383 unit increase in support for adopting COVID-19 mitigation measures, controlling for other variables ($p < .05$). Hypothesis 2b is supported and affirms the findings of Moyer et al. (2021), who reported a positive association between egalitarian beliefs and COVID-19 preventive strategies (mask-wearing). However, these results are contrary to the findings of Güss and Tuason (2021), who found that countries that are predominantly egalitarian have more COVID-19 deaths, suggesting possible differences between countries.

Individualists see restrictions as affronts to their rights and freedoms and would resist any attempt to limit them and are less likely to support COVID-19 mitigation measures (Dake, 1992). Our results reveal that, on average, a unit increase in individualistic cultural bias score is associated with a 0.259 decrease in support for adopting COVID-19 mitigation measures ($p < .1$), controlling for other variables. This finding is consistent with that of Liu and

Yang (2021) who found that “individualists are less likely to support COVID-19 responses”. These results also provide additional support for Bazzi et al.’s (2020, p. 1) findings that “American rugged individualism—the combination of individualism and opposition to government intervention—has undermined collective action against the COVID-19 pandemic.” A potential explanation for these results is that the individualist sees little need for mitigation measures since they believe nature is self-preserving and can re-establish the status quo (Oltedal et al., 2004). Hypothesis 3b is supported, although the relationship is weakly significant. Also, fatalistic cultural bias is characterized by ambivalence and has no effect on the mitigation measures; hypothesis 4b is supported.

As expected, those officials with high COVID-19 risk perception also have higher support for adopting mitigation measures. On average, a unit increase in COVID-19 risk perception score is associated with 0.681 increase in support for adopting COVID-19 mitigation measures, controlling for other factors ($p < .01$). This finding is aligned with Li et al.’s (2022, p. 111) observation that in the early stages of the pandemic risk perception motivates preventive behavior. Other control variables such as gender, age, partisanship, religiosity, and region of residence, are not statistically significant. These results confirm the findings of a recent study from Switzerland that found higher COVID-19 risk perception is associated with greater acceptance of mitigating measures (Siegrist & Bearth, 2021). Further, the results of the analysis suggest that cultural biases better explain support for COVID-19 mitigation measures than other factors like partisanship or religiosity, which the media and some studies have offered as explanations. The findings also indicate that while there may not be large differences in how people perceive COVID-19, there is more disagreement about appropriate responses to the pandemic, which are influenced by a person’s cultural biases.

Conclusion

This study examined the application of a cultural theory of risk in explaining COVID-19 risk perception and support for COVID-19 mitigation measures among county officials in the U.S. The results indicate that even though there is no statistical difference in the cultural biases present in the four U.S. regions, cultural biases influence support for COVID-19 mitigation measures. Namely, officials with egalitarian and hierarchical cultural biases support adopting more mitigation measures. On the contrary, officials with individualist cultural biases want to adopt fewer mitigation measures. However, contrary to expectations, cultural biases do not affect COVID-19 risk perceptions. Notably, the findings also indicate that partisanship, religiosity, gender, and region affect neither COVID-19 risk perceptions nor

support for adopting mitigation measures. This contradicts earlier research that found partisan differences and religiosity help explain COVID-19 behavior. The findings further suggest that a person's cultural biases are more important than their socio-demographic characteristics in informing their orientation and interpretation of the environment.

The results of this study have several theoretical and practical implications. They increase our understanding of the application of cultural biases, which has traditionally been used to understand public/mass opinions (e.g., Gastil et al., 2011; Ripberger et al., 2012) to elected and appointed officials. Extant research shows that elected and appointed officials may espouse views that differ from constituents when making risk communication decisions (Benavides et al., 2021). Furthermore, consistent with the expectations from the literature, we confirmed that cultural biases serve as strong predictors of support for COVID-19 mitigation measures and provide support for Wildavsky and Dake's (1990) assertion that cultural biases may be even better predictors than partisanship.

In addition, we expanded the application of cultural theory to a new risk situation—COVID-19, and confirmed that theoretical expectations about the predicted behavior of each cultural bias hold true with regards to support for COVID-19 mitigation measures. Cultural biases did not produce robust results in explaining the perceived COVID-19 risk, however. This may be due to the severity of the pandemic and the general acceptance (at least among elected county officials) that the COVID-19 pandemic is an unprecedented crisis. Therefore, the scope and the magnitude of the COVID-19 crisis may differ from other risk perceptions (environmental, technology) whose threat is not immediate.

