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What Now: The Role of Attitude and Communicative Actions When Making Decisions During a Disease Crisis

Abstract

During a crisis such as the COVID-19 pandemic, organizations often communicate about a risk to encourage people to take particular protective actions, and the decision-making process about protective actions can be especially complex. It is important to determine how organizations can encourage specific behaviors and, as such, this study sought to investigate how attitudes and communicative actions influenced behavior related to recommendations from the CDC during the COVID-19 pandemic. To address the purpose of this study, an online quantitative survey was distributed to United States residents during the COVID-19 pandemic. Results from this study reveal that attitude and transmission and acquisition communicative actions are good predictors of behavior. Organizations should prioritize improving target audience's attitude toward the organization since this will likely lead to supportive behaviors during an infectious disease outbreak.

Keywords

Communicative actions, decision-making behaviors, crisis communication, disease outbreak, COVID-19

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Introduction

COVID-19 was an emerging infectious disease discovered in Wuhan, China, in late 2019 and was eventually declared a pandemic in early 2020 as the disease spread to more than 160 countries (World Health Organization [WHO], 2020). When the COVID-19 pandemic occurred in the United States in early 2020, the Centers for Disease Control and Prevention (CDC) worked to communicate about the disease to the American public, which included sharing information about the symptoms, clinical studies, short and long-term effects, and recommendations to limit the spread of the disease. The CDC is the leading public health agency in the United States that conducts disease surveillance, provides support to state health departments and other countries dealing with public health crises, and has become a major component of the Department of Health and Human Services (CDC, 2021a). The CDC works to address its mission to protect Americans from health, safety, and security threats by conducting scientific research and health communication.

Public health practitioners practice public health communication through effective communication with individuals and communities, interpretation of information, increasing knowledge change, and promoting behavior change. During a public health crisis, public health experts and government officials must communicate about risk, both on an individual level and a societal level (Tumpey et al., 2018). Agricultural communicators will often need to communicate about health challenges related to agricultural health and safety, including zoonotic disease outbreaks and foodborne illnesses (Irlbeck et al., 2013; Palmer et al., 2013; Sellnow et al., 2017). When communicating about risk through the crisis communication approach, the goal is to encourage the audience to take action (Coombs, 1999). Oftentimes during a risk situation, communicators, and especially agricultural communicators, have to understand and explain an element of science. Health and science communication require evaluation to investigate how the communication efforts influenced behavior or attitude (Schiavo, 2013).

Agriculture and health have long been intertwined with byproducts of agriculture impacting and being impacted by health. For example, food-borne illnesses can develop in commodity products, such as lettuce or spinach, and zoonotic diseases can develop and spread in animals. The agricultural workforce is also impacted by health topics, such as disease outbreaks. Like agricultural communication, health communication is a specific subset of science communication that includes research, theory, and practice. Goals of health communication range from the championing of a new health behavior to introducing a health policy that will ultimately lead to healthier individuals, communities, and societies (Schiavo, 2013). Audiences for health communication include health care professionals, patients, policymakers, and the public. The CDC has clarified health communication as informing or influencing the public in order to enhance health (CDC, 2011). Effective health communication can have direct and indirect positive impacts on public health through various levels, including individual, social network, and community levels (Abroms & Maibach, 2008). Many notable intervention campaigns have resulted in positive long-term impacts on public health crises, such as cardiovascular disease, cancer, and AIDS (Hornik, 2002). Typically, a communication campaign is developed and deployed to intervene on a particular behavior that causes or supports a negative health experience (Schiavo, 2013). For example, anti-smoking campaigns famously aim to encourage people to quit smoking as a way to extremely limit the chance of developing lung cancer. Effective health communication depends on a successful outcome, or a successful behavior change (Schiavo, 2013). To determine successful health communication, it is important

to evaluate communication and public relations activities to determine the influence on individual behaviors. The purpose of this study was to determine how attitude and communicative actions toward the CDC influenced recommended behaviors from the CDC during the COVID-19 pandemic. Findings from this study are valuable to the body of literature since the study is anchored in a non-hypothetical situation compared to previous work that is rooted in hypothetical situations.

Theoretical Framework

Theory of Reasoned Action

The theory of reasoned action and situational theory of problem solving (STOPS) guided the theoretical framework for this study. The theory of reasoned action explains how attitudes can be predictive of behaviors. Predicting behaviors is important to consider when investigating how members of the public form opinions about an organization or crisis in the first place. The theory of reasoned action includes five components: attitude toward the behavior, perceived norm, perceived behavioral control, behavioral intention, and the behavior (Fishbein & Ajzen, 2010). This study specifically focused on the predictive relationship of attitude on behavior.

