



Exploring factors influencing attitudes towards COVID-19 prevention measures and compliance with behavioral guidelines

Savannah Kelly¹, Hyoungkoo Khang¹

¹Dept. of Advertising & Public Relations, University of Alabama, United States

Abstract:

This study provides a comprehensive analysis of how individual traits, political ideologies, and media perceptions influence attitudes and behaviors toward COVID-19 prevention measures. It highlights the significant positive impact of individual-level collectivism and uncertainty avoidance on adherence to these measures, emphasizing the effectiveness of public health communications that resonate with collectivist values and offer clear, structured guidance. The research also reveals a negative correlation between conservative political ideology and compliance with COVID-19 prevention, suggesting that political affiliations significantly shape public health responses. Additionally, the study examines the role of media, showing that favorable views towards traditional media correlate with better compliance. These findings underline the importance of tailored health communication strategies that consider psychological, social, and political factors. This study also points to the necessity for further research to explore these dynamics more deeply across different cultural contexts, enhancing the efficacy of global public health initiatives.

Keywords: COVID-19 prevention measures, attitude, behavior, resistance to persuasion, social media perception

Received: November 21, 2023

Revised: April 17, 2024

Accepted: April 22, 2024

Corresponding author

Hyoungkoo Khang
Dept. of Advertising and Public
Relations, College of Communication
of Information Sciences, The University
of Alabama, United States
Email: khang@apr.ua.edu

Introduction

From the first reported case of COVID-19, the pandemic wrought havoc across the world, bringing countries to a halt and exposing them to societal issues exacerbated by the pandemic's circumstances (LaFee, 2021). Given the nature of the pandemic, it was essential for individuals to adopt recommended public health measures, such as wearing masks, increasing hand hygiene, practicing social distancing, and staying at home. However, the federal government deferred to state and local governments to put mandates in place, resulting in confusion due to varying policies in different states and, at times, different counties within the same state (Franck, 2021). Although states implemented mask mandates and stay-at-home orders, there was no comprehensive federal response to the pandemic, leading to uncertainty among citizens over who to trust and what to do.

According to Geldsetzer (2020), "the general public in the United States and United Kingdom appears to have important misconceptions about COVID-19," with many people turning to social media to find answers, only to encounter misinformation that could strongly influence behavior and affect the efficacy of government countermeasures (Cinelli et al., 2020). This division created two groups: those who were willing to follow COVID-19 prevention measures and those who were not (Bélanger & Leander, 2020). Kleitman et al. (2021) found that 90% of individuals were compliant, leaving 10% of the population putting themselves and others at risk.

In response to the variations in levels of adherence to COVID-19 prevention measures observed among individuals, this study seeks to address a pivotal question: What factors influenced individuals' attitudes toward these prevention protocols and ultimately shaped their compliance behaviors? Clearly, multiple factors are associated with individuals' attitudes toward COVID-19 prevention measures and their subsequent behaviors. This study primarily focuses on variables such as individual-level collectivism, uncertainty avoidance, political ideology, and perceptions about the media coverage of both traditional and social media outlets during the COVID-19 pandemic. Additionally, we explore resistance to persuasion as a potential moderating variable that could influence the relationship between these predictors and both COVID-19 prevention attitudes and behaviors.

Building on theoretical frameworks such as the health belief model (HBM; Becker, 1974) and social cognitive theory (SCT; Bandura, 1986), this study selects specific variables to explore individual attitudes toward COVID-19 prevention measures. It is important to acknowledge, however, that the variables included in this study do not represent an exhaustive list of all possible factors influencing individuals' attitudes toward or adoption of COVID-19 prevention measures. Despite this, the selected variables offer a valuable opportunity for a detailed analysis of the dynamics shaping individual attitudes and behaviors in the context of COVID-19 prevention.

It is anticipated that the findings of this study will offer both theoretical and practical implications related to public health

outcomes during the pandemic. Theoretically, this research will enrich our understanding of health behavior models by integrating and testing various psychological and social predictors, such as individual-level collectivism, uncertainty avoidance, political ideology, and media perceptions. Practically, the insights gained from this study will be critical for public health officials and policymakers. Understanding what motivates people to comply with preventative measures, such as wearing masks, practicing social distancing, and getting vaccinated, can help in designing more effective public health campaigns and messaging.

Theoretical Background

The HBM explains health-related behaviors by identifying four key factors that influence an individual's decision to engage in a health behavior: perceived susceptibility, severity, benefits, and barriers. The model also considers individual characteristics, such as demographic factors, personality traits, and past experiences (Rosenstock, 1974). The HBM has been used to explain why individuals may or may not get vaccinated against influenza, with the model suggesting that those who perceive themselves to be at higher risk of developing influenza and who believe that the benefits of vaccination outweigh the potential barriers are more likely to get vaccinated (Horne et al., 2008). In the context of the COVID-19 pandemic, the HBM can provide a valuable framework for understanding how individuals' perceptions of their risk of developing health conditions and their beliefs about the benefits and barriers of engaging in health behaviors influence their decision to engage in those behaviors.

In addition to the HBM, SCT provides a relevant theoretical framework for understanding individual behavior during the COVID-19 pandemic. SCT posits that behavior is shaped by personal, environmental, and behavioral factors and that individuals can change their behavior by acquiring new knowledge and skills, observing others' behaviors, and receiving feedback and reinforcement (Bandura, 1977). Personal factors, such as self-efficacy beliefs, which refer to an individual's confidence in their ability to perform a particular behavior, are important in predicting behavior change (Bandura, 1986). Environmental factors, such as social norms and expectations, as well as the physical context in which a specific behavior occurs, also play a significant role in shaping behavior. Past experiences, reinforcement, and observational learning are also important factors that influence behavior (Bandura, 1977).

SCT has been widely applied to various fields, including health, education, and social psychology, and it can provide a comprehensive framework for understanding how personal, environmental, and behavioral factors interacted to shape behavior during the COVID-19 pandemic (Bandura, 1986). For instance, SCT has been used to explain how individuals acquire and maintain health behaviors, such as exercise and healthy eating habits, which are also relevant to COVID-19 prevention measures (Bandura, 1997). By utilizing the SCT framework, this study gains a better understanding of the factors that contributed to individuals' attitudes toward COVID-19 prevention measures and ultimately determined their compliance behavior. This approach can help identify effective strategies for behavior change used during the pandemic by targeting the personal, environmental, and behavioral factors that influenced compliance with COVID-19 prevention guidelines.