In terms of the practical implications of the study, we found that the response to the pandemic evidently was influenced not only by rational calculation but also by the cultural biases of individual decision-makers. Therefore, if one wants to understand the behavior of officials in a crisis, there is a need to have a deeper examination of the cultural values that shape behavior. Arguably, changing an individual's behavior in a direction that is contrary to their cultural biases is a tremendously difficult task. Future research should examine the cultural competencies of public administrators (Knox & Haput, 2020) and identify potential strategies to stimulate compliance.

Although regional differences exist with regards to exposure to disaster risks, these do not affect COVID-19 risk perception or support for COVID-19 mitigation measures. This is contradictory to the recent report focusing on regional differences in COVID-19 cases (Frey, 2021) and regional divide in COVID-19 prevention behavior (Desmon, 2020), but is consistent with the

findings of Nukpezah and Soujaa (2018) that there are no regional differences in household preparedness for disaster. Given that finding, the present result that regional differences do not affect support for mitigation is not surprising but offers guidance for policy making. It implies that regional policy for addressing ambivalence or otherwise toward COVID-19 risk and mitigation measures is not warranted. A national policy effort for such an intervention would be in the right direction. If we seek to make changes in behavior, a national approach will suffice, and this need not be tailored for specific areas but toward specific behaviors.

Like other studies, the present study has obvious limitations. This research relied on cross-sectional survey data rather than panel data. The ongoing COVID-19 pandemic may have influenced respondent risk perceptions, which could have been unraveled with longitudinal data. Because the study surveyed county officials, these findings may not be generalizable to state or national officials or the general public who may be influenced by other institutional factors, suggesting further research in this area. Nonetheless, the study offers glimpses into how cultural biases impact local government officials' risk perception and support for COVID-19 measures and expand the applicability of the cultural theory of risk in explaining COVID-19 mitigation strategies.

Declaration of Conflicting Interests


The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Tamara Dimitrijevska-Markoski  <https://orcid.org/0000-0002-9781-3424>

Julius A. Nukpezah  <https://orcid.org/0000-0003-3124-8167>

References

- Allcott, H., Boxell, L., Conway, J., Gentzkow, M., Thaler, M., & Yang, D. (2020). Polarization and public health: Partisan differences in social distancing during the coronavirus pandemic. *Journal of Public Economics*, *191*, 104254. <https://doi.org/10.1016/j.jpubeco.2020.104254>
- Barrios, J. M., & Hochberg, Y. (2020). *Risk perception through lens of politics in the time of the COVID-19 Pandemic* (Working Paper 27008). *National Bureau of Economic Research*. https://www.nber.org/system/files/working_papers/w27008/w27008.pdf

- Bazzi, S., Fiszbein, M., & Gebresilasse, M. (2020). *Rugged individualism and collective (in)action during the COVID-19 pandemic* (Working Paper 27776). National Bureau of Economic Research. <https://doi.org/10.3386/w27776>
- Benavides, A. D., Nukpezah, J., Keyes, L. M., & Soujaa, I. (2021). Adoption of multilingual state emergency management websites: Responsiveness to the risk communication needs of a multilingual society. *International Journal of Public Administration*, 44(5), 409–419.
- Benavides, A. D., & Nukpezah, J. A. (2020). How local governments are caring for the homeless during the COVID-19 pandemic. *The American Review of Public Administration*, 50(6–7), 650–657.
- Bergeron, W. P. (2015). Considering culture in evacuation planning and consequence management. *Journal of Emergency Management*, 13(2), 87–92.
- Bergquist, S., Otten, T., & Sarich, N. (2020). COVID-19 pandemic in the United States. *Health Policy and Technology*, 9(4), 623–638. <https://doi.org/10.1016/j.hlpt.2020.08.007>
- Brenan, M. (2020). In U.S., more optimism about pandemic, less about duration. <https://news.gallup.com/poll/312014/optimism-pandemic-less-duration.aspx>
- Carter, D. P., & May, P. J. (2020). Making sense of the U.S. COVID-19 pandemic response: A policy regime perspective. *Administrative Theory & Praxis*, 42(2), 265–277. <https://doi.org/10.1080/10841806.2020.1758991>
- Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. *Public Administration Review*, 67(s1), 189–197.
- Conner, T. W., Nowlin, M. C., Rabovsky, T., & Ripberger, J. T. (2016). Cultural theory and managerial values: Examining Trust as a motivation for collaboration. *Public Administration*, 94(4), 915–932. <https://doi.org/10.1111/padm.12200>
- Courtemanche, C., Garuccio, J., Le, A., Pinkston, J., & Yelowitz, A. (2020). Strong social distancing measures in the United States reduced the COVID-19 growth rate. *Health Affairs*, 39(7), 1237–1246. <https://doi.org/10.1377/hlthaff.2020.00608>
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
- Dake, K. (1992). Myths of nature: Culture and the social construction of risk. *Journal of Social Issues*, 48(4), 21–37.
- Davy, B. (2021). Social distancing and cultural bias: On the spatiality of COVID-19. *Journal of the American Planning Association*, 87(2), 159–166. <https://doi.org/10.1080/01944363.2020.1824617>
- DeFranza, D., Lindow, M., Harrison, K., Mishra, A., & Mishra, H. (2021). Religion and reactance to COVID-19 mitigation guidelines. *American Psychologist*, 76, 744–754. <https://doi.org/10.1037/amp0000717>
- Desmon, S. (2020). Regional divide found in COVID-19 prevention behaviors in the United States, India. <https://ccp.jhu.edu/2020/10/14/covid19-prevention-behaviors-united-states-india-dashboard/>
- Dimitrijevska-Markoski, T. (2021). The impact of rational and political factors on performance measurement and its utilisation: Analysis of municipal governments from Mississippi. *Local Government Studies*. Advance online publication, 1–21. <https://doi.org/10.1080/03003930.2021.1976156>