The public as a whole, or groups of the general public with shared beliefs or attitudes, will form a common opinion about a topic (Bardes & Oldendick, 2012; Slater, 1995). People form opinions or attitudes about various entities, including other people, objects, organizations, and procedures (Ajzen & Fishbein, 1977). Scholars have offered a variety of definitions for attitude, including being defined as a motor function, passionate emotions, or simply a state of mind (Allport, 1935; Petty et al., 1981). However, scholars in the field of psychology agree on the importance of attitude as a construct in behavioral sciences (Allport, 1935; Perloff, 2016). In this study, attitude is conceptualized using Fishbein and Ajzen's definition: "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (Fishbein & Ajzen, 1975, p. 6). Accepted characteristics of attitudes are that attitudes are learned and influence actions, or behaviors (Perloff, 2016). Ajzen and Fishbein have led much of the research focused on attitude and behavior and laid the foundation for this field of scholarship. As an individual determines his or her attitude about something, they are making an evaluation of the subject. Ajzen and Fishbein (1975) determined that a person's attitude is "a function of his/her salient beliefs at a given point in time" (p. 222). How a person feels and what actions a person will take can be determined by measuring attitude.

Behavior is greatly influenced by attitude. Simply put, positive attitudes can lead to positive behaviors. The interaction of behavior and attitude was first introduced by Fishbein in 1967 and was later formalized in 1975 through Ajzen and Fishbein's development of the theory of planned behavior, which was later expanded to the theory of reasoned action (Fishbein & Ajzen, 2010). The theory of planned behavior contends that a person's beliefs determine a person's positive or negative attitude toward a behavior. This attitude ultimately determines an individual's intention, which leads to actual behavior.

Many researchers have applied the theory of reasoned action to determine the influence of attitude on behavior (Brinberg & Durand, 1983; Hrubes et al., 2001; Sperber et al., 1980). Public relations scholars have explored how organization-public relations impacts an individual's attitudes and behaviors and determined that positive attitudes lead to more supportive behaviors (Bruning et al., 2008; Chon & Park, 2019). Ki and Hon (2007) investigated the influence of

organization-public relationship perceptions on attitude and behavioral intentions. Ki and Hon determined that attitude and control mutuality, an indicator of organization-public relationships that refers to the benefits exchanged between groups out of concern for the other's well-being, had a strong, significant impact on behavior. Overall, attitude significantly affected behavioral intentions.

Hon and Grunig (1999) determined the importance of measuring the relationship between the organization and its publics and suggested that organizations evaluate the long-term outcomes of internal public relations departments. Hon and Grunig differentiated between outputs and outcomes, with outputs being the short-term results of a public relations department. Outcomes include opinion, attitude, and behavior changes.

Situational Theory of Problem Solving

Public audiences frequently communicate with organizations in order to learn about a particular problem and seek solutions (Grunig, 1997). Grunig (1966) developed the situational theory of publics (STP) to explain this concept and how people can be classified based on how they work through a problem. Originally, the two main variables of STP were problem recognition, to explain why people seek information, and constraint recognition, to explain when people seek information. Later, Grunig added communication behavior as a variable to explain how people seek and process information. In its original form, STP did not fully recognize all information behaviors. Situational theory of problem solving (STOPS) was developed to address this limitation (Kim & Grunig, 2011). STOPS broadened the scope of the theory to include how people address problems, instead of solely focusing on the decision-making process.

Communicative actions were considered an important concept as STP was broadened to STOPS. Individuals may interact with information differently when a risk or problem occurs, such as a public health crisis. Individuals will use information to solve the problem at hand. This idea is explained through communicative actions in problem solving (CAPS) (Kim et al., 2010). This construct is made up of three communicative actions: information selection, information transmission, and information acquisition.