Resistance to Persuasion

The phenomenon of resistance to persuasion has been extensively studied by psychologists and communications researchers. Resistance can be broadly defined as "reaction against change" (Knowles & Linn, 2014), and in the context of persuasion, it can be defined as reaction against change in response to a persuasive attempt. According to the persuasion knowledge model, individuals develop persuasion knowledge over their lifetime in the form of personal knowledge about the tactics used in persuasion attempts (Friestad & Wright, 1994). This persuasion knowledge leads to resistance to persuasion as individuals develop psychological techniques to avoid being persuaded (Ahluwalia, 2000).

Ahluwalia (2000) found that when one resistance mechanism fails, other mechanisms become stronger, such as the emergence of relative weighting. Highly committed individuals are more resistant to persuasion because they can compartmentalize negative information. Knowles and Linn (2014) noted that people's individual beliefs about their own susceptibility to persuasion impact how persuaded they are by messages. Therefore, it is crucial to examine individual differences in resistance to persuasion.

Individuals have a diverse set of techniques at their disposal to respond to persuasive messages. In the context of persuasion, a critical question that emerges is how to effectively convince individuals who exhibit a lack of receptiveness. Amid the COVID-19 pandemic, a faction of the populace demonstrated resilient resistance to messages related to public health behavior. This obstruction can be attributed to multifarious factors, such as political beliefs, institutional trust, and personal experiences, thereby elucidating the rationale for investigating resistance to persuasion as a moderating variable. The following hypotheses are proposed:

H1: Resistance to persuasion about COVID-19 prevention protocols will be negatively related to attitudes toward COVID-19 prevention measures (COVID-19 prevention attitudes).

H2: Resistance to persuasion about COVID-19 prevention protocols will be negatively related to compliance behaviors with COVID-19 prevention measures (COVID-19 prevention behaviors).

Individuals' Degrees of Individualism /Collectivism

Individualism/collectivism is a cultural measure introduced by Hofstede (2011) that refers to the level of integration of individuals into groups in a society. In individualist societies, individuals are expected to be independent and take care of themselves, whereas in collectivist societies, group values are highly regarded, and people are more interdependent. Western societies tend to be more individualistic, while Eastern societies are typically more collectivist. In this study, we aim to explore the relationship between individuals' degrees of individualism or collectivism and how they affect their willingness to comply with COVID-19 prevention guidelines.

The United States is generally considered to be a highly individualistic society, although there are variations among states (Vandello & Cohen, 1999). Vandello and Cohen (1999) observed that the southern region of the United States tends

to exhibit more collectivist tendencies. On the other hand, the Great Plains and Mountain West regions, which have lower population densities, tend to display more individualistic attitudes. This highlights that there are individual differences in the levels of individualism and collectivism across the United States, which could potentially have impacted individuals' decisions to comply with COVID-19 prevention guidelines. The following hypotheses are proposed:

H3: People higher in collectivism will be more receptive to COVID-19 prevention measures.

H3-1: People higher in collectivism will exhibit more positive attitudes toward COVID-19 prevention measures.

H3-2: People higher on the collectivism scale will follow more COVID-19 prevention measures.

To examine the moderating effects of resistance to persuasion between variables, the following research question is posed:

RQ1: How does resistance to persuasion moderate the relationship between individualism/collectivism and COVID-19 prevention attitudes and behaviors?

Individuals' Degrees of Uncertainty Avoidance

Uncertainty avoidance is the extent to which a culture programs its members to feel comfortable or uncomfortable in unstructured situations (Hofstede, 2011). Individuals with high uncertainty avoidance tend to avoid unpredictable situations, whereas those with low uncertainty avoidance are more comfortable taking risks. Uncertainty avoidance can trigger the need for cognitive closure, which may explain why people exhibit unusual behaviors when confronted with uncertain situations (Gründl & Aichholzer, 2020).

Uncertainty avoidance shapes people's assumptions about communication styles and can impact how individuals perceive and react to messages. Individuals with strong uncertainty avoidance tend to filter out one sender's message and focus on reducing uncertainty rather than actively listening to others' messages (Merkin, 2006). Therefore, those who are high in uncertainty avoidance tend to prioritize resolving their own cognitive dissonance over actively listening to the message being conveyed to them.

The COVID-19 pandemic created unstructured situations in which people were unsure of what might happen next, leading to behaviors such as panic buying (Ntontis et al., 2022). In addition, people did not know the long-term outcomes of prevention measures or the potential consequences of contracting the illness. Misinformation and confusion surrounding masks also led to uncertainty (Bartolome, 2020). Uncertainty avoidance plays a significant role in how people respond to uncertain situations, such as the COVID-19 pandemic, and it impacts individuals' willingness to take risks and perceptions of communication styles. The following hypotheses are proposed:

H4: People higher in uncertainty avoidance will be more receptive to COVID-19 prevention measures.

H4-1: People higher in uncertainty avoidance will exhibit more positive attitudes toward COVID-19 prevention measures.

H4-2: People higher in uncertainty avoidance will follow

more COVID-19 prevention measures.

To examine the moderating effects of resistance to persuasion between variables, the following research question is posed:

RQ2: How does resistance to persuasion moderate the relationship between uncertainty avoidance and COVID-19 prevention attitudes and behaviors?

Political Ideology

Throughout the pandemic, conservative TV personalities and leaders routinely downplayed the severity of COVID-19, even holding indoor events such as political rallies that violated recommendations by the Centers for Disease Control and Prevention and the World Health Organization to stay at home (Waldrop & Gee, 2020). Despite historical evidence suggesting that conservatives tend to be more risk-averse than liberals, they were less likely to comply with public health guidelines and mandates regarding COVID-19 (Stroebe et al., 2021). This highlights the potent influence of political ideology, even in the face of a lethal virus.

Bartels's (2002) assertion that the presence of biased views among political partisans contributes significantly to the maintenance and strengthening of polarized opinions between the Democratic and Republican parties partially explains this phenomenon. The COVID-19 pandemic is a case in point: Democrats mostly adhered to prevention guidelines, and Democrat-led states were among the first to implement restrictions to contain the spread of the virus, whereas Republicans downplayed the pandemic, denying its severity and dismissing it as no worse than the flu (Cillizza, 2020). In this light, the following hypotheses are proposed:

H5: People who identify as more conservative (than liberal) will be less receptive to COVID-19 prevention measures.