- Dimitrijevska-Markoski, T., Breen, J. D., Nukpezah, J. A., & Mobley, R. (2021). Strategic Planning and management in small municipalities in Mississippi – Implementation, perceived benefits, and determinants of use. *Public Organization Review, 21*, 437–452. <https://doi.org/10.1007/s11115-020-00499-w>
- Dimitrijevska-Markoski, T., & French, P. E. (2019). Determinants of public administrator's use of performance information: Evidence from local governments in Florida. *Public Administration Review, 79*(5), 699–709.
- Douglas, M., & Wildavsky, A. (1982). How can we know the risks we face? Why risk selection is a social process. *Risk Analysis, 2*(2), 49–58.
- Douglas, M., & Wildavsky, A. (1983). *Risk and culture: An essay on the selection of technological and environmental dangers*. University of California Press.
- Dryhurst, S., Schneider, C. R., Kerr, J., Freeman, A. L. J., Recchia, G., van der Bles, A. M., Spiegelhalter, D., & van der Linden, S. (2020). Risk perceptions of COVID-19 around the world. *Journal of Risk Research, 23*, 994–1006. <https://doi.org/10.1080/13669877.2020.1758193>
- Duong, H. T., Nguyen, H. T., McFarlane, S. J., & Nguyen, L. T. V. (2021). Risk perception and COVID-19 preventive behaviors: Application of the integrative model of behavioral prediction. *The Social Science Journal*. Advance online publication, 1–14. <https://doi.org/10.1080/03623319.2021.1874176>
- Edwards, F. L. (2012). Cultural competency in disasters. In K. A. Norman-Major & S. T. Gooden (Eds.), *Cultural competency for public administrators* (pp. 197–218). Routledge.
- Elazar, D. J. (1994). *The American mosaic: The impact of space, time, and culture on American politics*. Westview Press.
- Entwistle, T. (2021). Why nudge sometimes fails: Fatalism and the problem of behaviour change. *Policy and Politics, 49*(1), 87–103.
- Fan, Y., Orhun, A. Y., & Turjeman, D. (2020). *Heterogeneous actions, beliefs, constraints and risk tolerance during the COVID-19 pandemic* (Working Paper 27211). <https://doi.org/10.3386/w27211> or <https://www.nber.org/papers/w27211>
- Frey, W. H. (2021). One year in, COVID-19's uneven spread across the US continues. <https://www.brookings.edu/research/one-year-in-covid-19s-uneven-spread-across-the-us-continues/>
- Gastil, J., Braman, D., Kahan, D., & Slovic, P. (2011). The cultural orientation of mass political opinion. *Political Science and Politics, 44*(04), 711–714.
- Güss, C. D., & Tuason, M. T. (2021). Individualism and egalitarianism can kill: How cultural values predict coronavirus deaths across the globe. *Frontiers in Psychology, 12*, 620490. <https://doi.org/10.3389/fpsyg.2021.620490>
- Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.
- Hill, T. D., Gonzalez, K., & Burdette, A. M. (2020). The blood of Christ compels them: State religiosity and state population mobility during the coronavirus (COVID-19) pandemic. *Journal of Religion and Health, 59*, 2229–2242. <https://doi.org/10.1007/s10943-020-01058-9>
- ICMA. (2021). *Survey research overview*. <https://icma.org/survey-research-overview>

