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The Moral Foundations Of Attitudes Toward Mask Wearing

Kristen N. Leighton

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THE MORAL FOUNDATIONS OF ATTITUDES TOWARD MASK WEARING

by

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Submitted to the Graduate Faculty

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TABLE OF CONTENTS

ACKNOWLEDGMENTS	ix
ABSTRACT.....	x
INTRODUCTION	1
Theory of Planned Behavior	2
Theory of Reasoned Action	3
Subjective Norms.....	6
Moral Foundations Theory	13
Evolved Psychological Mechanism	14
Five Foundations.....	15
Individual Differences.....	17
Moral Foundations Theory and NPI Compliance.....	21
What is Known About COVID-19	23
Masks as an NPI.....	26
Background and Types of Masks.....	27
Effectiveness of Masks	28

Controversies	30
The Current Study.....	32
METHOD	35
Participants.....	35
Participant Recruitment	35
Materials and Procedure	38
Demographic Questionnaire	38
Political Ideology	38
Moral Foundations Theory (MFT; Graham, et al., 2009).....	39
Subjective Norms Regarding Mask Wearing.....	40
Oftenness of Mask Wearing.....	40
Results.....	42
Structural Model	42
DISCUSSION	46
Implications.....	51

Limitations	53
Future Directions	54
Conclusions.....	55
REFERENCES	56
TABLES AND FIGURES	67
Table 1: Descriptive Statistics	67
Table 2: Correlation Matrix	71
Figure 1: Theory of Planned Behavior.....	72
Figure 2: Five domains of Moral Foundations Theory.....	73
Figure 3: Proposed Structural Model	74
Figure 4: Response Frequency by State	75
Figure 5: Originally Hypothesized Structural Model	76
Figure 6: Revised Structural Model.....	77
Figure 7: Alternative Structural Model A.....	78
Figure 8: Alternative Structural Model B.....	79
APPENDICES:	80
Appendix A: Demographic Questionnaire.....	80
Appendix B: Moral Foundations Questionnaire.....	90

Appendix C: Oftenness of Mask Wearing, Subjective Norms, and Social Distancing

Questionnaire 96

Appendix D: Mask Wearing Attitudes 107

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ABSTRACT

As COVID-19 becomes endemic it is important to understand individual differences in motivation and adherence to mask wearing policies and recommendations. Mask wearing appears to be one way to protect communities, slow the spread, and save lives when COVID-19 rates spike in communities. The main study aim was to examine how Moral Foundations Theory and Theory of Planned Behavior, specifically subjective norms, may explain individual differences in mask wearing to slow the spread of COVID-19. Understanding the psychological correlates of why and how often individuals wear a mask to slow the spread of COVID-19 can help community leaders, public health professionals, and medical experts construct better messaging to encourage more people to wear masks when needed. Results suggest a need for greater consistency in messaging and norms regarding mask wearing to slow the spread of COVID-19. In the case of COVID-19, people were exposed to an injunctive norm that people should wear masks to protect themselves; however, for many people, descriptive norms were in conflict with the injunctive norm. There must be consistent messaging at every level when a public health crisis emerges—in this case, consistent messaging that brought injunctive and descriptive norms into alignment at every level of government would likely have resulted in higher rates of pro-mask wearing norms to slow the spread of COVID-19.

INTRODUCTION

On March 11, 2020, the World Health Organization (WHO) formally declared COVID-19 a pandemic (WHO, 2021). By early April 2020, the Centers for Disease Control and Prevention (CDC) recommended that all Americans wear masks to slow the spread of COVID-19 (CDC, 2021). Researchers quickly realized the important role psychological research would play in understanding how people respond to the threat of COVID-19 and how they will adhere to behaviors and policies designed to reduce the spread of illness (Arden & Chilcot, 2020). Behavioral change and maintenance of new behaviors are key to controlling and reducing coronavirus transmission.

To understand psychology's role in directing behavioral change with the hope of reducing COVID-19 infections, it is important to understand how people make decisions about which behaviors to engage in or avoid. This is essential because a key tool in reducing the spread of COVID-19 is the use of nonpharmaceutical interventions (NPIs). NPIs are specific behaviors public health experts believe will reduce the transmission of respiratory illnesses like COVID-19. Thus, the health of a community (low rates of COVID-19) depends upon as many community members as possible adhering to those behaviors (i.e., social distancing, wearing a mask, washing hands) (CDC, 2021). The Theory of Planned Behavior provides a framework for understanding why people choose to engage in or avoid certain behaviors (Ajzen, 1991; Fishbein, 1967; Ajzen & Fishbein, 1975). It can also provide policymakers and public health experts with structure to encourage greater adherence to such behaviors.

Next, it is important to understand the moral reasoning behind a person's decision to adhere to NPIs and how such reasoning influences behavior. Within the United States (US), it appears there are two factions in the public response to NPI campaigns. For example, despite ample research demonstrating otherwise, certain demographic groups within the US believe that NPI measures are ineffective, inconvenient, and even detrimental to one's health (Kantor & Kantor, 2020). One way to view these differences is to consider how certain communities adapt to and integrate new social norms. Quickly after the CDC released recommendations for all Americans to wear masks, two groups seemed to emerge with strong opinions. One group saw failing to wear a mask in public as a moral taboo, while others were vocal in their viewpoint that mandating masks is a serious assault on their personal liberties (Kantor & Kantor, 2020). In order to encourage enough people to follow NPIs to reduce COVID-19 transmission, it is important to understand why certain groups are reluctant to comply.

Theory of Planned Behavior

The Theory of Planned Behavior attempts to predict a person's intent to engage in a behavior at a specific time and place. This theory is a useful conceptual framework to understand the complexities of human behavior - specifically the likelihood of a person engaging in a target behavior such as mask wearing. Figure 1 visually shows how behaviors are influenced by intentions, which are determined by three factors – attitudes, subjective norms, and perceived behavioral control. The foundation of the Theory of

Planned Behavior is built upon the Theory of Reasoned Action (Fishbein, 1967; Ajzen & Fishbein, 1975).

Theory of Reasoned Action

The Theory of Reasoned Action emphasizes behavioral intentions when attempting to predict behavior. These behavioral intentions are affected by attitudes regarding the behavior and subjective norms. Therefore, the Theory of Reasoned Action can be considered to have two key components. The first key component of the Theory of Reasoned Action is the attitude an individual possesses toward the behavior. This may include perceived consequences or benefits of performing the behavior in question. The second key component is subjective norms. As discussed in more detail later, subjective norms refer to the belief that most people considered important or influential by the individual either approve or disapprove of the behavior in question. In other words, subjective norms depend on whether or not someone feels that their peers support the behavior.

The Theory of Planned Behavior further refined the main concepts of the Theory of Reasoned Action and added perceived behavioral control as a key factor in predicting how likely a behavior is to occur. Fundamental to the Theory of Planned Behavior is the view that a key factor in whether the behavior will occur is the person's intention to perform the behavior (Ajzen et al., 2007). Behavioral achievement of the target behavior

depends on both motivation (i.e., intention) and ability (i.e., behavioral control) (Ajzen, 1991).

Working from the premise that most behavior is the result of an individual's intention to perform the behavior, predicting the likelihood of that behavior occurring can be achieved by breaking down the factors influencing intention (Ham et al., 2015). Three conceptually independent variables influence a person's intention to perform a specific behavior. The three factors influencing behavioral intention are: Personal attitude – how an individual feels about performing the behavior; subjective norms – how the individual perceived others feel about the individual performing the behavior; and perceived behavioral control – is the individual able to perform the behavior. In more depth, the first variable is personal attitudes towards a particular behavior. This includes all the knowledge, viewpoints, and prejudices, both positive and negative, someone thinks of when considering the behavior. These are salient and easily accessible beliefs about the possible consequences associated with the behavior in question resulting in either favorable or unfavorable attitudes towards the behavior (Ajzen et al., 2007). For example, consider someone's attitude towards smoking – they may recognize that smoking will likely help them relax and ease their nicotine cravings but is also expensive, harms their health, and causes their clothes to smell like cigarette smoke.

The second variable is subjective norms and utilizes the perceived normative expectation of relevant people or groups of people (Ajzen et al., 2007). Here, people

consider how the group views others who smoke. This might include the attitude of a family member, friends, or even work colleagues. To be clear, it is not what others actually think about the behavior but the individual's perception of others' attitudes. Less important are the true beliefs of group members regarding smoking, but rather the person's idea of how the group views smoking.

Finally, people take into account perceived behavioral control, which are additional considerations that may promote or obstruct their ability to carry out the resulting behavior (Ajzen et al., 2007). Perceived behavioral control is the extent to which someone believes they can control their own behavior. This factor was not included in the original Theory of Reasoned Action but was added later in the Theory of Planned Behavior. It is influenced by the assessment of internal and external factors. Internal factors include perceptions of ability and determination while external factors include available resources and support. Generally, a stronger intention to perform a behavior occurs when more favorable attitudes and subjective norms of a behavior are held along with greater perceived behavioral control (Ajzen et al., 2007). When people hold enough actual control over the behavior, they can be expected to carry out their intentions when the opportunity arises. Thus, the intention is often assumed to be an immediate antecedent of behavior.

Perceived behavioral control affects the intention to perform a behavior in two ways. First, it influences one's intention to behave a certain way because the more control

one thinks they have over a behavior, the stronger the intention to perform that behavior. It also affects behavior directly because when someone believes they have a high level of control over a behavior they will try harder and longer to succeed in that behavior. Figure 1 shows the conceptual framework of the Theory of Planned Behavior, including how personal attitude, subjective norms, and perceived behavioral control influence intention.

Subjective Norms

The majority of the research regarding NPI behaviors during the COVID-19 health crisis has focused on the role of the subjective norms in influencing a person's intention to engage in a target behavior (Gibson et al., 2021; He et al., 2021; Irfan et al., 2021; Shmueli, 2021). Subjective norms are the personal beliefs that an individual or group of people with high social influence will approve of and support a particular behavior (Ham et al., 2015). Subjective norms are determined by perceived social pressure to behave in a certain way and the motivation to comply with those pressures. Subjective norms reveal common beliefs held about how an individual would be viewed by their reference groups if they engage or fail to engage in a specific behavior.

The Theory of Planned Behavior has been used to successfully predict and explain several health behaviors and intentions. For example, Shmueli (2021) used the theory of the planned behavior model to look at the intentions, motivations, and barriers of the COVID-19 vaccination among Israeli adults and found that subjective norms and self-efficacy were significant predictors of intention to take the vaccine for COVID-19.

Specifically, the subjective norm, “Most of my friends will support the COVID-19 vaccine” and “if I tell my friends and relatives that I intend to get vaccinated against COVID-19 when a vaccine is available, they will respond positively” were significant predictors of an intention to receive the COVID-19 vaccine (Shmueli, 2021).

Another study focused on the role of the Theory of Planned Behavior and the willingness to wear a mask during the COVID-19 health crisis in Pakistan. In this study, the authors conducted an structural equation model (SEM) analysis, which found that social norms regarding mask wearing were a significant predictor of willingness to wear a mask (Irfan et al., 2021). Risk perceptions of the pandemic and perceived benefits of facemasks also predicted one’s willingness to wear a mask (Irfan et al., 2021). Conclusions from this study highlight the need for policymakers to pay close attention to the attitudes, subjective norms, risk perceptions, and perceived benefits associated with facemasks when designing public health messaging (Irfan et al., 2021).

Gibson et al. (2021) investigated how the Theory of Planned Behavior constructs were associated with social distancing with a longitudinal study of 507 U.S. adults. The authors found that the Theory of Planned Behavior might be an effective framework for predicting adherence to NPI behaviors. Their findings indicate the importance of policymakers to use health communication techniques that target attitudes, subjective norms, and perceptions of control when developing public health campaigns regarding NPIs (Gibson et al., 2021).