Each communicative action is made up of two variables. Information selection variables include information forefending and information permitting (Kim et al., 2010). Information forefending is the more active communication feature that individuals use to reject information based on value and relevance, while the less active feature is information permitting, or when an individual accepts information. Information transmission variables include information forwarding and information sharing (Kim et al., 2010). Information forwarding is a communicative action that is more proactive and is often unsolicited. Information sharing is an action typically taken after the request of someone else, making it a more passive action. The final communicative action within CAPS, information acquisition, is made up of information seeking and information attending (Kim et al., 2010). Less active problem solvers are those who utilize information attending, while more active problem solvers utilize information seeking. Seeking information is a proactive feature compared to attending information, which is done reactively. Scholars have determined that publics' communicative actions were connected to behavioral intentions. Chon and Park (2019) determined that as individuals take and transmit information from an organization, they are more likely to exhibit supportive behaviors toward the organization.

The goal of risk communication is typically to encourage individuals to attend to a particular risk (Coombs, 1999). An organization may want individuals or a community to alter a behavior or adopt a new one. Organizations will share a message with partner organizations and the public, often with the hope that the message will be shared and spread through various groups (Coombs, 1999). Early in the COVID-19 pandemic, the CDC communicated about the symptoms of the disease, risk factors, and what to do if individuals thought they were infected (CDC, 2021b). Later, the CDC made recommendations to limit the spread, including social distancing and wearing a facial covering. The CDC depended on communicative actions for these messages to reach the broad public.

Purpose and Objectives

The purpose of this study was to investigate how attitudes and communicative actions influenced behavior related to recommendations from the CDC during the COVID-19 pandemic. The following objectives helped guide this investigation:

1. Describe the Americans' communicative actions, attitudes, and behaviors associated with the CDC's messages during the COVID-19 pandemic.
2. Determine the relationship between attitudes, communicative actions, and behavior during the COVID-19 pandemic.
3. Determine how attitude predicted behavior related to CDC recommendations during the COVID-19 pandemic.
4. Determine how communicative actions predicted behavior related to CDC recommendations during the COVID-19 pandemic.
5. Determine how attitude and communicative actions toward the CDC predicted behavior related to CDC recommendations during the COVID-19 pandemic.

Methods

Quantitative survey methodology was used to address the purpose of this study. This study addressed communicative actions, attitudes, and behavior. This research was part of a larger study that examined Americans' perceptions of the COVID-19 pandemic. The researcher-developed questionnaire used questions adapted from Chon and Park (2019) to address communicative actions. Original questions were developed to address attitudes and behavior. The instrument was approved by the University of Florida Institutional Review Board prior to data collection.

Communicative actions were measured using a five-point, Likert-type scale (1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Neither Agree nor Disagree*; 4 = *Agree*; 5 = *Strongly Agree*). Two communicative action domains were assessed, including information transmission and information acquisition. Specific variables included information seeking (three items; $\alpha = .914$), attending (three items; $\alpha = .915$), forwarding (three items; $\alpha = .929$), and sharing (four items; $\alpha = .903$). Information selection was not assessed since respondents were only asked about one source of information, being the CDC. A three-item, five-point bipolar semantic differential scale was used in this study to measure attitude toward the CDC. The items were bipolar, positive and negative adjectives: unknowledgeable/ knowledgeable; untrustworthy/ trustworthy; and unhelpful/ helpful. A 5 indicated a more positive attitude toward the CDC and a 1 indicated a less positive attitude. Attitude toward the CDC items were averaged together to produce an

attitude index (α = .930). Behavior toward the CDC was assessed using a three-item, five-point Likert-type scale (1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Neither Agree nor Disagree*; 4 = *Agree*; 5 = *Strongly Agree*) and included statements related to following instructions from the agency. The statements included the following: "During the COVID-19 situation, I follow the CDC's instructions step-by-step," "During the COVID-19 situation, I tell others to follow the CDC's instruction," and "During the COVID-19 situation, I listen for more information from CDC sources." Behavior items were averaged together to produce a behavior index (α = .880). A panel of experts in science communication, public opinion, and One Health reviewed the instrument to ensure content validity. Attention filters were used throughout the survey to ensure the quality of the data collected.

The target population of this study was American adults 18 years of age or older and representative of the U.S. population according to the 2010 U.S. Census based on age, gender, and race/ ethnicity. The United States reported more than 12 million cases of COVID-19 by November 2020, more cases than any country (Bendix & Gould, 2020; Statista, 2020). The CDC was providing the majority of guidance and recommendations for Americans related to public health during the COVID-19 pandemic, so it was important to explore how Americans' perceptions and attitudes influenced their behavior.