H5-1: People who identify as more conservative (than liberal) will exhibit more negative attitudes toward COVID-19 prevention measures.

H5-2: People who identify as more conservative (than liberal) will follow fewer COVID-19 prevention measures.

To examine the moderating effects of resistance to persuasion between variables, the following research question is posed:

RQ3: How does resistance to persuasion moderate the relationship between political ideology and COVID-19 prevention attitudes and behaviors?

Traditional Media Perception

The media's agenda-setting power can significantly influence public opinion, attitudes, and behaviors (Buturoiu & Voloc, 2021). During the COVID-19 pandemic, people relied heavily on the media for information due to their need for orientation and tendency to create mental maps of their world based on information received from others (Buturoiu & Voloc, 2021). Although crucial to communicating the gravity of the virus, mainstream media platforms, such as television, radio, and newspapers, generated news content during the initial phases of the pandemic to heighten public response and threat perception, consequently resulting in people's excessive exposure to such information, which might have had adverse effects on

their mental well-being (Olagoke et al., 2020). Another study linked the excessive consumption of COVID-19 news to a 25% increase in anxiety and depression worldwide (Brunier & Drysdale, 2022), implying that a constant deluge of COVID-19 news throughout the day could have been detrimental. Therefore, these previous findings emphasize that people needed to exercise prudence and mindfulness in their consumption of COVID-19 news from mainstream media outlets.

Despite the negative impacts that the conventional media's coverage of COVID-19 posed, Betsch et al. (2020) discovered that individuals who received a greater amount of information about the pandemic through media sources were more inclined to adopt preventive measures to mitigate the transmission of the virus. Similarly, Gollust et al. (2021) linked the media coverage of COVID-19 to changes in public opinion regarding the pandemic. The study indicated that when media coverage emphasized the gravity of the pandemic, the public demonstrated a greater inclination to endorse policies aimed at curbing the spread of the virus, such as social distancing measures. The following hypotheses are proposed:

H6: People who perceive traditional media more positively will be more receptive to COVID-19 prevention measures.

H6-1: People who perceive traditional media more positively will exhibit more positive attitudes toward COVID-19 prevention measures.

H6-2: People who perceive traditional media more positively will follow more COVID-19 prevention measures.

To examine the moderating effects of resistance to persuasion between variables, the following research question is posed:

RQ4: How does resistance to persuasion moderate the relationship between traditional media perceptions and COVID-19 prevention attitudes and behaviors?

Social Media Perception

Social media has become a key source of information worldwide. However, the unregulated nature of social media has led to the rapid dissemination of both accurate information and misinformation, which had direct effects on health behavior during the COVID-19 pandemic. Cinelli et al. (2020) found that social media platforms amplify rumors and questionable information, leading users to shape their beliefs and behaviors accordingly. Allington et al. (2021) identified social media platforms, such as Facebook and Twitter, as major vectors of the dissemination of conspiracy beliefs and misinformation. Conspiracy theories surrounding the COVID-19 pandemic were widely circulated, and the more people saw them, the more likely they were to believe them to be true (Allington et al., 2021). The spread of misinformation and conspiracy theories on social media has been correlated with stronger beliefs in conspiracy theories and fewer protective behaviors during the pandemic (Cuello-Garcia et al., 2020).

To investigate the impact of social media perceptions on resistance to persuasion and COVID-19 attitudes and behaviors, the following research questions are posed:

RQ5: Is there an association between social media perceptions and receptiveness to COVID-19 prevention measures?

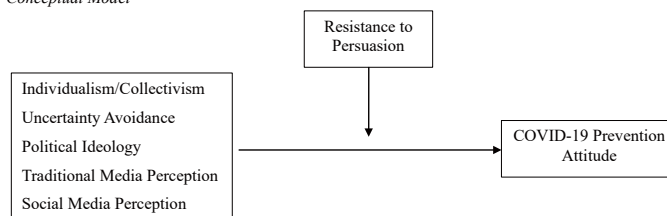
RQ5-1: Is there an association between social media perceptions and COVID-19 prevention attitudes?

RQ5-2: Is there an association between social media perceptions and COVID-19 prevention behaviors?

RQ5-3: How does resistance to persuasion moderate the relationship between social media perceptions and COVID-19 prevention attitudes and behaviors?

Figure 1 presents the conceptual model that this study aims to explore, illustrating the key variables under examination.

Figure 1
Conceptual Model



Research Methods

Participants

Participants were recruited through Amazon MTurk. Respondents were asked to “answer a survey about your opinions, beliefs, and behaviors both during and not during the COVID-19 pandemic.” The analysis included 382 respondents (44.4% female; age (M) = 35–44 years). Their racial/ethnic makeup was 83.5% White, 10.2% Black/African American, 4.5% Asian, 0.3% Native Hawaiian or Pacific Islander, 1% Hispanic, and 0.5% Other. The regions that the respondents were from are based on the five main regions of the United States: West, Southwest, Midwest, Southeast, and Northeast (O’Connor, 2022). There were 80 participants from the Western region (21.5%), 32 from the Southwest (8.6%), 77 from the Midwest (20.7%), 99 from the Southeast (26.6%), and 84 from the Northeast (22.6%).

Measures

Resistance to Persuasion.

To measure resistance to persuasion, Briñol et al.’s (2004) resistance to persuasion scale was altered to reflect resistance to COVID-19-specific information. A five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree) was utilized to measure the degree of resistance to persuasion regarding COVID-19 prevention measures. Sample items included “I am strongly committed to my opinions regarding the COVID-19 protocol” and “My ideas about COVID-19 protocols have been very stable and remained the same over time.” The individual scores were summed to create a composite score (M = 3.46, SD = .82, $\alpha = .852$).

Individualism/Collectivism.

To measure individualism/collectivism, part of Yoo et al.’s (2011) previously validated CVSCALE was used. Answered on a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), measurement items included “Individuals should sacrifice self-interest for the group” and “Group welfare is more important than individual welfare.” The individual scores were summed to create a composite score (M = 3.39, SD = .93, $\alpha = .900$).

Uncertainty Avoidance.

To measure uncertainty avoidance, a scale from Jung and Kellaris (2004) was used. Answered on a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), measurement items included “I prefer structured to unstructured

situations” and “I tend to get anxious easily when I don’t know an outcome.” The individual scores were summed to create a composite score (M = 3.66, SD = .72, α = .824).