- Johnson, B. B., & Swedlow, B. (2020). Comparing cultural theory and cultural cognition theory survey measures to each other and as explanations for judged risk. *Journal of Risk Research*, 23(10), 1278–1300. <https://doi.org/10.1080/13669877.2019.1646310>
- Johnson, B. B., Swedlow, B., & Mayorga, M. W. (2020). Cultural theory and cultural cognition theory survey measures: Confirmatory factoring and predictive validity of factor scores for judged risk. *Journal of Risk Research*, 23(11), 1467–1490. <https://doi.org/10.1080/13669877.2019.1687577>
- Kahan, D. M. (2012). Cultural cognition as a conception of the cultural theory of risk. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Petersen (Eds.), *Handbook of risk theory: Epistemology, decision theory, ethics, and social implications of risk* (pp. 725–759). Springer.
- Kapucu, N., & Garayev, V. (2011). Collaborative decision-making in emergency and disaster management. *International Journal of Public Administration*, 34(6), 366–375.
- Knox, C. C., & Haput, B. (2020). *Cultural competency for emergency and crisis management. Concept, theories and case studies*. Routledge.
- Koon, A. D., Mendenhall, E., Eich, L., Adams, A., & Borus, Z. A. (2021). A spectrum of (Dis)belief: Coronavirus frames in a rural midwestern town in the United States. *Social Science & Medicine*, 272, 1–8. <https://doi.org/10.1016/j.socscimed.2021.113743>
- Kushner Gadarian, S., Goodman, S. W., & Pepinsky, T. B. (2020). Partisanship, health behavior, and policy attitudes in the early stages of the COVID-19 pandemic. *SSRN*, 1–10. <https://doi.org/10.2139/ssrn.3562796>
- Liu, Z., & Yang, J. (2021). Public support for COVID-19 responses: Cultural cognition, risk perception, and emotions. *Health Communication*, 1–11. Advance online publication. <https://pubmed.ncbi.nlm.nih.gov/34425718/>
- Li, Y., Luan, S., Li, Y., Wu, J., Li, W., & Hertwig, R. (2022). Does risk perception motivate preventive behavior during a pandemic? A longitudinal study in the United States and China. *American Psychologist*, 77(1), 111–123. <https://doi.org/10.1037/amp0000885>
- Makridis, C., & Rothwell, J. T. (2020). The real cost of political polarization: Evidence from the COVID-19 pandemic. *SSRN*. <https://doi.org/10.2139/ssrn.3638373> or <https://ssrn.com/abstract=3638373>
- Manchester, J., & Easley, J. (2020). Political divide on reopening deepens as Southern states move forward. *The Hill*. <https://thehill.com/homenews/campaign/494212-southern-gop-governors-underscore-political-divide-on-reopening>
- Mileti, D. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Joseph Henry Press.
- Moyer, R. M., Song, G., & Jackson, N. (2021). Face coverings during the pandemic? *World Medical & Health Policy*. Published online November 14, 2021. <https://doi.org/10.1002/wmh3.485>
- Nukpezah, J. A., & Soujaa, I. (2018). Creating emergency prepared households-what really are the determinants of household emergency preparedness? *Risk Hazards & Crisis in Public Policy*, 9(4), 480–504.