The survey was distributed and data were collected using Qualtrics, an online survey platform. Data for this study were collected between April 23 and May 7, 2020. Qualtrics recruited a non-probability opt-in sample of adults 18 years of age or older living in the United States (n = 1,550). Non-probability, quota sampling is a common approach to make population estimates (Baker et al., 2013). Non-probability sampling also helps alleviate methodological challenges association with high cost, low response rates, and reaching the desired population of interest (Lamm & Lamm, 2019). A known threat to validity is generalizing results from the study. Studies that utilize non-probability sampling cannot be generalized (Baker et al., 2013). Quota sampling alleviates some of the threats of generalizability since it ensures the sample closely represents the target population (Baker et al., 2013).

All data were analyzed using SPSS26. Descriptive statistics were used to address objective one of this study. Correlations were analyzed to address objective two of this study and simple linear regression analysis was used to address objective three of this study. Multiple linear regression was used to address objectives four and five.

Findings

Americans' Communicative Actions, Attitudes, and Behaviors Associated with the CDC

Research objective one was to describe the Americans' communicative actions, attitudes, and behaviors associated with the CDC during the COVID-19 pandemic. As displayed in Table 1, respondents were most likely to engage in information attending (M = 3.96) during the early stage of the COVID-19 pandemic, and were least likely to engage in information seeking actions (M = 3.64).

Table 1

Mean and Standard Deviations of Communicative Actions in Problem Solving Variables

Variable	Item	Mean	Standard Deviation
Information Attending	-	3.96	1.10
	During the COVID-19 situation, I pay attention to a news report by the CDC about COVID-19.	3.97	1.20
	During the COVID-19 situation, I take some time to listen when someone tries to give information about COVID-19 information provided by the CDC.	3.97	1.15
	During the COVID-19 situation, I pay attention when a news report about COVID-19 using CDC sources appears on TV news.	3.95	1.22
Information Sharing	-	3.19	1.20
	During the COVID-19 situation, I may not initiate it, but I am willing to have a conversation about the CDC's actions.	3.62	1.21
	During the COVID-19 situation, I talk about the CDC's actions when others bring up the topic of COVID-19.	3.22	1.40
	During the COVID-19 situation, I participate in casual conversation about how the CDC is facing COVID-19.	3.17	1.41
	During the COVID-19 situation, I initiate conversations about the CDC's actions.	2.75	1.43
Information Forwarding	-	3.12	1.41
	During the COVID-19 situation, I feel happy when I provide new information about COVID-19 from the CDC to others.	3.28	1.45
	During the COVID-19 situation, I make sure that my friends know about information the CDC provides.	3.16	1.49

	During the COVID-19 situation, I forward information from the CDC to people I know.	2.93	1.56
Information Seeking	-	2.64	1.10
	During the COVID-19 situation, I regularly check to see if there is any new information about the virus on the CDC website.	2.86	1.54
	During the COVID-19 situation, I regularly visit the CDC website to understand the virus.	2.70	1.51
	During the COVID-19 situation, I regularly visit the CDC's social media profiles (e.g. Facebook or Twitter) to understand the virus.	2.37	1.55

Note. Each item was measured on a five-point Likert-type scale (1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Neither Agree nor Disagree*; 4 = *Agree*; 5 = *Strongly Agree).*

The mean score of attitude toward the CDC was 4.18 (*SD* = .93) and the mean score of behavior related to CDC recommendations was 3.74 (*SD* = 1.13), which is displayed in Table 2.

Table 2

Mean and Standard Deviations of Attitude and Behavior

Variable	Item	Mean	Standard Deviation
Attitude	-	4.18	.93
	Unknowledgeable/ Knowledgeable	4.25	.92
	Unhelpful/ Helpful	4.19	1.01
	Untrustworthy/ Trustworthy	4.09	1.03
Behavior	-	3.74	1.13
	During the COVID-19 situation, I follow the CDC's instructions step-by-step.	3.91	1.91
	During the COVID-19 situation, I listen for more information from CDC sources.	3.83	1.22
	During the COVID-19 situation, I tell others to follow the CDC's instructions.	3.49	1.40

Note. Each item was measured on a five-point Likert-type scale (1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Neither Agree nor Disagree*; 4 = *Agree*; 5 = *Strongly Agree).*

Relationship Between Attitudes, Communicative Actions, and Behavior Related to the CDC

Research objective two of this study was to determine the relationship between attitudes, communicative actions, and behavior related to the CDC during the COVID-19 pandemic. The correlations between behavior, attitude, and communicative actions are displayed in Table 3.