Political Ideology.

To measure political ideology, we asked respondents to rate their own political ideology on a scale from 1 to 11, starting at very liberal and ending at very conservative. The individual scores were summed to create a composite score (M = 5.54, SD = 3.35).

Media Perception.

To measure both traditional and social media perceptions, we used a scale that consisted of nine items on a scale of 1 to 5: unsophisticated to sophisticated, dishonest to honest, insincere to sincere, old-fashioned to modern, unfriendly to friendly, angry to calm, disgusted to content, resentful to pleasant, and biased to unbiased. The individual scores were summed to create a composite score (traditional media M = 3.25, SD = .90, α = .912; social media M = 2.77, SD = 1.00, α = .929).

COVID-19 Prevention Attitudes.

This variable pertains to individuals’ attitudes toward measures for preventing the spread of COVID-19. To measure COVID-19 attitudes, parts of Clark et al.’s (2020) COVID-19 scale were used. Answered on a five-point Likert-type scale, the measures included items such as “Government officials have effectively managed COVID-19” and “I have expressed my opinions on health and safety matters even when others disagree.” The individual scores were summed to create a composite score (N = 382, M = 3.67, SD = .74, α = .797).

COVID-19 Prevention Behaviors.

This variable pertains to an individual’s compliance behaviors with COVID-19 prevention measures. This variable was measured by adopting parts of Clark et al.’s (2020) COVID-19 scale. Answered on a five-point Likert-type scale, the measures included items such as “I have been concerned about my health and have taken active precautions against COVID-19” and “I have chosen not to visit friends and family when it was recommended.” The individual scores were summed to create a composite score (M = 4.07, SD = .85, α = .901).

Results

Correlation Analysis of COVID-19 Prevention Attitudes and Behaviors

The data were analyzed using Pearson correlation coefficients to explore the relationships between various predictors and receptiveness to COVID-19 prevention measures among the participants. The results showed a moderate positive correlation between COVID-19 prevention attitudes and several predictors, which were traditional media perception (r = .58, p < 0.001), collectivism (r = .45, p < 0.001), social media perception (r = 0.29, p < 0.001), and uncertainty avoidance (r = .16, p < 0.01). A negative correlation was also observed between prevention attitudes and political ideology (r = -.15, p < 0.01),

indicating that more conservative individuals tend to have less positive attitudes toward COVID-19 prevention measures.

Regarding COVID-19 prevention behaviors, as detailed in Table 2, traditional media perception showed a moderate positive correlation (r = .34, p < 0.001), followed by collectivism (r = .30, p < 0.001) and uncertainty avoidance (r = .25, p < 0.001). Consistent with the findings related to prevention attitudes, there was a moderate negative correlation between COVID-19 prevention behaviors and political ideology (r = -.30, p < 0.001). This suggests that individuals with conservative leanings are less likely to adhere to COVID-19 prevention

Table 2

Bivariate Correlations Among Predictors and COVID-19 Behaviors (n = 380)

	Behaviors	RP	Collectivism	UA	PI	TMP	SMP
Behaviors	1						
RP	.078	1					
Collectivism	.305***	-.271***	1				
UA	.254***	.026	.236***	1			
PI	-.305***	-.152**	.072	.121*	1		
TMP	.341***	-.182***	.486***	.056	-.043	1	
SMP	-.040	-.281***	.353***	.072	.319***	.571***	1

*Note: *p < .05, **p < .01, ***p < .001; RP = Resistance to Persuasion; UA = Uncertainty Avoidance; PI = Political Ideology; TMP = Traditional Media Perceptions; SMP = Social Media Perceptions*

protocols.

Antecedents of COVID-19 Prevention Attitude

In examining the antecedents of COVID-19 prevention attitudes, multiple regression analyses were performed to test various hypotheses and answer the research questions. The results, detailed in Table 3, provide support for several hypotheses. Specifically, H3-1 is supported, with collectivism showing a positive association with COVID-19 prevention attitudes, indicating that individuals with higher collectivist values tend to have more positive attitudes toward COVID-19 prevention measures. H4-1 is also confirmed, demonstrating that uncertainty avoidance is positively related to COVID-19 prevention attitudes. Furthermore, hypothesis H5-1 is upheld, with conservative political ideology negatively associated with COVID-19 prevention attitudes, suggesting that more conservative individuals may have less favorable attitudes toward these prevention measures. Additionally, both traditional and social media perceptions were found to positively influence

Table 3

Regression Analyses Predicting COVID-19 Prevention Attitudes

	β	t
Resistance to Persuasion	.110 (.047)*	2.283
Collectivism	.269 (.038)***	5.543
RP * Collectivism	-.064 (.032)	-1.369
Uncertainty Avoidance	.081 (.037)*	2.025
RP * UA	.064 (.024)	1.555
Political Ideology	-.168 (.032)***	-3.843
RP * PI	-.236 (.034)***	-5.054
Traditional Media Perception	.436 (.045)***	7.992
RP * TMP	-.086 (.035)	-1.666
Social Media Perception	-.009 (.039)	-.175
RP * SMP	.057 (.034)	1.184
Constant	1.111***	

*R*² = .481, *F* = 30.99***, *n* = 380

*Note: *p < .05, **p < .01, ***p < .001; Standard Error in parentheses, RP = Resistance to Persuasion; UA = Uncertainty Avoidance; PI = Political Ideology; TMP = Traditional Media Perceptions; SMP = Social Media Perceptions*

Table 1

Bivariate Correlations Among Predictors and COVID-19 Attitudes (n = 380)

	Attitudes	RP	Collectivism	UA	PI	TMP	SMP
Attitudes	1						
RP	.050	1					
Collectivism	.452***	-.271***	1				
UA	.165**	.026	.236***	1			
PI	-.154**	-.152**	.072	.121*	1		
TMP	.588***	-.182***	.486***	.056	-.043	1	
SMP	.298***	-.281***	.353***	.072	.319***	.571***	1

*Note: *p < .05, **p < .01, ***p < .001; RP = Resistance to Persuasion; UA = Uncertainty Avoidance; PI = Political Ideology; TMP = Traditional Media Perceptions; SMP = Social Media Perceptions*

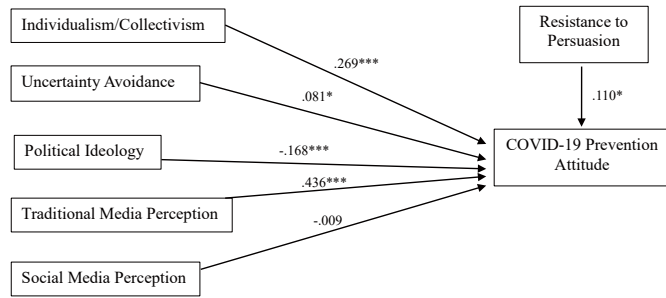
COVID-19 prevention attitudes, confirming H6-1.