- Oltdedal, S., Moen, B.-E., Klempe, H., & Rundmo, T. (2004). *Explaining risk perception. An evaluation of cultural theory*. Rotunde.
- O'Riordan, T., & Jordan, A. (1999). Institutions, climate change and cultural theory: Towards a common analytical framework. *Global Environmental Change*, 9(2), 81–93.
- Papageorge, N. W., Zahn, M., Belot, V., van Den Broek-Altenburg, M., Choi, E., Jamison, S., & Tripodi, J. C. E. (2020). *Socio-demographic factors associated with self-protecting behavior during the COVID-19 pandemic* (NBER Working Papers 27378). National Bureau of Economic Research, Inc. https://www.nber.org/system/files/working_papers/w27378/w27378.pdf
- Perry, S. L., Whitehead, A. L., & Grubbs, J. B. (2020). Culture wars and COVID-19 conduct: Christian nationalism, religiosity, and Americans' behavior during the coronavirus pandemic. *Journal for the Scientific Study of Religion*, 59, 405–416. <https://doi.org/10.1111/jssr.12677>
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544. <https://doi.org/10.1177/014920638601200408>
- Price, J. C., Walker, I. A., & Boschetti, F. (2014). Measuring cultural values and beliefs about environment to identify their role in climate change responses. *Journal of Environmental Psychology*, 37, 8–20.
- Ripberger, J. T., Song, G., Nowlin, M. C., Jones, M. D., & Jenkins-Smith, H. C. (2012). Reconsidering the relationship between cultural theory, political ideology, and political knowledge. *Social Science Quarterly*, 93(3), 713–731. <https://doi.org/10.1111/j.1540-6237.2012.00884.x>
- Sears, J., Villas-Boas, J. M., Villas-Boas, V., & Villas-Boas, S. (2020). *Are we #stayinghome to flatten the curve?* (Working paper). <https://www.medrxiv.org/content/10.1101/2020.05.23.20111211v3.full.pdf>
- Siegrist, M., & Bearth, A. (2021). Worldviews, trust, and risk perceptions shape public acceptance of COVID-19 public health measures. *Proceedings of the National Academy of Sciences of the United States of America*, 118(24), e2100411118. <https://doi.org/10.1073/pnas.2100411118>
- Six, P., & Swedlow, B. (2016). Introduction to the symposium. *Public Administration*, 94(4), 867–880. <https://doi.org/10.1111/padm.12296>
- Skuzinski, T. (2018). *The risk of regional governance: Cultural theory and interlocal cooperation*. Routledge.
- Soujaa, I., Nukpezah, J. A., & Benavides, A. D. (2021). Coordination effectiveness during public health emergencies: An institutional collective action framework. *Administration & Society*, 53, 1014–1045.
- Thompson, M., Ellis, R., & Wildavsky, A. (2018). *Cultural theory*. Routledge.
- Van Wart, M., & Kapucu, N. (2011). Crisis management competencies: The case of emergency managers in the USA. *Public Management Review*, 13(4), 489–511.
- Wagh, W. L., & Streib, G. (2006). Collaboration and leadership for effective emergency management. *Public Administration Review*, 66, 131–140.
- Weare, C., Lichterman, P., & Esparza, N. (2014). Collaboration and culture: Organizational culture and the dynamics of collaborative policy networks. *Policy Studies Journal*, 42(4), 590–619.

- Wildavsky, A., & Dake, K. (1990). Theories of risk perception: Who fears what and why? *Daedalus*, 119(4), 41–60.
- Wu, J. D., & Huber, G. A. (2021). Partisan differences in social distancing may originate in norms and beliefs: Results from novel data. *Social Science Quarterly*, 102, 2251–2265. <https://doi.org/10.1111/ssqu.12947>
- Xiaohua, W. U., & Xigen, L. I. (2017). Effects of mass media exposure and social network site involvement on risk perception of and precautionary behavior toward the haze issue in China. *International Journal of Communication*, 11, 3975–3997.
- Xue, W., Hine, D. W., Loi, N. M., Thorsteinsson, E. B., & Phillips, W. J. (2014). Cultural worldviews and environmental risk perceptions: A meta-analysis. *Journal of Environmental Psychology*, 40, 249–258. <https://doi.org/10.1016/j.jenvp.2014.07.002>
- Yeo, J., Knox, C. C., & Jung, K. (2018). Unveiling cultures in emergency response communication networks on social media: Following the 2016 Louisiana floods. *Quality & Quantity*, 52(2), 519–535.
- Yuan, M. (2020). *Pursuing procedural justice in sustainability Policy: Assessing the linkage between political culture and municipal efforts* [Doctoral dissertation, Northern Illinois University].
- Yuan, M. (2021). Explaining Chinese reactions to COVID-19 during the outbreak: A systematic illustration. *Public Health Frontier*, 9, 727369. <https://doi.org/10.3389/fpubh.2021.727369>

Author Biographies

Tamara Dimitrijevska-Markoski is an Assistant Professor of Public Administration in the School of Public Affairs at the University of South Florida. Before joining USF, Dr. Markoski was a core MPPA faculty member in the Department of Political Science and Public Administration at Mississippi State University. Dr. Markoski's primary research expertise is in performance measurement and management, local governments, collaborative service delivery, and pay-for-performance. Her research has been published in *Public Administration Review*, *Public Administration Quarterly*, *Local Government Studies*, *International Journal of Public Sector Performance Management*, *International Journal of Public Policy*, *Public Organization Review*, and others.

Julius A. Nukpezah is an assistant professor of public policy and administration in the Department of Political Science and Public Administration at Mississippi State University. His current research focuses on state and local government finance and management and he has published in *The American Review of Public Administration*; *Administration & Society*, *Public Budgeting & Finance*; *Public Money & Management*; *Public Organization Review*; *International Journal of Public Administration*, *Risk, Hazards, Crisis, and Public Policy*; *International of Emergency Management*, among others.