Table 3

Correlations Between Behavior, Attitude, and Communicative Actions

	Behavior	Attitude	Info seeking	Info attending	Info forwarding	Info sharing
Behavior	1.00					
Attitude	.567**	1.00				
Info seeking	.570**	.340**	1.00			
Info attending	.728**	.564**	.489**	1.00		
Info forwarding	.683**	.425**	.734**	.599**	1.00	
Info sharing	.643**	.363**	.672**	.578**	.727**	1.00

Note. $N = 1550$.
**$p < .01$.

Substantial correlations existed between several of the variables, including information forwarding and information seeking ($r = .734$), behavior related to CDC recommendations and information attending ($r = .728$), information forwarding and information sharing ($r = .727$), behavior related to CDC recommendations and information forwarding ($r = .683$), information sharing and information seeking ($r = .672$), behavior related to CDC recommendations and information sharing ($r = .643$), information attending and information forwarding ($r = .599$), information attending and information sharing ($r = .578$), behavior related to CDC recommendations and information seeking ($r = .570$), attitude toward the CDC and behavior related to CDC recommendations ($r = .567$), and attitude toward the CDC and information attending ($r = .564$) (Cohen, 1988). Moderate relationships existed between attitude and information forwarding ($r = .425$), attitude toward the CDC and information seeking ($r = .340$), information seeking and information attending ($r = .489$), and attitude toward the CDC and information sharing ($r = .363$). All the correlations were statistically significant. Findings indicate positive relationships between attitude toward the CDC, communicative actions, and behavior related to CDC recommendations during the COVID-19 pandemic.

Impact of Attitude Toward the CDC On Behavior Related to CDC Recommendations

Research objective three was to determine how attitude toward the CDC predicts behavior related to CDC recommendations during the COVID-19 pandemic. Since the correlation coefficient between attitude and behavior was significant, regression analysis was used to determine how attitude toward the CDC predicted behaviors to follow recommendations from the CDC. The outcome variable of the regression model was behavior. Simple regression

was initially used to determine how perceptions of attitude alone predicted behavior. This analysis resulted in the model $R^2 = .322$ ($F = 733.843$, $p < .001$), which indicates the attitude variable is significant and explains 32.2% of the variance in behavior related to CDC recommendations (Table 4).

Table 4

Best-fit Linear Regression Model of Attitude Predicting Behavior During the COVID-19 Pandemic

Variable in Regression Model	β	Std. Error	*t*	Std. β	*p*
Constant	.866	.109	7.961		.000
Attitude	.689	.025	27.090	.567	.000***

Note. ***$p < .001$. $R^2 = .322$ ($F = 733.843$, $p < .001$)

Impact of Information Transmission and Information Acquisition Communicative Actions on Behavior Related to CDC Recommendations

Research objective four was to determine how information transmission and information acquisition communicative actions predict behavior related to CDC recommendations during the COVID-19 pandemic. Multiple regression analysis was used to better understand how information sharing, information seeking, information attending, and information forwarding predict behavior. The multiple regression model with the four predictor variables resulted in $R^2 = .639$ ($F = 683.702$, $p < .001$), which indicates the model with all four predictors explains 63.9% of the variance in behavior related to CDC recommendations (Table 5).

Table 5

Best-fit Linear Regression Model of Communicative Actions in Problem Solving Predicting Behavior During the COVID-19 Pandemic

Variable in Regression Model	β	Std. Error	*t*	Std. β	*p*
Constant	.662	.066	10.021	--	.000
Info seeking	.042	.019	2.249	.053	.025*
Info attending	.471	.020	23.194	.459	.000***
Info forwarding	.205	.021	9.686	.256	.000***
Info sharing	.146	.023	.6.478	.156	.000***

Note. ***$p < .001$, *$p < .05$. $R^2 = .639$ ($F = 683.702$, $p < .001$)

Impact of Attitude and CAPS Toward the CDC on Behavior Related to CDC Recommendations

Research objective five was to determine how perceptions of attitude and CAPS toward the CDC predicted behavior related to CDC recommendations during the COVID-19 pandemic.

Multiple regression analysis was used to better understand how attitude and information sharing, information seeking, information attending, and information forwarding predict behavior. The multiple regression model with the five predictor variables resulted in $R^2 = .662$ ($F = 605.623$, $p < .001$), which indicates the model with all five predictors explains 66.2% of the variance in behavior related to CDC recommendations (Table 6).