What is unanswered by the above research is why some groups may possess positive subjective norms around mask wearing while other groups hold negative subjective norms regarding mask wearing. He et al., (2021) analyzed over 250,000 U.S.-based tweets from January 2020 to October 2020 containing personal opinions about mask wearing to prevent the spread of COVID-19. Anti-mask tweets accounted for about 10% of those tweets. They found that the most common reasons for opposing mask wearing included physical discomfort, lack of effectiveness, a perception that masks were unnecessary, and negative effects such as difficulty breathing, acne, or harm to one's immune system (He et al., 2021). A qualitative content analysis was conducted on a sample of anti-mask tweets and uncovered six major categories of anti-mask rhetoric. Physical discomfort or perceived negative effects of mask wearing was the largest category, with 30.6% of anti-mask tweets representing this theme. Lack of effectiveness in masks was the second-largest category; 27.4% of anti-mask tweets were on this topic. The lack of necessity or inappropriateness of masks for certain people or in certain circumstances appeared in 17% of the anti-mask tweets, political belief themes were found in 12.2% of anti-mask wearing tweets, a lack of mask wearing culture was noted in 9.6% of anti-mask wearing tweets, and finally views that coronavirus is not a serious threat were present in 3.2% of anti-mask wearing tweets. These results suggest that, while in the minority, anti-mask subjective norms are present.

Furthermore, it appears that political divisions influence individual responses to COVID-19. For example, Kahane (2021) found that, after controlling for other factors,

mask wearing in the community was significantly less common in US counties that strongly supported Donald Trump, the Republican presidential candidate in the 2016 presidential election. To explore factors influencing mask wearing behavior in the US, this study utilized a data set collected by a national survey firm. Data from 250,000 US respondents were collected between July 2 and July 14, 2020. Each participant responded to the following question on a 5-point Likert type scale: “How often do you wear a mask in public when you expect to be within six feet of another person?” Responses were used to create a weighted sum, county-level index of mask wearing behavior. Next, the percentage of the popular vote in each county awarded to Donald Trump in the 2016 presidential election was calculated. The author controlled for urbanization, economic conditions, and demographic measures. The author attributed these results to Trump supporters seeking guidance regarding mask wearing from then-President Trump (Kahane, 2021).

While president, Trump repeatedly refused to wear a mask, issue a mask mandate, or encourage the public to wear masks to slow the spread of COVID-19 (Smith, 2020). When the CDC first advised wearing a mask in public Trump said the following at a task force news conference, “In light of these studies, the CDC is advising the use of nonmedical cloth face covering as an additional voluntary public health measure. So it's voluntary; you don't have to do it. They suggested for a period of time. But this is voluntary. I don't think I'm going to be doing it” (Smith, 2020, APRIL: CDC recommends, but Trump won't section). In one example, on May 26, 2020, less than two

months before the above survey was conducted, Trump criticized a reporter for wearing a mask. Notably, on July 17, 2020, the following exchange occurred between then-President Trump and Chris Wallace, a Fox News reporter:

Chris Wallace: “The CDC says if everybody wore a mask for four to six weeks, we could get this under control. Do you regret not wearing a mask in public from the start, and would you consider — will you consider a national mandate that people need to wear masks?”

Trump: “No. I want people to have a certain freedom, and I don’t believe in that, no. And I don’t agree with the statement that if everybody would wear a mask, everything disappears.” (Smith, 2020, JULY: Wearing masks is 'patriotic' section)

It is important to view former President Trump's views on mask wearing in the context of the principle of social proof (Cialdini, 2001; Lun et al., 2007). The principle of social proof posits that people decide if a behavior is correct in a specific situation by the degree to which they see others performing the behavior. That is to say, someone will use what others around them are doing (i.e., wearing a mask or not) to determine how they should behave. The use of social evidence in deciding how to behave generally works out well for the individual. Generally, when many people behave a certain way, acting similar to the group is the socially acceptable thing to do. Social proof provides a shortcut in determining how to behave (Cialdini, 1994). Baristas seeding a tip jar is an example of social proof in action. By placing a few dollars into the empty tip jar at the start of a shift,

the barista is signaling that most people are tipping and it is the socially acceptable thing to do, consequently resulting in more tips throughout the day.

Yet, the principle of social proof is not without its weaknesses. Consider the bystander effect. The bystander effect occurs when during an emergency - the more bystanders are present, the less likely someone will help (Latané & Darley, 1970). That is to say, if someone is witnessing an emergency and unsure of how to act or help, they may look to others as an example of how to behave. If no one else is reacting to the emergency, it perpetuates no one else stepping up to help.

A major factor in encouraging the use of social proof is uncertainty about the situation, such as what occurred with public messaging regarding masks. Initially, federal officials in the US recommended against wearing facemasks due to demand and shortages (Yan, 2020). This created confusion about the benefits and effectiveness of facemasks to slow the spread of COVID-19. According to the principle of social proof, as people see others refraining from a behavior, they are more likely to also refrain from that behavior (Cialdini, 1994).

Another factor influencing social proof in behavior is similarity. People are more inclined to follow the behavior of someone they view as similar to themselves (Cialdini, 2009). Cialdini (2009, 1994) explains that people are especially likely to engage in certain behaviors when they can relate to others who performed the same behavior, or in the case of mask wearing those who were especially vocal in their refusal to wear a mask.

Related to the effect of similarity in influencing behavior is referent power (Raven, 1965, 2008).

Raven's (1965) work on bases of power provides additional insight into former President Trump's influence on mask wearing in the U.S. during the COVID-19 public health crisis. Social influence is a change in beliefs, attitudes, or behavior of a target person (the target of influence) resulting from the action of another person (an influencing agent) (French & Raven, 1959; Raven, 1965). The capability of a power figure to cause potential changes in beliefs, attitudes, or behaviors is defined as social power and occurs based on the resources available to the power figure (Raven, 2008). Raven (1965) defined the specific resources available as bases of power. Bases of power include informational, reward, coercion, legitimate, expertise, and referent. Relevant to the discussion of former President Trump's influence on mask wearing is the referent base of power. Referent power occurs when the target of influence identifies with the influencing agent. The impact of similarity within social proof and referent power on mask wearing can be seen in studies conducted by Adolph et al., (2020) and Kahane (2021).

A national study demonstrated the role of the governor of a state's political affiliation on mask mandates within the state (Adolph et al., 2020). States with Democratic governors were 7.33 times more likely to adopt a mask mandate when compared to states with Republican governors. Furthermore, states with citizens who identified as more liberal were 1.72 times more likely to adopt mask mandates than states

with conservative citizens (Adolph et al., 2020). Another study found counties that strongly supported Donald Trump for president in the 2016 presidential elections reported significantly lower rates of mask wearing (Kahane, 2021). Moreover, a cross-sectional community-based survey conducted from August 4 to September 4, 2020, in Southeastern Minnesota found that holding a Republican Party affiliation, lacking a college degree, and living in a rural location were all associated with a lower willingness to wear a mask (Sinicrope et al., 2021). Moral Foundations Theory may provide insight into individual differences between conservative voters and liberal voters useful in explaining their divergent subjective norms regarding mask wearing to reduce the spread of COVID-19.

Moral Foundations Theory

Societies across time and cultures have developed noticeably similar values, norms, and conceptions of morality (Graham et al., 2012). Moral Foundations Theory posits how and why this occurred. Haidt and Joseph (2004) examined research from anthropology, social psychology, evolutionary psychology, and evolutionary theories about human and primate sociality to determine the most logical moral foundation candidates. Foundation domain candidates were based on those moral concerns found widely across cultures and which had evolutionary explanations related to evolved psychological mechanisms. For example, across cultures and human evolutionary history, there is a preoccupation with fairness, reciprocity, and justice, which is explored in

Trivers' (1971) theory of reciprocal altruism. Reciprocal altruism is a behavior in which an organism behaves in a way that temporarily reduces its own well-being while increasing the well-being of another, with the expectation that this favor will be returned in the future. Additionally, cultures tend to prioritize caring, nurturing, and protecting vulnerable individuals (De Waal, 2008).

Further research by Haidt and Joseph (2004) found that most cultures did not limit their moral concerns to those that protect individuals. In fact, loyalty, patriotism, and self-sacrifice for the group emerge as common virtues. Moreover, when we consider the evolution of hierarchy in primates and human societies it becomes evident that cultures also value obedience and respect for authority (subordinate) and leadership (authority). Finally, religious practices common throughout our evolutionary past inspire modern practices related to purity and sanctity such as contamination sensitivity and suppression of lust, greed, and carnal nature.

Evolved Psychological Mechanism

MFT differs from other approaches in moral psychology by proposing that the human mind is naturally predisposed to learn values, norms, and behaviors related to evolutionarily relevant social problems. The deeply rooted genetic basis for these foundations predicts that all cultures will value each foundation (thus arguing against a purely cultural learning model) but allows for cultural and individual variance in how each foundation is interpreted and valued. Hence, Haidt and Joseph (2004) propose a

model of moral psychology in which moral intuitions interact with cultural institutions and result in the moral behaviors we observe.

Five Foundations

Moral systems are an interconnected set of values and evolved psychological mechanisms that work to keep communities allied and limit selfishness (Graham et al., 2009). There are at least five identified “foundations” in Moral Foundations Theory and each solves a specific adaptive challenge. Furthermore, each foundation has been observed across diverse cultures. Figure 2 shows each moral foundation domain discussed below as well as the adaptive challenge it solved, the original trigger, a current trigger example, and the impact on the individual.

The first foundation is harm/care and relates to humans’ evolved attachment systems and ability to feel and dislike the pain and suffering of others. This foundation solves the adaptive challenge to protect and care for the young, the vulnerable, or injured kin and is triggered by witnessing suffering, distress, or threat towards one’s kin. Additionally, this foundation helps individuals in interpersonal settings (Haidt & Joseph, 2004).

The second foundation is fairness and relates to the process of reciprocal altruism in which one sacrifices to help another with the assumption that, if needed, in the future the favor will be repaid. Fairness solves the adaptive challenge to reap the benefits of cooperation with non-kin community members and is triggered by cheating, cooperation,

or deception by members. As with the harm/care foundation, this also benefits individuals in interpersonal settings (Haidt & Joseph, 2004).

The third foundation is loyalty and relates to humans' long social histories in which in-group loyalty was necessary for a group's survival. Cooperative groups outcompete selfish groups, giving an evolutionary advantage to cooperative traits in a social species like humans. Unlike the first two foundations discussed this generally presents a disadvantage for individuals but strengthens the group (Haidt & Joseph, 2004).

The fourth foundation is authority and was shaped by humans' evolved hierarchical social interactions. The foundation of authority works to solve the adaptive challenge to negotiate within a hierarchy and defer selectively. Signs of dominance and submission trigger authority. Authority is also generally disadvantageous for individuals but advantageous to the group and a whole and those seen as leaders specifically (Haidt & Joseph, 2004).

The fifth foundation is sanctity and was shaped by the evolutionary history of avoiding disgust and contamination. This includes certain notions concerning religion and purity, such as striving to live an elevated and nobler life in which one's body is a temple and avoiding immoral activities. Adaptive challenges solved by this foundation include avoiding microbes and parasites as well as encouraging a cohesive community through traditions. Waste products, diseased people, taboo ideas, and activities that diverge from traditions trigger this domain (Haidt & Joseph, 2004).

Individual Differences

While these foundations appear to be universal, the extent to which these foundations are endorsed tends to vary among cultures and individuals (Graham et al., 2011; Niemi & Young, 2013). Individual differences exist even in what people count as morally relevant. Some people focus almost exclusively on the importance of individual rights, including the right to be treated fairly and the right to not be harmed, while others focus additionally on moral norms that bind communities. Therefore, moral concerns that focus on ensuring that everyone is protected are often labeled as individualizing values and include the foundations of harm and fairness. Moral concerns that focus on group loyalty, showing respect for authority (including social hierarchies), and maintaining bodily or spiritual purity are labeled as binding values and include the foundations of loyalty, authority, and sanctity.

Foundational research on this topic has considered the relationship between Moral Foundations Theory and political party affiliation (Graham et al., 2009). The researchers found that individuals who identified as liberal were primarily concerned with harm and fairness - the individualizing values - while conservatives more evenly distributed their moral concerns across all five foundations - both individualizing and binding values. The moralities of liberals and conservatives were examined across four studies utilizing multiple research methods.