The analysis also explored the interaction effects of the predictors with resistance to persuasion. It was found that the interaction between political ideology and resistance to persuasion significantly influences COVID-19 prevention attitudes.

To succinctly present these findings, Figure 2 illustrates the

main effects of the predictors on COVID-19 prevention atti-

Figure 2
Main Effect of Predictors on COVID-19 Prevention Attitude

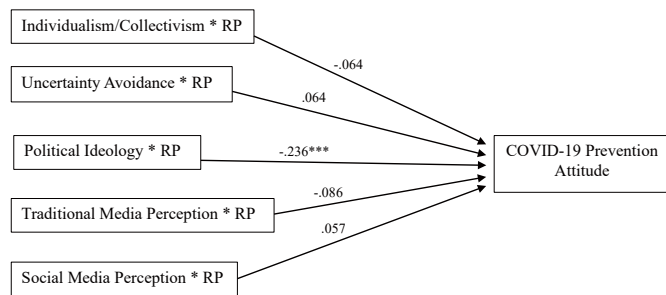


Note: **p* < .05, ***p* < .01, ****p* < .001; Solid lines indicate a significant relationship; dashed lines indicate an insignificant relationship

tudes.

Furthermore, Figure 3 displays the interaction effects between the predictors and resistance to persuasion on COVID-19 pre-

Figure 3
Interaction Effects Between Predictors and Resistance to Persuasion on COVID-19 Prevention Attitude



Note: **p* < .05, ***p* < .01, ****p* < .001; RP = Resistance to Persuasion; Solid lines indicate a significant relationship; dashed lines indicate an insignificant relationship

vention attitudes.

This structured presentation of the results clarifies the relationships between various predictors and COVID-19 prevention attitudes, supported by the visual aids referenced in the text to enhance understanding and interpretation of the findings.

Antecedents of COVID-19 Prevention Behavior

In exploring the antecedents of COVID-19 prevention behavior, the regression analyses revealed consistent patterns similar to those observed with COVID-19 prevention attitudes. The findings indicate that collectivism, uncertainty avoidance, and traditional media perception are positively associated with COVID-19 prevention behaviors, suggesting that individuals who are more collectivist, exhibit higher levels of uncertainty avoidance, and have positive perceptions of traditional media are more likely to engage in behaviors that would prevent the spread of COVID-19. Conversely, both political ideology and social media perception showed negative associations with COVID-19 prevention behaviors. These results provide support for hypotheses H3-2, H4-2, H5-2, and H6-2.

Additionally, an analysis of the interaction effects with resistance to persuasion revealed that the interaction between political ideology and resistance to persuasion significantly impacts COVID-19 prevention behavior. This suggests that the influence of political ideology on prevention behaviors may be moderated by an individual’s level of resistance to persuasion.

To visually summarize these findings, Figure 4 illustrates the

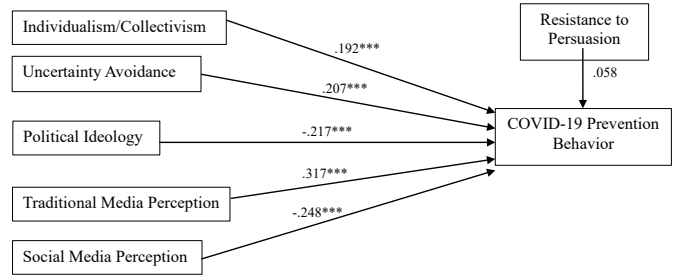
Table 4
Regression Analyses Predicting COVID-19 Prevention Behaviors

	β	<i>t</i>
Resistance to Persuasion	.058 (.058)	1.119
Collectivism	.192 (.047)***	3.653
RP * Collectivism	-.040 (.039)	-.794
Uncertainty Avoidance	.207 (.046)***	4.784
RP * UA	.047 (.030)	1.061
Political Ideology	-.217 (.039)***	-4.610
RP * PI	-.250 (.042)***	-4.952
Traditional Media Perception	.317 (.055)***	5.394
RP * TMP	.068 (.043)	1.228
Social Media Perception	-.248 (.048)***	-4.308
RP * SMP	.115 (.042) *	2.227
Constant	2.06***	

$R^2 = .396, F = 21.917^{***}, n = 380$

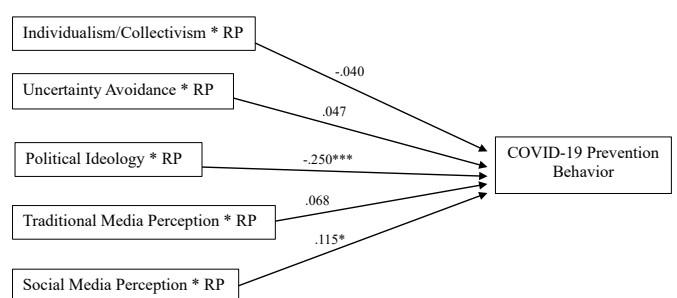
Note: **p* < .05, ***p* < .01, ****p* < .001; Standard Error in parentheses
RP = Resistance to Persuasion; UA = Uncertainty Avoidance; PI = Political Ideology; TMP = Traditional Media Perceptions; SMP = Social Media Perceptions

Figure 4
Main Effect of Predictors on COVID-19 Prevention Behavior



Note: **p* < .05, ***p* < .01, ****p* < .001; Solid lines indicate a significant relationship; dashed lines indicate an insignificant relationship

Figure 5
Interaction Effects Between Predictors and Resistance to Persuasion on COVID-19 Prevention Behavior



Note: **p* < .05, ***p* < .01, ****p* < .001; RP = Resistance to Persuasion; Solid lines indicate a significant relationship; dashed lines indicate an insignificant relationship

main effects of the predictors on COVID-19 prevention.

Furthermore, Figure 5 displays the interaction effects between predictors and resistance to persuasion on COVID-19 prevention behavior, providing a deeper understanding of how these variables interplay.