Table 6

Best-fit Linear Regression Model of Variables Predicting Behavior During the COVID-19 Pandemic

Variable in Regression Model	β	Std. Error	*t*	Std. β	*p*
Constant	.141	.081	1.729	--	.084
Attitude	.227	.022	10.321	.187	.000***
Info seeking	.039	.018	2.166	.049	.030*
Info attending	.377	.022	17.409	.367	.000***
Info forwarding	.183	.021	8.901	.229	.000***
Info sharing	.153	.022	7.008	.163	.000***

Note. ***$p < .001$, *$p < .05$. $R^2 = .662$ ($F = 605.623$, $p < .001$)

Conclusions and Recommendations

Findings indicate attitude toward the CDC paired with CAPS are good predictors that individuals would follow recommendations from the CDC during a public health crisis. These findings align with previous research that posits the importance of attitude and CAPS when predicting supportive behaviors toward an organization (Chon & Park, 2019; Ki & Hon, 2007).

Deciding to follow recommendations from a federal agency during the COVID-19 pandemic was a complex decision that could be explained through the lens of theory of reasoned action (Fishbein & Ajzen, 2010) and situational theory of problem solving (Kim & Grunig, 2011). Respondents' attitude toward the CDC during the pandemic impacted whether respondents would follow recommendations from the CDC related to COVID-19 (Fishbein & Ajzen, 2010). The communicative actions related to the CDC that respondents used to work through the problem of the pandemic also impacted if they would follow recommendations from the CDC (Kim & Grunig, 2011).

Findings from this study indicate substantial, statistically significant correlations between behavior and attitude and all four communicative actions investigated in this study. During the early stages of the COVID-19 pandemic, respondents were most likely to engage in information attending. Information attending is the less active feature of the information acquisition domain of problem solving. This would make sense during the early stages of the pandemic because respondents may have been unaware that there was anything they could do in response to the pandemic since vaccines were not yet available and little information was available.

Many of the conclusions from this study also align with Chon and Park's (2019) study that investigated what factors predict support of a government actions during an infectious disease outbreak. Findings from this study support Chon and Park's findings that people are more likely to follow recommendations from an organization when a positive relationship with

the organization exists. The current study was situated in a current and non-hypothetical infectious disease outbreak, whereas, Chon and Park investigated perceptions in a hypothetical, non-specific disease. This study further clarifies that communicative actions are good predictors of behavior during a current and specific disease, as well.

Findings from this study also align with findings from Ki and Hon (2007). While Ki and Hon explored how students' attitude toward a university impacted students' behavioral intentions, this study investigated respondents' attitudes and behavior toward a federal agency during a global health pandemic. Findings from this study also indicated attitude having a significant impact on behavior toward the CDC.

In this study, respondents used information sharing, information forwarding, information seeking, and information attending to work through the problem of what recommendations to follow during the COVID-19 pandemic. All of the communicative actions were significant predictors of behavior, with information seeking being the least significant. This is surprising since information seeking is a proactive behavior. It seems if participants seek information, they would be likely to follow or use recommendations from the CDC. However, perhaps the seekers of information are seeking in multiple places and maybe choosing other sources of information besides the CDC.

Results from this study provide implications for future research. Future research should explore respondents' attitudes and behaviors later in the pandemic as respondents' attitudes and behaviors likely evolved throughout the pandemic. Research should also investigate how attitudes toward the CDC impacted Americans' decision to receive medical interventions related to COVID-19, including the COVID-19 vaccine. Future research should continue to explore the relationship between a person's attitude and communicative actions since attitude is likely to be predictive of the communicative actions individuals use, particularly during a time of crisis. The relationship between communicative actions and types of information channels, such as social media or mass media, should also be investigated. Future research should also investigate how attitudes and communicative actions influence behavior related to recommendations from agricultural regulatory organizations, such as the United States Department of Agriculture, state departments of agriculture, and the Food and Drug Administration.

Findings from this study also provide practical implications for government organizations and communicators, including agricultural communicators. Positive attitudes toward government agencies can be fostered through public relations efforts through various organizations, leading to individuals and communities becoming more likely to follow their recommendations during an infectious disease outbreak or other public health crises. Federal agencies should also focus on promoting communicative actions, even passive ones, since they lead to supportive behaviors. Agricultural communicators should consider attitudes and communicative actions when communicating about health topics, such as disease outbreaks. Agricultural communicators can share information from organizations that are favorably viewed by the target audience to encourage behavior change.

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