The first study looked at moral relevance (Graham et al., 2009). For this study, a large international sample rated the moral relevance of foundation-specific concerns and

participants rated how relevant a broad sample of potential concerns were when making moral judgments. Participants who identified as liberal reported that harm and fairness were more relevant to moral decisions than loyalty, authority, or purity while participants who identified as conservative reported a more equal distribution among the five foundations (Graham et al., 2009). A second study considering moral judgements was conducted in which liberals' and conservatives' moral judgments were examined as a function of explicit and implicit political identity (Graham et al., 2009). Participants were required to make moral judgments about specific scenarios that represent or violate abstract moral principles. As with the first study, participants who identified as liberal were more concerned with issues of harm and fairness, while conservatives were more concerned about issues related to loyalty, authority, and purity (Graham et al., 2009).

In an additional study concerning moral trade-offs, participants were presented with moral trade-offs in which they were asked how much money would be required to perform foundation-violating behaviors (Graham et al., 2009). In support of previous findings, liberals declined to make trade-offs on items related to harm and fairness yet were more willing to perform actions that violated loyalty, authority, and purity foundations. Conservatives reported more unwillingness to accept money to act in ways that violate loyalty, authority, and purity concerns. This suggests that a political difference exists in making moral trade-offs where liberals are more concerned with the consequences for individuals when justifying rules while conservatives are more likely to

respect rules they perceived as handed down from God or earlier generations (Graham et al., 2009).

In last study reported by Graham et al., (2009) moral texts were analyzed to determine if speakers from different moral communities spontaneously used foundation-related words in different ways. Religious sects known for being more liberal are more likely to discuss issues of harm and fairness whereas sects which are traditionally more politically conservative are more likely to discuss authority and purity. For example, Unitarian texts are more likely to discuss issues related to harm and fairness while Baptists texts are more likely to discuss issues related to authority and purity (Graham et al., 2009). Results from all four studies showed that liberals showed evidence of a morality based primarily on the individualizing foundations (i.e., harm/care and fairness) while conservatives showed a more even distribution of values which included the two individualizing foundations as well as the three binding foundations (i.e., loyalty, authority, and sanctity).

Therefore, one's level of endorsement for each of the five moral domains may be used to predict attitudes on common controversial topics (e.g., abortion, immigration, same-sex marriage). Koleva and colleagues (2012) found that endorsement levels of the five moral foundations predicted judgments about common controversial issues even more so than an individual's age, gender, religious attendance, and interest in politics. In another study, participants rated their moral disapproval for 13 controversial issues – abortion, the death penalty, medical testing with animals, euthanasia, same-sex marriage,

homosexual relations, burning a US flag, having a baby outside of marriage, stem cell research, pornography, gambling, casual sex, and animal cloning (Koleva et al., 2012). Not only did moral foundations endorsement emerge as a significant predictor for controversial issues, but purity was also the best predictor of disapproval of the issues, even more so than political orientation, interest in politics, age, gender, or religious attendance. This pattern holds for even the most hotly contested issues, including same-sex marriage and abortion. Willingness to wear a mask to prevent and slow the spread of COVID-19 is another controversial topic Moral Foundations Theory may help explain.

Niemi and Young (2013) further explored the differences in individualizing and binding values. Communities that are guided primarily by binding values encourage their members to stay loyal to the group, respect relevant authorities, and maintain high community standards for spiritual and physical purity. This may contribute to the positive consequence where group members elevate the needs of the group above their own individual needs. However, they may also prioritize their own group's needs over the needs of other groups, leading to negative intergroup attitudes such as prejudice and bias towards out-group members. In fact, binding values may promote a tendency to "bind and divide" communities (Niemi & Young, 2013). Binding values are concerned with the differences between groups while individualizing values are concerned with the well-being of individuals across or despite their respective ingroups. Moreover, recent research suggests that moral foundations may play a role in whether a person follows social distancing recommendations (Graham et al., 2020). People who endorsed binding

foundations were more defiant of social distancing guidelines, while those who endorsed individualizing foundations were more likely to engage in social distancing (Graham et al., 2020).

Moral Foundations Theory and NPI Compliance

Nonpharmaceutical interventions (NPIs) are actions that individuals and communities take to slow the spread of respiratory illnesses and are an important step in preventing or slowing the spread of pandemic respiratory illnesses. These actions do not include medications, vaccines, or other pharmaceutical interventions. There are three broad categories of NPIs – personal, community, and environmental. Actions in the personal category include staying home when sick, covering coughs and sneezes with tissues, and washing hands often or using hand sanitizer. In the community category, actions include creating physical distance between people in settings when interacting with others; temporarily closing schools; and modifying, postponing, or canceling large public events. An example of an environmental NPI is routinely cleaning and disinfecting frequently touched surfaces (CDC, 2021).

Moral Foundations Theory has been used to research behavioral compliance with NPI policies (i.e., staying at home, wearing a mask, and social distancing) (Chan, 2021). Three common behaviors associated with flattening the COVID-19 curve were associated with certain Moral Foundations Theory domains. Caring and fairness predicted behavioral compliance intentions for all three target behaviors. Authority did not predict

behavioral compliance; this may be explained because the study asked about hypothetical behaviors and not government-mandated behaviors. These results are important because they demonstrate how public health campaigns can motivate people to follow health recommendations. For example, the Chan (2021) argues that fines and punishments will only minimally promote compliance because they relate to the authority foundation, which was found to not predict behavioral compliance. More research is needed to understand the role Moral Foundations Theory plays in an individual's willingness to participate in behaviors intended to reduce the spread of COVID-19. Specifically, Chang (2021) did not look at the potential interaction between social norms and Moral Foundations Theory as a means to increase behavioral compliance. Moral-based attitudes, as measured by Moral Foundations Theory, might be strong predictors of behavior based on what the individual views as important; likewise, social norms can be a predictor of behavior based on what the community views as important. Hence, further research should investigate how the two interact in explaining behavioral compliance of NPIs to reduce the spread of COVID-19.

Additionally, research has found that people who objected to wearing masks were the minority, though highly vocal (Taylor & Asmundson, 2021). Their research showed that the majority of individuals were willing to wear a mask. Interestingly, they also looked at reasons why people were against mask wearing. A central rationale of anti-maskers was a belief that masks were ineffective and a belief that mask mandates violated their civil liberties (Taylor & Asmundson, 2021). According to Taylor and

Asmundson (2021), it is critically important to address the question of why people object to mask wearing and how to encourage them to wear a mask. By understanding personality characteristics associated with anti-mask attitudes, public health messaging can better target those who are reluctant to wear masks.

What is Known About COVID-19

Given the rapidly evolving scientific understanding of COVID-19, it may be helpful to review the current state of knowledge on the disease. In late 2019, a novel coronavirus strain named “severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2) emerged, causing what we now consider a global pandemic of coronavirus disease 2019 (COVID-19) (Abbott et al., 2020). SARS-CoV-2 is in the same family as the virus that caused the SARS outbreak of 2003 and the MERS outbreak of 2012. COVID-19 is extremely contagious and has the potential to cause serious complications. The WHO declared the outbreak a public health emergency on January 30, 2020, and upgraded it to a pandemic on March 11, 2020 (WHO, 2021). In early April of the same year, the Centers for Disease Control and Prevention (CDC) recommended that Americans wear masks to slow the spread of COVID-19 (CDC, 2021).

While most people with COVID-19 only experience flu-like symptoms (i.e., fever, cough, difficulty breathing, and fatigue) it is much more contagious than the flu. Furthermore, COVID-19 has a much higher death rate when compared to the flu – between .3 to 5.7% for COVID-19 and .1% for the flu (Abbott et al. 2020). About 15% of

people infected with COVID-19 become seriously ill and require oxygen and 5% become critically ill and need intensive care (WHO, 2021). Serious COVID-19 complications include damage to the lungs, liver, and heart; permanent loss of taste and smell; blood clots; stroke; and death. The rate of complications is higher in people with preexisting conditions, especially the elderly; those with cardiovascular disease, diabetes, respiratory conditions, high blood pressure, cancer, an organ transplant, sickle cell disease, or immune disorders; and those living in areas with more air pollution (Abbott et al., 2020).

Current research suggests that COVID-19 is transmitted primarily through small droplets of moisture produced when a person exhales, talks, coughs, or sneezes (Abbott et al., 2020, Gray et al., 2020). These droplets can travel many feet through the air and may remain in the air or on surfaces for several minutes to hours after an infected person has left the area. A person may become infected with the virus by breathing in these small droplets or when the droplets land in the eyes or nose. The virus may also spread indirectly through objects and surfaces (Abbott et al., 2020). One way to slow the spread of COVID-19 is by the use of facemasks (WHO, 2021).

After becoming infected with COVID-19, people most commonly experience an incubation period where they are not symptomatic (Abbott et al., 2020; WHO, 2021). They are most contagious the day before they first show symptoms and a few days after onset (presymptomatic carriers). This is especially problematic because people who feel completely healthy may spread the virus to others with relative ease. Furthermore, some COVID-19 carriers never exhibit symptoms (asymptomatic carriers) (Abbott et al.,

2020). Due to the possibility of mild symptoms, asymptomatic carriers, and a long incubation period, COVID-19 can spread quickly through communities (CDC, 2021) As of March 2022, COVID-19 infected almost 79.2 million United States residents and resulted in 957 thousand deaths (CDC, 2022).

Several U.S. states implemented social distancing and nonpharmaceutical interventions (NPIs) with the intention to slow the spread of COVID-19 and mitigate the effects. NPIs included limiting the size of group gatherings, closing public schools, closing non-essential businesses, enacting shelter-in-place orders, and requiring masks in public areas. After the first wave of COVID-19 infections, states started to ‘reopen’ and drop NPI regulations. Reopening strategies varied widely by state as did the use of evidence and data when implementing those strategies.

COVID-19 Community Levels is a tool created by the CDC to help evaluate the current risk of COVID-19 transmission in the community and decide what prevention steps to take. The Community Levels tool uses the latest data to determine if risk levels in a county are low, medium, or high based on hospital beds being used, hospital admissions, and the total number of new COVID-19 cases (CDC, 2022). When the community level is low, individuals should stay up to date with COVID-19 vaccines and get tested if they have symptoms. When the community level is medium, individuals should consult with their healthcare provider about wearing a mask and taking other precautions if they are at high risk of severe illness. Everyone else should stay up to date with COVID-19 vaccines and get tested if they have symptoms. When the community

level is high, individuals should wear a mask indoors when in public, stay up to date with COVID-19 vaccines, get tested if they have symptoms, and take additional precautions if they are at high risk of severe illness.

Masks as an NPI

Several states enacted universal mask mandates requiring people to wear masks in public during the COVID-19 health crisis. The current recommendations from the CDC urge members of the general public to wear cloth face coverings, along with handwashing and physical distancing, to help slow the spread of COVID-19 when community levels are high (CDC, 2022). Evidence shows that face coverings reduce the spray of droplets produced during speaking, coughing, and sneezing (Abbott et al., 2020; Fischer et al., 2020; Konda et al., 2020; Leung et al., 2020; MacIntyre & Chughtai, 2020; MacIntyre & Chughtai, 2015; Mueller et al., 2020). The WHO maintains its recommendation that people should continue to wear masks in public when there is any community or cluster transmission of COVID-19 regardless of vaccination status or history of the previous infection.

The governor of New Jersey was the first governor to issue a general statewide mask mandate on April 8, 2020. The mandate required all workers and customers to wear cloth face coverings (Jacobs & Ohinmaa, 2020). By August 2020, 33 state governors had followed suit and issued state-wide mask mandates. As of April 2021, 26 states required people to wear masks in public, and 13 states had lifted their mask mandates. Several

states and local governments re-imposed mask mandates during the summer of 2021 delta and omicron variant waves. By March of 2022, only three states still had indoor mask mandates (Hawaii, Oregon, and Washington state) (Markowitz, 2022).

Background and Types of Masks

Using cloth face coverings, surgical masks, or respirators to slow the spread of illnesses is not a new idea. Mask use for medical purposes dates back to the late 1800s when Carl Flügge, a German bacteriologist, demonstrated that germs causing tuberculosis could be spread through droplets from the nose and mouth. Flügge advocated for the use of masks to aid the prevention of tuberculosis. Building upon his research, Dr. Alice Hamilton showed that scarlet fever could also be spread by invisible droplets. Furthermore, she demonstrated that when nurses wore masks while working with scarlet fever patients, fewer people became infected. As a result, Hamilton was one of the first to advocate for surgeons to wear masks in the operating room. Soon after surgeons started wearing masks, other medical personnel followed suit resulting in a decreased rate of cross infections among patients. In 1918 Dr. George Weaver found that you could further reduce infection rates of diphtheria by having patients wear masks as well. Joseph Capp, during World War I, found cross-contamination among sick military members decreased when his patients wore masks (McElroy & McElroy, 2020).