These results contribute to a more comprehensive understanding of the factors influencing COVID-19 prevention behaviors and highlight the complex relationships among individual traits, media perceptions, and behavioral outcomes.

Discussion and Conclusions

This study was designed to enrich the existing body of knowledge by offering a comprehensive analysis of the factors that may influence resistance to COVID-19 prevention measures. Specifically, it examined a range of predictors, such as individual-level collectivism, uncertainty avoidance, political ideology, and perceptions of traditional and social media, and their associations with attitudes and behaviors toward COVID-19 prevention. Additionally, the study explored the moderating role of resistance to persuasion in the relationships between these independent variables and COVID-19 prevention attitudes and behaviors. This multifaceted approach aimed to provide deeper insights into the complex interplay of psycholog-

ical, social, and media-related factors affecting public health compliance.

The findings of this study demonstrate a positive association between individual-level collectivism and proactive attitudes and behaviors toward COVID-19 prevention. Individuals with pronounced collectivist values tended to be more receptive to following COVID-19 prevention protocols. This receptiveness underscores the potential efficacy of public health messages that focus on community well-being, collective benefits, and social responsibility. Such messages resonate deeply with those who prioritize communal goals over personal interests, value group cohesion, and engage in strong, interdependent relationships within their communities. These insights suggest that health communication strategies can be particularly effective if they are tailored to align with collectivist values during health crises, such as the COVID-19 pandemic. Practically, we can suggest how health communication strategies can be adapted to better resonate with collectivist values in navigating a crisis event, such as the COVID-19 pandemic, possibly by highlighting how individual actions contribute to the health and safety of the whole community.

This study found a significant association between individual levels of uncertainty avoidance and attitudes and behaviors toward COVID-19 prevention. The emergence of COVID-19 created a highly unstructured scenario characterized by conflicting information from reputed sources, especially during the early stages of the pandemic (Pazzanese, 2020). In this context, it is understandable that individuals with high levels of uncertainty avoidance would demonstrate more favorable attitudes and behaviors toward COVID-19 prevention measures. Uncertainty avoidance reflects a person's need for assurance and limited tolerance of ambiguity and vagueness. It encompasses a desire to manage uncertainty through mental resolution, order, and a preference for structured, routine activities over novelty and unfamiliar situations. Individuals high in uncertainty avoidance tend to favor straightforward, decisive actions rather than engaging in extensive deliberation (Gründl & Aichholzer, 2020).

This finding has several practical implications. Given that uncertainty avoidance involves a preference for clear rules, instructions, and assurances, public health messages that are straightforward and unambiguous are likely to be especially effective for individuals with high uncertainty avoidance. Such messages should explicitly outline the steps required to prevent infection and clearly communicate the benefits of adhering to these measures. Moreover, effective risk communication that addresses uncertainties and elucidates the rationale behind preventive measures is essential. This strategy is crucial for managing the fear and anxiety that often accompany uncertainty, which can pose significant barriers to the acceptance and adoption of necessary preventive actions. By directly addressing these psychological barriers, public health initiatives can enhance compliance and mitigate the impact of crises.

While this study focused on individual-level collectivism and uncertainty avoidance, it is important to note that numerous studies have explored these variables at the cross-cultural level. Consequently, there is a strong case for future research to further examine the relationships between these factors and COVID-19 prevention attitudes and behaviors across different countries. The dynamics between these variables could vary substantially across diverse cultural contexts, underscoring the need for a more nuanced understanding. Such research would

broaden the discussion on the global implications of cultural values in responding to pandemics, highlighting how cultural differences can influence public health strategies and outcomes. This exploration is essential for developing culturally sensitive interventions that are effective in managing global health crises.

From a theoretical perspective, the implications of this study enrich behavioral change models by advocating the integration of cultural and social values as fundamental components. This approach facilitates the creation of more sophisticated models that account for both individual psychological factors and cultural predispositions. As a result, traditional health behavior frameworks, such as the HBM or the theory of planned behavior, could be enhanced by incorporating cultural dimensions. This adaptation would allow for a more holistic understanding of public health behavior, enabling interventions that are effectively tailored to diverse cultural contexts. Such an approach would not only improve the accuracy of behavioral predictions but also increase the efficacy of public health campaigns across different populations.

Another key finding of this study is the significant association between political ideology and attitudes and behaviors toward COVID-19 prevention. The results indicate that individuals with conservative leanings tended to have a more negative attitude toward COVID-19 prevention protocols and were less likely to adhere to behavioral guidelines than their liberal counterparts. This negative correlation is particularly noteworthy in light of the politicization of the pandemic, marked by influential conservative figures consistently downplaying the virus's severity and disregarding public health recommendations (Shabad, 2021). These findings are consistent with research by Stroebe et al. (2021), who observed that conservatives in the United States were less likely to comply with COVID-19 public health mandates and recommendations than liberals. This trend underscores the influence of political ideology on public health compliance and highlights the challenges in overcoming political divides in health communication and policymaking.

Furthermore, the association found in this study between an individual's political ideology and their attitudes and behaviors toward COVID-19 can also be linked to the media coverage of the pandemic in the United States, which often reflected the political leanings of its various audiences. Conservative-leaning media outlets have been known to propagate hoaxes and conspiracy theories, contributing to a divide in the information their viewers are willing to trust and potentially leading to diminished faith in medical professionals (Motta et al., 2020). In contrast, liberal-leaning media outlets tended to provide more extensive coverage and warnings about the pandemic (Mach et al., 2021). This polarized media landscape likely influenced individuals to align their judgments on COVID-19 prevention protocols with their political viewpoints, exacerbating divisions and impacting public health responses.

The results of this study seem to diverge from previous findings. Employing the HBM, which posits that an individual's values and expectations significantly influence their decision-making processes regarding health-related behaviors and participation in health programs, Boslaugh (2019) observed that conservatives typically exhibit greater health consciousness than liberals. However, the current study reveals that conservatives were less likely to comply with COVID-19 prevention measures. This contradiction underscores the need for further research to unravel the complex interplay of factors

that shaped attitudes and behaviors toward COVID-19 prevention and other health-related behaviors. Such studies are crucial for developing more effective health communication and intervention strategies that accommodate diverse political and cultural perspectives. This discrepancy also suggests that specific situational or contextual factors related to the COVID-19 pandemic may have uniquely influenced public health behavior across different political ideologies.