Early on, most masks were made of gauze, with a tighter weave and more layers of gauze being most effective. The filtered, layered gauze cotton mask, known as a

surgical mask, was the medical standard for a long time. In the 1990s, multidrug-resistant tuberculosis outbreaks became a serious problem and prompted the need for more sophisticated masks. For better masks to protect against multidrug-resistant tuberculosis, the medical industry adopted respirator technology from the mining industry. In 1972 3M created the first single-use N95 dust respirator which filtered out 95% of particles three microns or larger. N95 masks also have an electrostatic charge that pulls the particles toward the filter. The N95 mask is what the medical community started using when caring for patients with multidrug-resistant tuberculosis (McElroy & McElroy, 2020).

Three types of masks are currently in use to prevent and slow the spread of COVID-19. The first type of mask is an N95 respirator (Abbott et al., 2020). This mask has an extremely small pore that filters out most particles and aerosols. The next category of masks is the surgical mask. Surgical masks provide basic protection for the wearer but primarily protect others from the wearer's droplet spray. The final type of mask is the cloth face covering. These are reusable masks made from some type of cloth, often cotton.

Effectiveness of Masks

It is important to investigate the science behind public health policies and the utilization of mask mandates to slow the spread of COVID-19 is no exception. To this end, Ollila and colleagues (2020) conducted a meta-analysis of randomized controlled trials regarding the effectiveness of facemasks. Specifically, the authors looked at non-

surgical (cloth) facemasks and their usefulness in preventing respiratory infections.

Across five studies, the authors found statistically significant protective effects of cloth facemasks in preventing respiratory infections. Similarly, Lyu and Wehby (2020) found that mandating facemasks in public was associated with a decline in the daily COVID-19 growth rate. Using a reference period of 1-5 days before the mask mandate, researchers compared the daily COVID-19 growth rate for states implementing public mask mandates between March 25 and May 21, 2020. Mandating mask wearing in public was associated with a reduction in the COVID-19 growth rate.

Additionally, research has examined the relationship between state reopening strategies and the COVID-19 burden using an interrupted time-series quasi-experimental study design applied to publicly available secondary data (Kaufman et al., 2020). States were separated into two groups: states with an evidence-based reopening strategy, defined as reopening indoor dining rooms after implementing a statewide masking policy or states lacking an evidence-based reopening strategy, defined as reopening indoor dining rooms before implementing a statewide masking policy. The number of excess deaths per 100,000 residents in states reopening in-person dining without mask mandates was, on average, ten times higher than in states reopening with a masking mandate.

Additionally, several meta-analyses and systematic reviews have supported universal mask mandates to reduce the spread of COVID-19. One meta-analysis of 21 studies demonstrated strong evidence regarding the efficacy of masks in preventing the transmission of respiratory viral infections, such as SARS-CoV-2 (Liang et al., 2020).

Community-wide mask mandates work to control and slow the spread of COVID-19 by reducing the emission of infected saliva and respiratory droplets of individuals infected with COVID-19. Furthermore, this study found evidence that mask wearing can effectively prevent contact between a virus and the respiratory tract, thus reducing respiratory viral infections (Liang et al., 2020). Another systematic review of observational studies found that facemask use could result in a large reduction in the risk of contracting COVID-19 (Chu et al., 2020). N95 and similar respirators had stronger associations in a reduction of COVID-19 risk compared to disposable surgical masks and reusable cotton masks, although reusable cotton masks still resulted in a decreased risk of COVID-19, SARS, or MERS.

Controversies

The above research suggests that mandating masks was an inexpensive and easy way for states to mitigate the spread of COVID-19, yet some states chose not to implement a mask mandate. Within the US some states quickly adopted a mask mandate while other states waited several months to issue one, issued only a narrow mandate, or did not mandate mask wearing at all. Political partisanship emerged as a key predictor of when and if states adopted mask mandates (Adolph et al., 2020). The strongest predictor of a broad mask mandate adoption and timing of the mandate is the political party of the state's governor, with Democratic governors being 7.33 times more likely to adopt a mask mandate than Republican governors. The marginal effect of a state having a

republican governor was a 29.9-day delay in adopting a broad mask mandate.

Additionally, states with citizens who identified as more liberal adopted mask mandates easier than states with conservative citizens (1.72 times more likely and 7.2 days delay).

Citizen ideology and the political party of the governor were stronger predictors of the implementation of mask mandates than the number of daily deaths per million (Adolph et al., 2020).

Yet, nothing inherent in the Democratic or Republican political party would make them more or less likely to adopt a mask mandate. Rather, it seems that some individual differences between Democratic and Republican voters influenced statewide policies on mask wearing. For example, Republican voters took COVID-19 less seriously in the early stages of the pandemic when compared to democrat voters (Adolph et al., 2020).

Republican voters were also more likely than Democratic voters to incorrectly assume that the fatality rate and disease burden of COVID-19 was similar to that of the flu (Adolph et al., 2020).

While there are macro-level differences among states regarding mask mandates, important individual characteristics may also exist that would cause a person to not wear a mask, even when legally mandated or to grudgingly wear a mask (but only because they are being forced not because they recognize the benefit). Despite the evidence supporting mask use as an effective means to reduce the spread of COVID-19, some individuals do not support mask wearing and refuse to wear facemasks in public settings. For example, Pfattheicher et al. (2020) found that when individuals were simply provided with

information regarding the effectiveness of mask wearing and social distancing in slowing the spread of COVID-19, it was not enough to significantly impact their behavior. However, when empathy was used to promote mask wearing and social distancing, people were more likely to comply. Thus, despite the overwhelming evidence that mask use helps slow the spread of COVID-19, individual differences in moral foundations and subjective norms may be a more significant factor in determining who will comply with mask recommendations.

The Current Study

The main study aim was to examine how Moral Foundations Theory and Theory of Planned Behavior, specifically subjective norms, may explain individual differences in mask wearing to slow the spread of COVID-19. Figure 3 shows the proposed structural model. A letter represents each path, which is associated with specific hypotheses. The specific hypotheses were:

- a. First, based on the research related to subjective norms (Ajzen, 1991; Ajzen, 2007), referent power (Raven, 1965, 2008), and because many well-known conservative figures eschewed mask wearing it was hypothesized that an association between how often others were observed wearing a mask and political ideology will be observed.
- b. Based on the Theory of Planned Behavior (Ajzen, 1991) and the role of subjective norms in behavioral intent (Ajzen et al., 2007), it was

hypothesized that how often individuals observed others wearing masks would be positively associated with how often they wore masks.

- c. Likewise, given the role of subjective norms in behavioral intent (Ajzen et al., 2007), it was hypothesized that how often individuals observed others wearing masks would be positively associated with how effective they believed mask wearing to be in slowing the spread of COVID-19.
- d. Considering the role of referent power in influencing behavior (Raven, 1965, 2008), it was hypothesized that holding a more conservative political ideology would be negatively associated with how effective individuals believed mask wearing to be in slowing the spread of COVID-19.
- e. Given the evidence of different subjective norms regarding COVID-19 responses between conservative and liberal U.S. citizens (Kahane, 2021; Smith, 2020), it was hypothesized that holding a more conservative political ideology would be negatively associated with how often individuals wore masks.
- f. Based on Moral Foundations Theory (Chan, 2021; Haidt & Joseph, 2004), it was hypothesized that the relationship between belief in the effectiveness of masks in slowing the spread of COVID-19 and willingness to wear a mask to protect others would be partially mediated by moral foundation beliefs, specifically the domain of fairness.

- g. Based on Moral Foundations Theory (Chan, 2021; Haidt & Joseph, 2004), it was hypothesized that the relationship between belief in the effectiveness of masks in slowing the spread of COVID-19 and willingness to wear a mask to protect others would be partially mediated by moral foundation beliefs, specifically the domain of harm/care.
- h. Because common arguments against wearing a mask often cite concerns regarding their effectiveness (Taylor & Asmundson, 2021), it was hypothesized that how effective individuals believed masks were in slowing the spread of COVID-19 would be positively associated with how likely they were to wear a mask to protect others.
- i. Also, since common arguments against wearing a mask cite concerns regarding their effectiveness (Taylor & Asmundson, 2021), it was hypothesized that how effective individuals believed masks were in slowing the spread of COVID-19 would be positively associated with how likely they were to wear a mask to protect themselves.
- j. Based on the Theory of Planned Behavior (Ajzen, 1991) and the role of personal attitude in behavioral intent (Ajzen et al., 2007), it was hypothesized that individual attitudes regarding willingness to wear a mask to protect others would be positively associated with how often they wore a mask.

- k. Furthermore, based on the Theory of Planned Behavior (Ajzen, 1991) and the role of personal attitude in behavioral intent (Ajzen et al., 2007), it was hypothesized that individual attitudes regarding willingness to wear a mask to protect themselves would be positively associated with how often they wore a mask.

METHOD

Participants

G*Power 3.1.9 (Faul et al., 2009) was used to conduct a power analysis for the current study. This analysis indicated that 500 participants would be needed to detect small to medium effects and achieve a power of .95. The current study's target population was adults (18 years or older) living in the United States during the summer of 2021.

Participant Recruitment

Participants were recruited through Reddit and CloudResearch. Past research has demonstrated that Reddit is an effective tool in the recruitment of participants for scientific studies (Jamnik & Lane, 2017; Park & Conway, 2017; Shatz, 2017). In fact, Reddit may be especially useful in conducting research on controversial topics due to the anonymous nature of the platform (Park & Conway, 2017). Luong and Lamonowska (2021) found that participants recruited through the subreddit r/SampleSize were diverse in age, education level, income, employment status, and profession. These participants demonstrated more intrinsic motivation to complete research studies than a comparison

group from MTurk. Important for the current study, Luong and Lamonowaka's (2021) sample did not differ significantly in altruism or motivation to gain self-knowledge. Participants recruited through Reddit were not offered any compensation.

A second sample was collected using CloudResearch. CloudResearch (formerly TurkPrime) was created in 2016 as an alternative method for conducting survey-based research online. Samples recruited online are more reflective of the US population and allow for greater external validity in published research (Chandler et al., 2019). Research on the topic of participant recruitment platforms found that data collected via CloudResearch was of a higher quality than that of other platforms (Litman et al., 2021). Participants recruited from CloudResearch were compensated \$3.00 for their time.

To protect data quality and integrity, bot detection was turned on within Qualtrics. Bots were detected and screened out using Google's reCAPTCHA technology which rates the probability that a respondent was a bot. Participants were only allowed to take the survey once and this was monitored via IP address. Furthermore, an attention check was included in the survey. Those who failed the attention check and those who were suspected of being a bot response were removed from the sample.

Sample Demographics

Seventy-five participants were recruited from CloudResearch and 496 were recruited from Reddit for 570 total respondents. The following exclusion criteria were applied: 8 respondents were removed due to indicating they were under 18 years of age,

21 respondents were removed because they indicated that they lived outside of the US, and lastly 13 respondents were removed because they failed the attention check. A final sample of 528 was used for analysis including 63 participants recruited via cloud research and 465 from Reddit.

Participant ages ranged from 18 to 77 ($M = 37.10$, $Mdn = 35.00$, $SD = 12.12$). Over 90% of the sample identified as non-Hispanic ethnicity, 7.09% identified as Hispanic, Latino, or Spanish origin, and 2.68% indicated they identified as some other ethnicity. Most of the sample identified as White (86.17%, $n = 455$), followed by participants who identified as Asian (4.92%, $n = 26$), Black or African American (2.08%, $n = 11$), American Indian or Alaska Native (.95%, $n = 5$), two or more races (3.98%, $n = 21$), some other race (1.34%, $n = 7$), and three participants chose not to include their race. The sample overwhelmingly identified as women (72.02%, $n = 381$), men made up the next largest percent (23.82%, $n = 126$), 2.08% ($n = 11$) identified as non-binary, 1.51% ($n = 8$) identified as transgender, and less than one percent of respondents (.57%, $n = 3$) identified as a gender not listed or preferred not to answer.

Less than 1% ($n = 4$) of the sample indicated that some high school was their highest level of education achieved, 9.07% ($n = 48$) had completed high school, 29.68% ($n = 157$) had completed some college or technical schooling, 32.33% ($n = 171$) had completed college, 6.05% ($n = 32$) had completed some post-graduate education, and 22.12% ($n = 117$) had completed a post-graduate degree. Nearly half the sample (49.72%, $n = 263$) stated Democrat as their political affiliation, 20.98% ($n = 111$) stated their

political affiliation was Independent, 11.72% ($n = 62$) stated their political affiliation as Republican, 10.96% ($n = 58$) said they did not have a political affiliation, and 6.62% ($n = 35$) said their political affiliation was something other than the listed options. Minnesota ($n = 46$), North Dakota ($n = 43$), and Texas ($n = 43$) had the highest response rates while Alaska and Wyoming had the lowest response rates with no respondents living in those states. Figure 4 includes the full response frequency of participants by state.

Materials and Procedure

Participants completed the study online via Qualtrics. After obtaining informed consent, participants completed a demographic questionnaire followed by an attitudes towards mask wearing questionnaire. Finally, participants completed the MFQ. An attention check was included in the middle of the survey to screen out bots and unengaged participants.

Demographic Questionnaire

Participants completed a demographic questionnaire assessing several common demographic items such as age, race/ethnicity, gender, level of education, and political affiliation. The full list of demographic questions is included in Appendix A.

Political Ideology

Political ideology was measured by the following prompt, “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely

conservative, and the midpoint (50) being exactly in-between liberal and conservative.” Descriptive statistics for the question are shown in Table 1.

Moral Foundations Theory (MFT; Graham, et al., 2009)

Participants completed the 30-item moral foundations questionnaire, a 30-item validated, self-report measure with a response scale that includes 2 parts. The first part asks *When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking* with a six-option scale ranging from not at all relevant (0) to extremely relevant (5). The second part asks participants to indicate their agreement or disagreement with each statement on a six-option scale ranging from strongly disagree (0) to strongly agree (5). Sample items from the authority subscale include “Whether or not someone showed a lack of respect for authority” and “Respect for authority is something all children need to learn.” Sample items from the sanctity subscale include “Whether or not someone violated standards of purity and decency” and “I would call some acts wrong on the grounds that they are unnatural.” The complete moral foundation’s questionnaire and scoring key can be found in Appendix B.

To create the composite variable representing the moral foundations domain of fairness six items were averaged together following the moral foundations questionnaire scoring key. The same procedure was used to create the moral foundations domain of harm/care. Table 1 shows descriptive statistics for the individual moral foundations questions and the composite variables used in this study.

Subjective Norms Regarding Mask Wearing

Subjective norms regarding mask wearing were measured using eight items to assess how often others wore masks. A composite variable was created by asking participants how often others around them had worn a mask in eight different situations and computing the mean of their responses. The items were reverse coded so that higher scores indicated a higher frequency of mask wearing by others. The situations were: At the grocery store, at a restaurant (when not seated at a table), at a party, in your home with family who do not live with you, in your home with friends who do not live with you, at the gym, and at a park with other people not from your household (within 6 feet of you). Participants indicated the frequency of others wearing masks on a 5-item scale with 1 = *Always*, 2 = *Mostly*, 3 = *Sometimes*, 4 = *Rarely*, and 5 = *Never*. Participants could also choose *N/A (not applicable)* if a statement did not apply. In the case of an *N/A* response that statement was not used in the analysis. Descriptive statistics for these questions and the composite variable are shown in Table 1.

Ofteness of Mask Wearing

The outcome variable was how often a mask was worn by a participant. A composite variable was created by asking participants how often they had worn a mask in eight different situations and computing the mean of their responses. The items were reverse coded so that a higher scores indicated more frequent mask wearing. The situations were: At the grocery store, at a restaurant (when not seated at a table), at a

party, in your home with family who do not live with you, in your home with friends who do not live with you, at the gym, and at a park with other people not from your household (within 6 feet of you). Participants indicated their answers on a 5-item scale with 1 = *Always*, 2 = *Mostly*, 3 = *Sometimes*, 4 = *Rarely*, and 5 = *Never*. Participants could also choose *N/A (not applicable)* if a statement did not apply. In the case of an *N/A* response that statement was not used in the analysis. Descriptive statistics for these questions and the composite variable are shown in Table 1.

The study was conducted during the summer of 2021 while COVID-19 vaccines were becoming available for all Americans. Therefore, the questionnaire specifically asked about mask wearing prior to receiving a vaccination for those who had received their first or second dose. This was in line with the CDC guidance at the time stating that individuals fully vaccinated for COVID-19 no longer needed to wear a mask indoors. A person was considered fully vaccinated 2 weeks after their second dose of the Moderna or Pfizer vaccine, or 2 weeks after their first dose of the Johnson & Johnson vaccine.

Appendix C includes questions related to oftenness of mask wearing, subjective norms of mask wearing, and social distancing questions. Appendix D includes the individual questions asked regarding mask wearing attitudes. Descriptive statistics for these questions and the composite variable are shown in Table 1.

Results

Data were analyzed using IBM SPSS Statistics, version 28 for windows, and IBM SPSS Amos, version 28 for windows. Correlations were run for all variables of interest in this study and are displayed in Table 2.

Structural Model

A path analysis was conducted using structural equation modeling software, which estimated regression parameters to test hypothesized structural relations between multiple latent variables and the dependent, observed variable of how often participants wore a mask. Similar to other regression-based modeling techniques, SEM specifies directional paths between independent and dependent variables but also allows researchers to test the fit of complex hypothesized structures with observed data.

Model fit was tested with the chi-squared test of the difference between the implied and reproduced correlation matrices, the standardized root-mean-square residual (SRMR), the comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA). Chi-square tests the null hypothesis that the hypothesized, over-identified, model fits the data as well as a just identified model; however, it is extremely sensitive to sample size, thus resulting in a non-significant chi-square influenced by the large sample size. The SRMR finds the average of the differences between the hypothesized model and sample parameters. A perfect model fit is SRMR = 0, with recommended cuts off ranging from < .10 (Kline, 2005) to < .05 (Byrne, 2016).

The RMSEA takes into account the parsimony of a model. According to Hu and Bentler (1999), .06 or less is a great fit. CFI compares the hypothesized model to the independent model; thus, a large difference is ideal. CFI varies between 0 and 1 with 1 indicating the best possible fit. While Bentler (1992) originally saw .90 or larger indicating a well-fitting model, Hu and Bentler (1999) now suggest a CFI of .95 or larger is recommended.

The originally hypothesized model, shown in Figure 5, had poor fit ($\chi^2 = 1150.880, p < .001, RMSEA = .082, SRMR = .0957, CFI = .893$). The worst performing paths were: (1) the paths from belief in the effectiveness of masks, the moral foundation domain of fairness, and wearing a mask to protect others (path f^2 in the proposed model, Figure 3); and (2) the paths from belief in effectiveness, the moral foundation domain of harm/care, and wearing a mask to protect others (path g^2 in the proposed model, Figure 3). A revised model was proposed and tested, in which the proposed regression paths from belief in the effectiveness of masks, moral foundation domain fairness, and wearing a mask to protect others (paths f^1 and f^2 in the proposed model) were removed.

There are several reasons why the paths from belief in the effectiveness of masks, the moral foundation domain fairness, and wearing a mask to protect others were removed. First, the pathway of the moral foundation domain fairness predicting wearing a mask to protect others was weak (standardized coefficient = .07) (Figure 5). Second, the correlation between the moral foundation domain of fairness and wearing a mask to protect others was not as strong as the correlation between the moral foundation domain of harm/care ($r = .442$ vs $r = .460$, respectively) (Table 2). Third, the relationship

between the moral foundation domain of harm/care and wearing a mask to protect others was more theoretically sound. Thus, the model was revised to exclude the latent variable measuring the moral foundation of fairness. The revised model, shown in Figure 6, had a significantly improved fit ($\chi^2 = 369.973$, $p < .001$, RMSEA = .056, SRMR = .0392, CFI = .967) and was used for further analyses. All proposed regression paths were statistically significant except the path between the moral foundation domain of harm/care and wearing a mask to protect others (path g^2 in the proposed model, Figure 3).

The following results are presented graphically in Figure 6. Self-reporting as more conservative was negatively correlated with how often others around the participant wore a mask (standardized coefficient = -.36). Political ideology also negatively predicted how effective one believed masks to be (standardized coefficient = -.61) and how often one wore a mask (standardized coefficient = -.16). Specifically, being more conservative was associated with a direct decrease in how effective masks were believed to be in slowing the spread of COVID-19. Being more conservative was also associated with an overall decrease in how often a mask was worn. Surrounding oneself with others who were more likely to wear a mask was directly positively associated with how effective one believed masks to be (standardized coefficient = .19) and how often they wore a mask (standardized coefficient = .46).

Belief in the effectiveness of masks was strongly associated with willingness to wear a mask to protect others (standardized coefficient = .92), wearing a mask to protect oneself (standardized coefficient = .81), and scores on the moral foundations domain of

harm/care (standardized coefficient = .56). The importance of harm/care in moral decision-making showed a weak, positive relationship to wearing a mask to protect others but was not significant (standardized coefficient = .04). Wearing a mask to protect others and wearing a mask to protect oneself were both positively correlated with how often one wore a mask (standardized coefficient = .33 and standardized coefficient = .14, respectively).

Two alternative models were also tested. One model included the moral foundations domain of fairness but not harm/care (alternative model A). This model had better fit than the original proposed model but worse fit than the revised model ($\chi^2 = 468.277, p < .001, RMSEA = .067, SRMR = .0687, CFI = .954$). Alternative model A is represented in Figure 7. Unlike the revised model, each of the proposed regression pathways were significant. However, the revised model was chosen in place of this model for two important reasons. First, it had a better fit as measured by the SRMR, RMSEA, and CFI index. Second, it had stronger theoretical support. Byrne (2016) has cautioned against overfitting models in the pursuit of statistical significance at the expense of the original theory.

A second alternative model removed both moral foundation domains, thus including only the variables of political ideology, how often others wore masks, belief in the effectiveness of masks, willingness to wear a mask to protect others, wearing a mask to protect oneself, and how often one wore a mask (alternative model B). The fit of this model was better than the first alternative model but not as good as the final model ($\chi^2 =$

210.303, $p < .001$, RMSEA = .072, SRMR = .0323, CFI = .975). Alternative model B is represented in Figure 8.

DISCUSSION

This study sought to examine the psychological constructs influencing how often individuals wore a mask to slow the spread of COVID-19. Results of the final SEM model show the interconnectedness and influence of attitudes and subjective norms around mask wearing. There are several key implications of this study as a whole and concerning the specific hypotheses proposed.

The hypothesized association between how often others were observed wearing a mask and political ideology (hypothesis a) was supported. Those who were more politically conservative reported seeing fewer people wearing a mask. This was in line with research on subjective norms and behavior (Ajzen, 1991; Ajzen, 2007) and referent power (Raven, 1965, 2008) research, as well as the public disregard by well-known conservative figures regarding mask wearing. The implication of this is twofold.

First, given the role of subjective norms in behavior, it is accepted that people are more likely to engage in behavior they see others in their community participating in. People who indicated that they were more conservative were less likely to see others wearing a mask and were likely less inclined to wear a mask themselves (see hypotheses b). Second, understanding the role of referent power in behavior, conservatives are more likely to hold well-known public conservative figures in high regard. Thus, these public

figures, who often vocally and publicly discounted the importance of wearing masks, had power and influence over the behavioral choices of those who identified as politically conservative. As such, they held influence over conservative individuals' choices to not wear a mask (hypotheses e).

The hypothesis proposing a positive relationship between how often individuals observed others wearing masks and how often they wore masks (hypothesis b) was also supported. As evidenced by the Theory of Planned Behavior (Ajzen, 1991) and the role of subjective norms in behavioral intent (Ajzen et al., 2007), when individuals observed more people wearing a mask they were more likely to wear a mask as well. Just as pro-mask wearing perceptions can be facilitated through several means, harmful and negative subjective norms regarding masks can also spread quickly and easily (He et al., 2021). Subjective norms that promote more mask wearing behavior should be fostered and supported while anti-mask wearing subjective norms should be confronted and limited.