The analysis of the moderating role of resistance to persuasion revealed a significant interaction with political ideology in predicting attitudes and behaviors toward COVID-19 prevention. This suggests that an individual's receptivity to public health messages during the pandemic is likely contingent on their position within the political spectrum, ranging from conservative to liberal. The findings indicate that the combination of political ideology and resistance to persuasion significantly influenced both attitudes and behaviors, particularly in relation to COVID-19 prevention measures. This finding enriches existing theories of persuasion and communication by highlighting how resistance to persuasion interacts with political ideology to shape public health behaviors. It supports the notion that persuasive communication is not merely a function of message content and delivery but also of individual psychological and sociopolitical characteristics.

The findings of this study indicate that individuals with a positive perception of traditional media were more likely to be receptive to COVID-19 prevention measures. Specifically, as individuals' perceptions of traditional media become more favorable, their attitudes toward prevention measures improve, leading to increased compliance. Individuals who relied on traditional media and viewed it favorably were thus more likely to adopt COVID-19 prevention measures. This suggests the potential for public health authorities to form strategic partnerships with traditional media outlets to disseminate accurate and timely information about disease prevention. By leveraging trusted media sources, health officials can enhance public engagement and compliance with health guidelines. For future mass crises, these findings highlight the importance of including traditional media in the planning and execution of crisis communication strategies. The effective use of traditional media can aid in quickly spreading vital prevention information and managing public behavior during emergencies.

While this study provides valuable insights into the associations between individual psychological traits, media perceptions, and political ideology with attitudes and behaviors toward COVID-19 prevention, there are several limitations to consider when interpreting the results. First, the selection of variables was based solely on previous research without a robust theoretical framework, thus limiting our ability to discuss causality between variables. Second, the study was contextualized within a specific political and cultural setting (i.e., the United States), which may restrict the generalizability of the findings to other contexts in which different norms and pandemic responses may prevail. Additionally, potential confounding variables, such as socioeconomic status, education level, and access to health care, which were not controlled for, could have influenced the observed relationships. These limitations highlight the need for caution in extending these results too broadly and underscore the importance of further research to address these gaps.

Despite these limitations, this study illuminates the complex interplay between individual psychological traits, media per-

ceptions, and political ideology on attitudes and behaviors toward COVID-19 prevention measures. The findings of this study advocate the development of tailored communication strategies that consider the nuanced influences of personality traits and ideological orientations. Future research should continue to explore these dynamics to enhance the efficacy of public health interventions across diverse populations.

Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Funding Information

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

- Ahluwalia, R. (2000). Examination of Psychological Processes Underlying Resistance to Persuasion. *Journal of Consumer Research*, 27(2), 217–232. <https://doi.org/10.1086/314321>
- Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2021). Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency – CORRIGENDUM. *Psychological Medicine*, 51(10), 1770–1770. <https://doi.org/10.1017/S0033291721000593>
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and Company.
- Bartels, L. M. (2002). Beyond the Running Tally: Partisan Bias in Political Perceptions. *Political Behavior*, 24(2), 117–150. <https://doi.org/10.1023/A:1021226224601>
- Bartolome, D. S. (2020, June 25). Covid-19 and mask confusion: Separating myths from realities: Covid: UT southwestern medical center. COVID | UT Southwestern Medical Center. Retrieved April 15, 2022, from <https://utswmed.org/medblog/covid19-mask-myths-realities/>
- Becker, M. H. (1974). The health belief model and personal health behavior. *Health Education Monographs*, 2(4), 324–473.
- Bélangier, J., & Leander, P. (2020, December 9). What Motivates COVID Rule Breakers? *Scientific American*. <https://www.scientificamerican.com/article/what-motivates-covid-rule-breakers/>
- Betsch, C., Wieler, L. H., Habersaat, K., & COSMO group. (2020). Monitoring behavioural insights related to COVID-19. *The Lancet Public Health*, 5(5), e249–e249.
- Boslaugh, S. E., PhD. (2019). Health belief model. In *Salem Press Encyclopedia*. Salem Press; Research Starters. <http://libdata.lib.ua.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=89677562&site=eds-live&scope=site>.
- Briñol, P., Rucker, D., Tormala, Z., & Petty, R. (2004). Individual differences in resistance to persuasion: The role of beliefs and meta-beliefs. In *Resistance and persuasion* (pp. 83–104). <https://doi.org/10.4324/9781410609816>