The hypothesis that how often individuals observed others wearing masks would be positively associated with how effective they believed mask wearing to be in slowing the spread of COVID-19 (hypothesis c) was supported. Again, this is in line with the Theory of Planned Behavior (Ajzen, 1991) and the role of subjective norms in behavioral intent (Ajzen et al., 2007). Specifically, visible, outward cues of certain behaviors, such as mask wearing, may serve as a form of perceived social pressure strongly encouraging others to engage in the same behavior (Ham et al., 2015). An important implication of

this finding is that encouraging key members of a reference group, such as those with high referent power, to engage in the target behavior and demonstrate its effectiveness, will likely encourages other group members to follow the example. This may create a snowball effect of behavior where a few key individuals wearing masks may influence people who then influence more people.

The hypothesis that a more conservative political ideology would be negatively associated with belief in mask effectiveness (hypothesis d) was supported. This supports Raven's (1965, 2008) work regarding the role of referent power in influencing behavior. For example, former President Trump likely undermined the effectiveness of masks to his supporters when he made a public statement disagreeing with the CDC's claim that universal mask wearing in the U.S. for four to six weeks would prevent a significant amount of COVID-19 in the country (Smith, 2020). His explicit disagreement with the CDC regarding the effectiveness of masks likely contributed to a diminished belief in the effectiveness of masks among conservative U.S. citizens. The implication of this is the overwhelming need for those in positions of power to convey the most accurate scientific information available to them at the time and to model appropriate preventative health measures.

The hypothesis that holding a more conservative political ideology would be negatively associated with how often individuals wore masks (hypothesis e) was supported. This was consistent with research suggesting different subjective norms

related to COVID-19 exist between conservative and liberal U.S. citizens (Kahane, 2021; Smith, 2020). The implication of this is an increased understanding of the role politics plays in decision-making among people in the United States. Despite overwhelming public health messaging regarding the importance of mask wearing, subject norms associated with various political ideologies influenced how often individuals chose to wear masks.

The hypothesis that the relationship between belief in the effectiveness of masks in slowing the spread of COVID-19 and willingness to wear a mask to protect others would be partially mediated by the moral foundations domain fairness (hypothesis f) was not supported. Previous research on Moral Foundations Theory and NPI behavior during the COVID-19 health crisis (Chan, 2021) demonstrated an association between the moral foundations of fairness and following NPI policies to slow the spread of COVID-19 (i.e., staying at home, wearing a mask, and social distancing). The results of the current study should not be interpreted as contradicting past research, but rather as evidence that further research in this area is warranted.

Likewise, the hypothesis that the relationship between belief in the effectiveness of masks in slowing the spread of COVID-19 and willingness to wear a mask to protect others would be partially mediated by the moral foundation of harm/care (hypothesis g) was not supported. Previous research on Moral Foundations Theory and NPI behavior during the COVID-19 health crisis (Chan, 2021) demonstrated an association between the

moral foundation of harm/care and adhering to NPI policies to slow the spread of COVID-19 (i.e., staying at home, wearing a mask, and social distancing). Similar to the findings related to fairness, the results of the current study should not be interpreted as contradicting prior research, but rather as evidence that further research in this area is warranted.

The hypothesis that belief in the effectiveness of masks would be positively associated with the likelihood of wearing a mask to protect others (hypothesis h) was supported. Early evidence supported masks as an accessible, effective, and easy way to slow the spread of COVID-19 (Abbott et al., 2020; Fischer et al., 2020; Konda et al., 2020). Yet a common and persistent argument against mask wearing is the incorrect assumption that masks are an ineffective intervention to slow the spread of COVID-19 (Taylor & Asmundson, 2021). It is understandable that people who recognize the effectiveness of masks are more likely to wear them to protect others. This implies a need for better public health messaging about how and why masks are effective.

Similarly, the hypothesis that belief in the effectiveness of masks would be positively associated with the likelihood of wearing a mask to protect oneself (hypothesis i) was supported. As previously mentioned, since common arguments against wearing a mask cited concerns regarding their effectiveness (Taylor & Asmundson, 2021), it is understandable that people who recognized how masks work were more likely to wear

them to protect themselves. This further supports the argument for better public health messaging regarding masks as an effective tool to slow the spread of COVID-19.

The hypothesis that attitudes regarding willingness to wear a mask to protect others would be positively associated with mask wearing (hypothesis j) was supported. This is consistent with what we know about the Theory of Planned Behavior (Ajzen, 1991) and the role of personal attitudes in behavioral intent (Ajzen et al., 2007). Messaging that encourages positive attitudes about mask wearing should increase the likelihood that people will wear a mask, but this also means that negative messaging around masks may lead people to be less likely to wear a mask. Thus, it is important for policymakers and public health leaders to be aware of both positive and negative messaging being communicated. Key stakeholders must work to actively promote messaging that will create positive personal attitudes regarding mask wearing.

Similarly, the hypothesis that attitudes regarding the willingness to wear a mask to protect oneself would be positively associated with how often people wore a mask (hypothesis k) was also supported. As discussed previously, this is consistent with previous research on the Theory of Planned Behavior (Ajzen, 1991) and the role of personal attitudes in behavioral intent (Ajzen et al., 2007).

Implications

Considered together, these results suggest a need for greater consistency in messaging and norms regarding mask wearing to slow the spread of COVID-19. Cialdini

et al., (1990) argues that norms have a substantial impact on behavior, but that this impact can only be understood when the relationship between injunctive norms (what people “ought” to do) and descriptive norms (what people *actually* do) is considered. In the case of COVID-19, people were exposed to an injunctive norm that people should wear masks to protect themselves; however, for many people, descriptive norms were in conflict with the injunctive norm. The CDC and local public health units generated messaging promoting the injunctive norms of mask wearing, but the lack of modeling of mask wearing by public figures, notably then-President Trump, led to a situation where descriptive norms were in conflict with the injunctive norms.

When conflicting norms occur, people generally follow the most salient norm. The most salient norms tend to be descriptive norms, especially those behaviors that are frequently observed in people who are seen as more similar to oneself and/or those who are admired or respected (Cialdini et al., 1990; Cialdini, 2003, 2009). In other words, when people are uncertain about how to behave they will often look to similar others for guidance. Given the uncertainty and inconsistent messaging surrounding COVID-19 early on, many people looked to others to decide whether to wear a mask in different situations. In other words, there must be consistent messaging at every level when a public health crisis emerges—in this case, consistent messaging that brought injunctive and descriptive norms into alignment at every level of government would likely have resulted in higher rates of pro-mask wearing norms to slow the spread of COVID-19.

Limitations

The results obtained here demonstrate the importance of subjective norms, referent power, behavioral intent, moral foundations, and political ideology in relation to individual decisions about masking to slow the spread of COVID-19, but there are several limitations. First, although the sample size was large enough to detect small to medium effects, a larger sample with a greater conservative representation would have allowed for multi-group modeling between participants who regarded themselves as more conservative and those who regarded themselves as more liberal. A larger sample size may have also yielded a more diverse sample that would be more reflective of the U.S. population.

Although Reddit is an excellent tool to recruit naïve, diverse, and inexpensive participants, this strategy likely led to a strong self-selection bias. The study link was posted on several subreddits to recruit a diverse sample; however, the posts that resulted in the most completed surveys were those associated with more pro-social and altruistic interests (r/assistance), scientific respect (r/SampleSize), and interest in understanding COVID-19 (r/CoronavirusUS). The survey link was also posted to a well-known anti-vaccine and anti-mask subreddit, but posts to this subreddit resulted in the lowest number of completed surveys.

Future Directions

Further research should continue to investigate the role of subjective norms in influencing public NPI behaviors to reduce the spread of COVID-19. As demonstrated by the results of the current study and other research on the topic (Gribson et al., 2021; Irfan et al., 2021; Shmueli, 2021) subjective norms play a critical role in NPI behaviors. He et al., (2021) and the current results also show the adverse results that occur when injunctive and descriptive norms are in conflict.

Mask wearing became highly politicalized in the U.S. early in the COVID-19 health crisis (Kahane, 2021). People tend to be loyal to their political party and often surround themselves with others who hold similar political views. This may have created a situation of pluralistic ignorance where conservatives were less likely to see others in their social group wearing a mask, thus did not feel comfortable being the only person wearing a mask, therefore perpetuating the descriptive norm of conservatives not wearing masks. Continued research should consider not only political ideologies and their influence on mask wearing behavior but also the underlying explanations for these differences. Future research should also focus on public health messaging methods that can better breach the political divide.

Finally, previous studies found evidence that moral foundations domains influenced the likelihood that individuals would engage in NPI behaviors to slow the spread of COVID-19 (Chan, 2021; Taylor & Asmundson, 2021). However, in the current study, subjective norms emerged as a stronger predictor of mask wearing behavior than

harm/caring and fairness moral domains. It may be the case that subjective norms are simply a better predictor of health-related behaviors—in this case mask wearing.

Alternatively, it may be the case that Moral Foundations Theory and Theory of Planned Behavior may work in combination to explain mask wearing, but that the nature of this relationship was not well represented in the model(s) presented here. Future work should continue to examine the relationship between Theory of Planned Behavior and Moral Foundations Theory, especially as it may relate to promoting public health behaviors.

Conclusions

We are still learning to cope with one of the worst global health crises in the last century. Mask wearing appears to be one way to protect communities, slow the spread, and save lives when COVID-19 rates spike in communities. Yet, many people are still reluctant to engage in this simple NPI. Understanding the psychological correlates of why and how often individuals wear a mask to slow the spread of COVID-19 can help community leaders, public health professionals, and medical experts construct better messaging to encourage more people to wear masks when needed.

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Table 1

Descriptive Statistics for Mask Wearing Attitudes, Moral Foundations Theory Fairness and Harm/Care Domains, Political Ideology, and Oftenness of Mask Wearing

	N	Minimum	Maximum	Mean	Median	Std. Deviation	Skewness	Kurtosis	Cronbach's alpha
Belief in effectiveness+	528	1	7	5.80	6.5	1.553	-1.621	1.631	.91
Facemasks provide a false sense of security*	528	1	7	5.08	6	1.975	-.731	-.792	na
Face masks are dangerous because they make it harder to breathe*	527	1	7	6.24	7	1.400	-2.013	3.298	na
Facemasks are a good way to slow the spread of Covid-19	525	1	7	5.95	7	1.803	-1.826	2.034	na
Wearing a mask to protect others+	528	1	7	5.91	6.67	1.663	-1.776	2.069	.93
Facemasks are a good way to protect other people from COVID-19	526	1	7	5.95	7	1.796	-1.859	2.165	na
The main reason to wear a face mask is to protect others from illness	527	1	7	5.86	7	1.695	-1.699	1.962	na
I have worn face masks to protect other people from COVID-19	527	1	7	6.10	7	1.692	-2.057	3.056	na
Protecting other people by wearing a face mask is my civic duty	527	1	7	5.76	7	1.931	-1.546	1.020	na
Wearing a mask to protect self+	528	1	7	5.23	6	1.759	-.963	-.206	.88
During the COVID-19 pandemic, I have worn a face mask to protect myself	528	1	7	5.66	7	1.937	-1.384	.526	na

	N	Minimum	Maximum	Mean	Median	Std. Deviation	Skewness	Kurtosis	Cronbach's alpha
The main reason I have worn a face mask is to protect myself from COVID-19	528	1	7	4.63	5	2.106	-.471	-1.193	na
Wearing a face mask protects oneself from illness	528	1	7	5.39	6	1.825	-1.127	.174	na
MFQ Fairness+	525	1	6	4.63	4.67	.770	-.870	1.618	.70
I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing	520	1	6	3.50	4	1.707	-.009	-1.230	na
When the government makes laws, the number one principle should be ensuring that everyone is treated fairly	524	1	6	5.07	5	1.116	-1.436	2.071	na
Justice is the most important requirement for a society	520	1	6	4.46	5	1.214	-.891	.636	na
Whether or not some people were treated differently than others	523	1	6	4.86	5	1.076	-1.373	2.585	na
Whether or not someone acted unfairly	524	1	6	4.71	5	1.161	-1.106	1.359	na
Whether or not someone was denied his or her rights	523	1	6	5.17	6	1.131	-1.612	2.439	na
MFQ Harm+	526	1	6	4.75	4.83	.819	-1.116	2.027	.75
Compassion for those who are suffering is the most crucial virtue	522	1	6	5.07	5	1.060	-1.457	2.528	na
It can never be right to kill a human being	521	1	6	3.69	4	1.698	-.128	-1.284	na

	N	Minimum	Maximum	Mean	Median	Std. Deviation	Skewness	Kurtosis	Cronbach's alpha
One of the worst things a person could do is hurt a defenseless animal	522	1	6	5.17	6	1.180	-1.613	2.210	na
Whether or not someone was cruel	523	1	6	5.16	5	1.089	-1.673	3.074	na
Whether or not someone cared for someone weak or vulnerable	523	1	6	4.66	5	1.290	-1.039	.688	na
Whether or not someone suffered emotionally	525	1	6	4.72	5	1.173	-1.132	1.356	na
How often did others around you wear a mask*+	524	3	7	5.17	5	.902	.121	-.738	.85
At the grocery store	519	1	5	2.01	2.00	.775	.390	-.174	ns
At a restaurant (when not seated at table)	358	1	5	2.28	2.00	.959	.367	-.535	ns
At a party	233	1	5	3.64	4.00	1.188	-.432	-.777	ns
In your home with family who do not live with you	391	1	5	3.54	4.00	1.435	-.475	-1.172	ns
In your home with friends who do not live with you	372	1	5	3.50	4.00	1.455	-.417	-1.276	ns
At the gym	149	1	5	2.75	3.00	1.257	.212	-1.063	ns
At a park with other people not from your household (within 6 feet of you)	413	1	5	3.20	3.00	1.198	-.116	-.839	ns
While walking outside with others not from your household (within 6 feet of you)	467	1	5	3.16	3.00	1.196	-.071	-.817	ns

	N	Minimum	Maximum	Mean	Median	Std. Deviation	Skewness	Kurtosis	Cronbach's alpha
How often did you wear a mask*+	525	3	7	5.71	6	1.177	-.667	-.706	.93
At the grocery store	518	1	5	1.32	1.00	.883	3.001	8.441	ns
At a restaurant (when not seated at table)	358	1	5	1.52	1.00	1.086	2.144	3.544	ns
At a party	224	1	5	2.99	3.00	1.628	.009	-1.598	ns
In your home with family who do not live with you	386	1	5	3.45	4.00	1.504	-.415	-1.302	ns
In your home with friends who do not live with you	368	1	5	3.38	4.00	1.630	-.355	-1.528	ns
At the gym	138	1	5	2.35	1.00	1.690	.699	-1.291	ns
At a park with other people not from your household (within 6 feet of you)	401	1	5	2.72	2.00	1.658	.286	-1.578	ns
While walking outside with others not from your household (within 6 feet of you)	463	1	5	2.71	2.00	1.626	.311	-1.516	ns
Do you consider yourself more liberal or conservative±	524	0	100	29.21	20	26.774	.973	.010	na

Note. * Designates reserve-coded variable. + Designates composite variable. ± Lower numbers signify more liberal political ideology while higher numbers signify more conservative ideology with 0 being extremely liberal and 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.

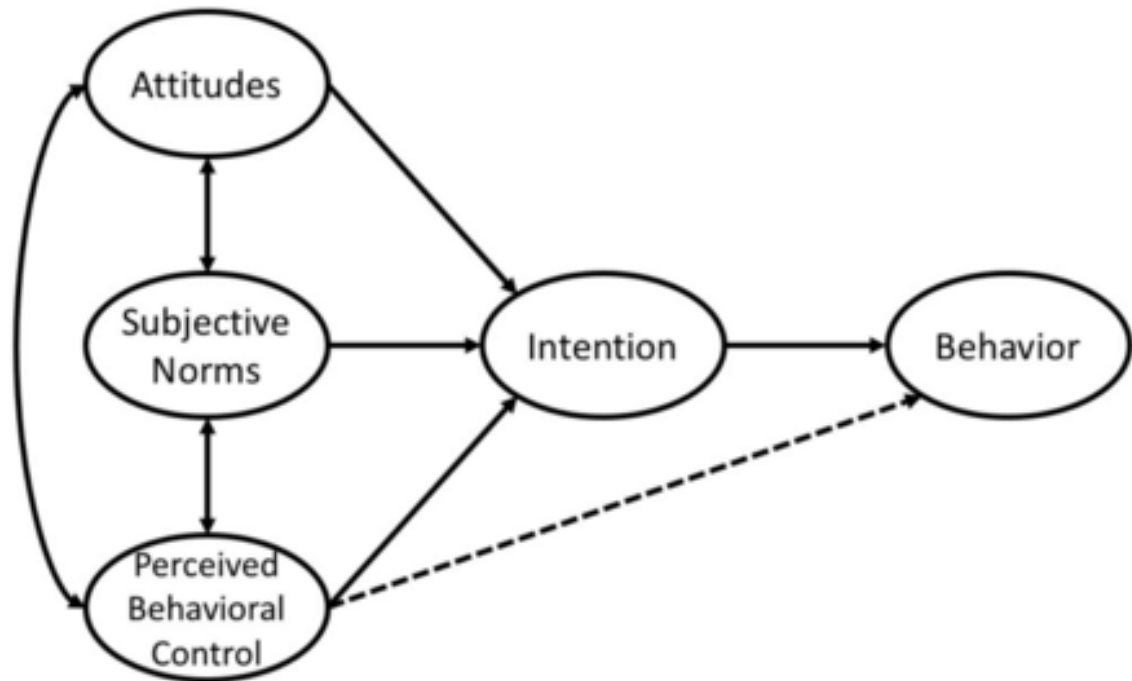
Table 2*Correlation Matrix*

		MFQ Harm	MFQ Fairness	Wearing a mask to protect others	Wearing a mask to protect self	Belief in effectiveness	How often did others around you wear a mask*	How often did you wear a mask*
MFQ Fairness	Pearson Correlation	.666**	--					
	Sig. (2-tailed)	<.001						
Wearing a mask to protect others	Pearson Correlation	.460**	.442**	--				
	Sig. (2-tailed)	<.001	<.001					
Wearing a mask to protect self	Pearson Correlation	.388**	.400**	.667**	--			
	Sig. (2-tailed)	<.001	<.001	<.001				
Belief in effectiveness	Pearson Correlation	.456**	.421**	.857**	.730**	--		
	Sig. (2-tailed)	<.001	<.001	<.001	<.001			
How often did others around you wear a mask	Pearson Correlation	.213**	.235**	.408**	.344**	.393**	--	
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		
How often did you wear a mask	Pearson Correlation	.373**	.387**	.696**	.594**	.704**	.696**	--
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
Do you consider yourself more liberal or conservative±	Pearson Correlation	-.363**	-.415**	-.623**	-.524**	-.677**	-.366**	-.615**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Note. ** Indicates correlation is significant at the 0.01 level (2-tailed). * Designates reserve-coded variable. ± Lower numbers signify more liberal political ideology while higher numbers signify more conservative ideology with 0 being extremely liberal and 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.

Figure 1

Theory of Planned Behavior



Note. The Theory of Planned Behavior model illustrates how behaviors are influenced by intentions, which are determined by the following three factors: attitudes, subjective norms, and perceived behavioral control (Ajzen, 2005).

Figure 2

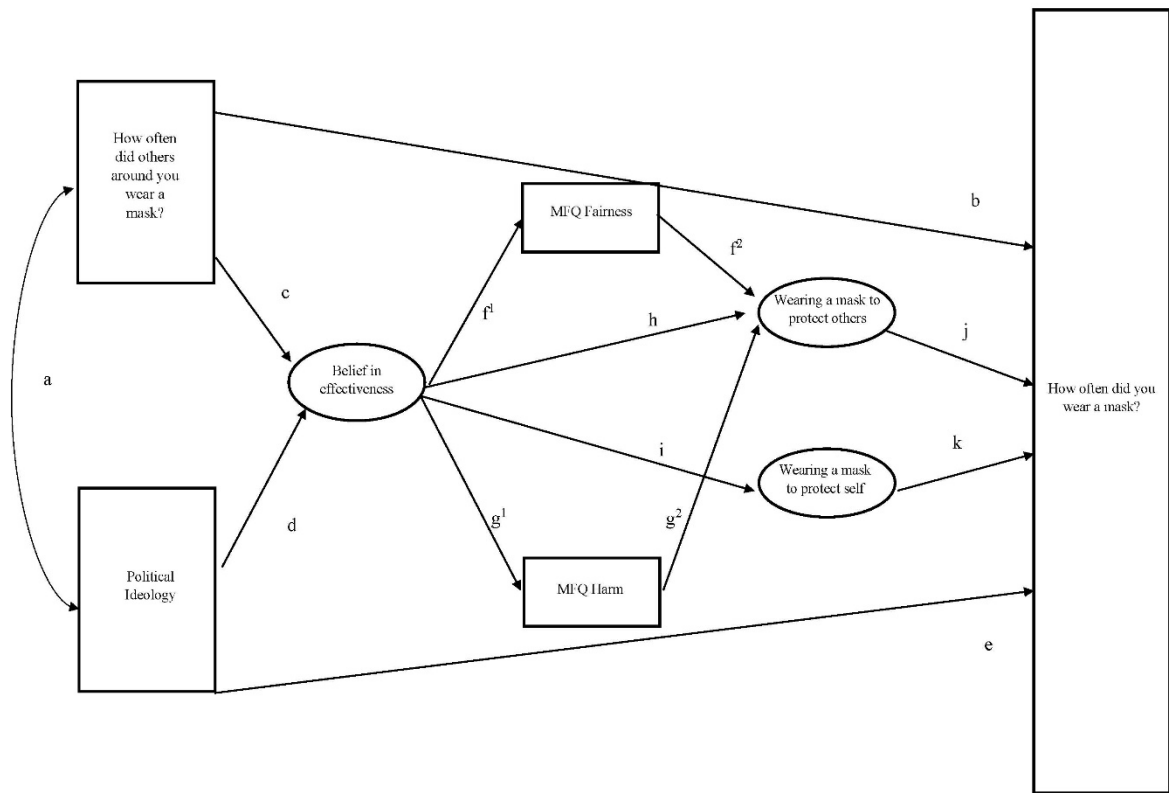
Five domains of Moral Foundations Theory

	Care/Harm	Fairness/ Cheating	Loyalty/ Betrayal	Authority/ Subversion	Sanctity/ Degradation
Adaptive Challenge	Protect and care for children	Reap benefits of two-way partnerships	Form cohesive coalitions	Forge beneficial relationships within hierarchies	Avoid contamination
Original Triggers	Suffering, distress, or neediness expressed by one's child	Cheating, cooperation, deception	Threat or challenge to group	Signs of dominance and submission	Waste products, diseased people
Current Triggers	Baby seals, cute cartoon characters	Marital fidelity, broken vending machines	Sports teams, nations	Bosses, respected professionals	Taboo ideas (communism, racism)
Characteristic Emotions	Compassion	Anger, gratitude, guilt	Group pride, rage at traitors	Respect, fear	Disgust
Relevant Virtues	Caring, kindness	Fairness, justice, trustworthiness	Loyalty, patriotism, self-sacrifice	Obedience, deference	Temperance, chastity, piety, cleanliness

Note. The five domains of Moral Foundations Theory and the original adaptive challenge they solved, original trigger, current trigger, characteristic emotions, and relevant virtues related to each domain (Haidt, 2012).