- Brunier, A., & Drysdale, C. (2022, March 2). Covid-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide. World Health Organization. Retrieved April 21, 2022, from <https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide>
- Buturoiu, D. R., & Voloc, A. (2021). Media Coverage in Times of Crisis. *Intermedia Agenda-setting of COVID-19—Related Topics. Romanian Journal of Communication & Public Relations*, 23(2), 7–22. <https://doi.org/10.21018/rjcp.2021.2.323>
- Cillizza, C. (2020, May 27). Most Republicans *still* don't think coronavirus is more deadly than the flu. CNN. Retrieved April 18, 2022, from <https://www.cnn.com/2020/05/27/politics/coronavirus-republicans-flu/index.html>
- Cinelli, M., Quattrociocchi, W., Galeazzi, A., Valensise, C. M., Brugnoti, E., Schmidt, A. L., Zola, P., Zollo, F., & Scala, A. (2020). The COVID-19 social media infodemic. *Scientific Reports*, 10(1), 16598. <https://doi.org/10.1038/s41598-020-73510-5>
- Clark, C., Davila, A., Regis, M., & Kraus, S. (2020). Predictors of COVID-19 voluntary compliance behaviors: An international investigation. *Global Transitions*, 2, 76–82. <https://doi.org/10.1016/j.glt.2020.06.003>
- Cuello-Garcia, C., Pérez-Gaxiola, G., & Amelsvoort, L. van. (2020). Social media can have an impact on how we manage and investigate the COVID-19 pandemic. *Journal of Clinical Epidemiology*, 127, 198–201. <https://doi.org/10.1016/j.jclinepi.2020.06.028>
- Franck, T. (2021, December 27). Biden says Covid surge needs to be solved at state level, vows full federal support. CNBC. Retrieved from <https://www.cnn.com/2021/12/27/biden-says-covid-surge-needs-to-be-solved-at-state-level-vows-full-federal-support.html>
- Friestad, M., & Wright, P. (1994). The Persuasion Knowledge Model: How People Cope with Persuasion Attempts. *Journal of Consumer Research*, 21(1), 1–31. <https://doi.org/10.1086/209380>
- Geldsetzer, P. (2020). Knowledge and Perceptions of COVID-19 Among the General Public in the United States and the United Kingdom: A Cross-sectional Online Survey. *Annals of Internal Medicine*, 173(2), 157–160. <https://doi.org/10.7326/M20-0912>
- Gollust, S. E., Nagler, R. H., & Fowler, E. F. (2021). Mass Media Coverage of COVID-19: Implications for Public Health Communication. *Health Education & Behavior*, 48(1), 16–23.
- Gründl, J., & Aichholzer, J. (2020). Support for the Populist Radical Right: Between Uncertainty Avoidance and Risky Choice. *Political Psychology*, 41(4), 641–659. <https://doi.org/10.1111/pops.12643>
- Hofstede, Geert. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. In *Online Readings in Psychology and Culture*. The Berkeley Electronic Press. <http://scholarworks.gvsu.edu/orpc/vol2/iss1/8>
- Horne, Z., Powell, D., Hummel, J. E., & Holyoak, K. J. (2008). Countering antivaccination attitudes. *Proceedings of the National Academy of Sciences*, 105(33), 7327–7332.
- Jung, J. M., & Kellaris, J. J. (2004). Cross-national differences in proneness to scarcity effects: The moderating roles of familiarity, uncertainty avoidance, and need for cognitive closure. *Psychology & Marketing*, 21(9), 739–753. <https://doi.org/10.1002/mar.20027>
- Kleitman, S., Fullerton, D. J., Zhang, L. M., Blanchard, M. D., Lee, J., Stankov, L., & Thompson, V. (2021). To comply or not comply? A latent profile analysis of behaviours and attitudes during the COVID-19 pandemic. *PLOS ONE*, 16(7), e0255268. <https://doi.org/10.1371/journal.pone.0255268>
- Knowles, E. S., & Linn, J. A. (Eds.). (2014). *Resistance and Persuasion*. Psychology Press. <https://doi.org/10.4324/9781410609816>
- LaFee, S. (2021, March 18). Novel Coronavirus Circulated Undetected Months before First COVID-19 Cases in Wuhan, China. UC Health - UC San Diego. <https://health.ucsd.edu/news/releases/Pages/2021-03-18-novel-coronavirus-circulated-undetected-months-before-first-covid-19-cases-in-wuhan-china.aspx>
- Mach, K.J., Salas Reyes, R., Pentz, B., Taylor, J., Costa, C.A., Cruz, S.G., Thomas, K.E., Arnott, J.C. Donald, R., Jagannathan, K., Kirchoff, C.J., Rosella, L.C., and Klenk, N. News media coverage of COVID-19 public health and policy information. *Humanit Soc Sci Commun* 8, 220 (2021). <https://doi.org/10.1057/s41599-021-00900-z>
- Merkin, R. S. (2006). Uncertainty avoidance and facework: A test of the Hofstede model. *International Journal of Intercultural Relations*, 30(2), 213–228. <https://doi.org/10.1016/j.ijintrel.2005.08.001>
- Motta, M., Stecula, D., & Farhart, C. (2020). How right-leaning media coverage of COVID-19 facilitated the spread of misinformation in the early stages of the pandemic in the U.S. *Canadian Journal of Political Science/Revue canadienne de science politique*, 53(2), 335–342. <https://doi.org/10.1017/S0008423920000396>
- Ntontis, E., Vestergren, S., Saavedra, P., Neville, F., Jurstakova, K., Cocking, C., Lay, S., Drury, J., Stott, C., Reich, S., & Vignoles, V. L. (2022). Is it really “panic buying”? Public perceptions and experiences of extra buying at the onset of the COVID-19 pandemic. *PLOS ONE*, 17(2), e0264618. <https://doi.org/10.1371/journal.pone.0264618>
- O'Connor, S. P. (2022, May 20). United States Regions | National Geographic Society. National Geographic Education. Retrieved June 28, 2022, from <https://education.nationalgeographic.org/resource/united-states-regions/>
- Olagoke, A. A., Olagoke, O. O., & Hughes, A. M. (2020). Exposure to coronavirus news on mainstream media: The role of risk perceptions and depression. *British Journal of Health Psychology*, 25(4), e12427. <https://doi.org/10.1111/bjhp.12427>
- Pazzanese, C. (2020, May 8). Social media used to spread, create COVID-19 falsehoods. *Harvard Gazette*. <https://news.harvard.edu/gazette/story/2020/05/social-media-used-to-spread-create-covid-19-falsehoods/>
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328–335.
- Shabad, Rebecca. (2021, December 17). Trump White House made “deliberate efforts” to undermine Covid response, report says. NBC News. Retrieved from <https://www.nbcnews.com/politics/congress/trump-white-house-made-deliberate-efforts-undermine-covid-response->

report-n1286211

- Stroebe, W., vanDellen, M. R., Abakoumkin, G., Jr, E. P. L., Schiavone, W. M., Agostini, M., Bélanger, J. J., Gützkow, B., Kreienkamp, J., Reitsema, A. M., Khaiyom, J. H. A., Ahmed, V., Akkas, H., Almenara, C. A., Atta, M., Bagci, S. C., Basel, S., Kida, E. B., Bernardo, A. B. I., ... Leander, N. P. (2021). Politicization of COVID-19 health-protective behaviors in the United States: Longitudinal and cross-national evidence. *PLOS ONE*, 16(10), e0256740. <https://doi.org/10.1371/journal.pone.0256740>
- Vandello, J. A., & Cohen, D. (1999). Patterns of individualism and collectivism across the United States. *Journal of Personality and Social Psychology*, 77(2), 279–292. *APA PsycArticles*. <https://doi.org/10.1037/0022-3514.77.2.279>
- Waldrop, T. and Gee, E. (2020, October 26). Trump Rallies Are Often Followed by Increases in Local COVID-19 Cases. Center for American Progress. Retrieved from <https://www.americanprogress.org/article/trump-rallies-often-followed-increases-local-covid-19-cases/>
- Yoo, B., Donthu, N., & Lenartowicz, T. (2011). Measuring Hofstede's Five Dimensions of Cultural Values at the Individual Level: Development and Validation of CVS-CALE. *Journal of International Consumer Marketing*, 23(3–4), 193–210. <https://doi.org/10.1080/08961530.2011.578059>