Figure 3

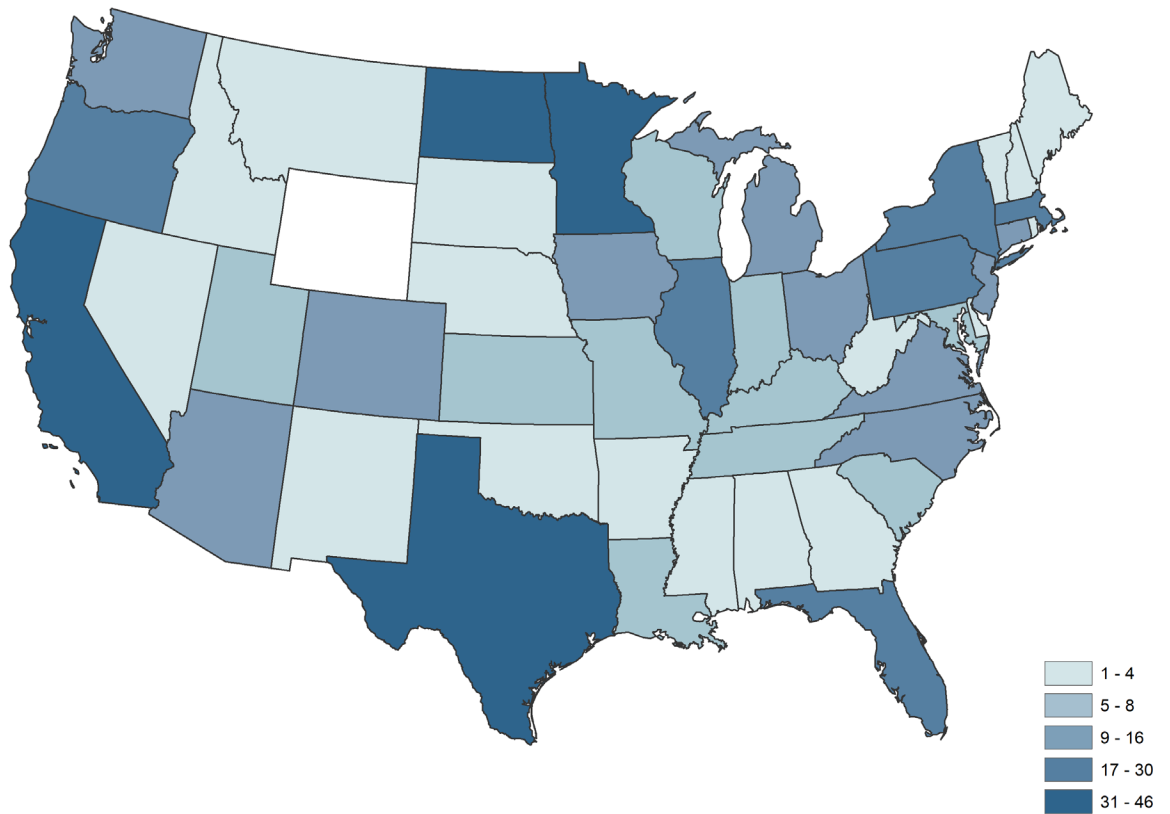
Proposed Structural Model



Note. Proposed structural model. Political ideology was assessed by the following question “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.”

Figure 4

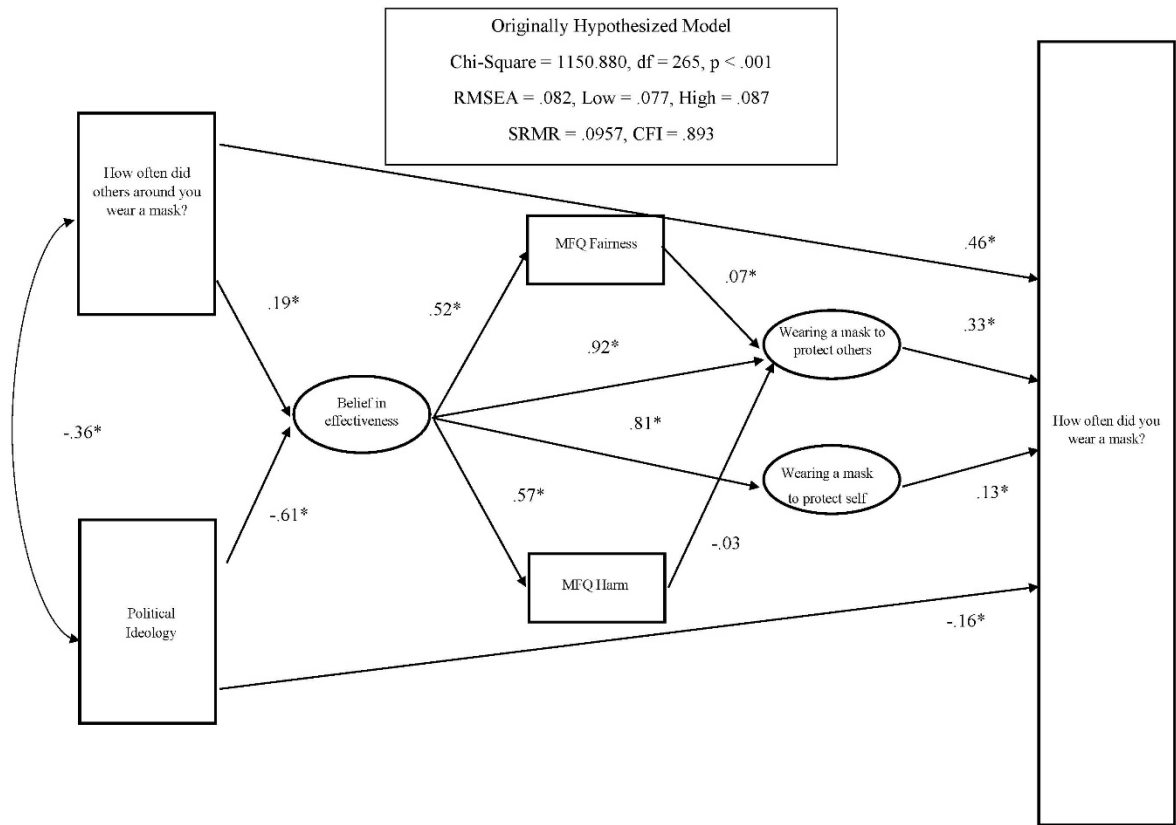
Response Frequency by State



Note. Alaska and Wyoming had no responses while Hawaii had one response.

Figure 5

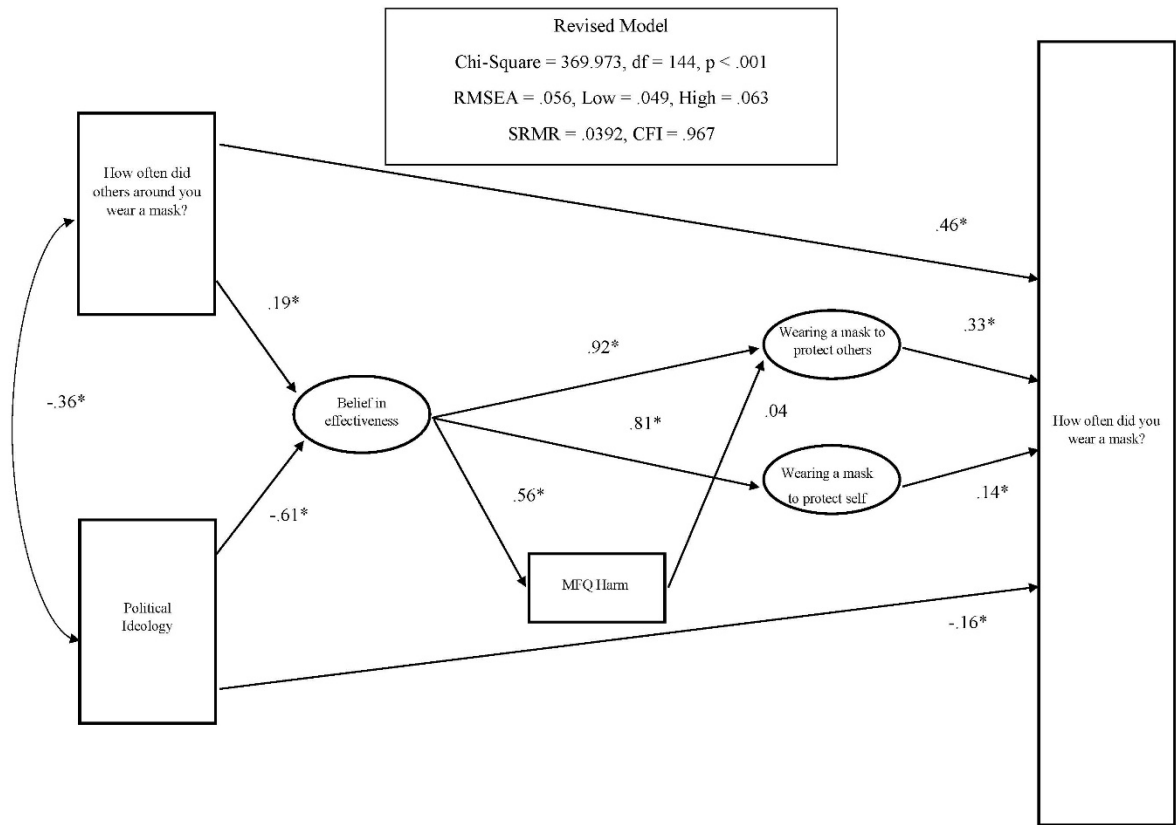
Originally Hypothesized Structural Model



Note. * Indicates significant path. Political ideology was assessed by the following question “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.”

Figure 6

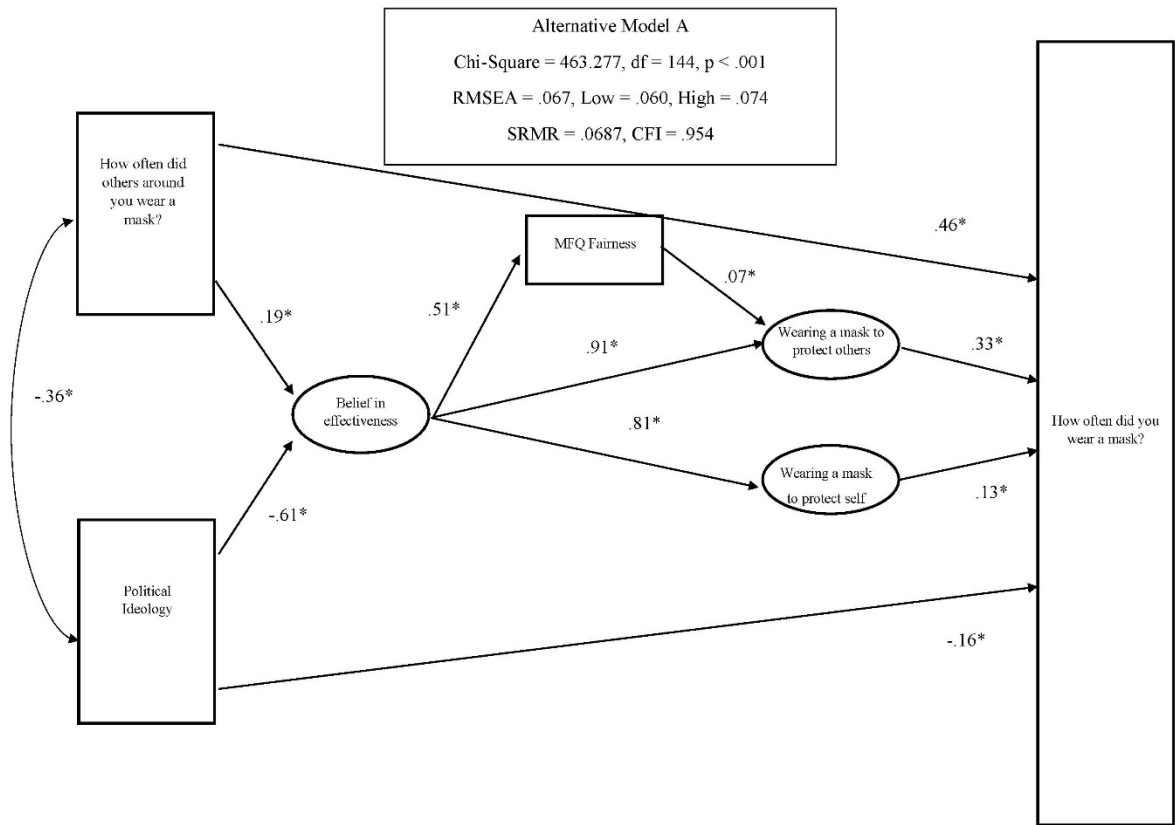
Revised Structural Model



Note. * Indicates significant path. Political ideology was assessed by the following question “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.”

Figure 7

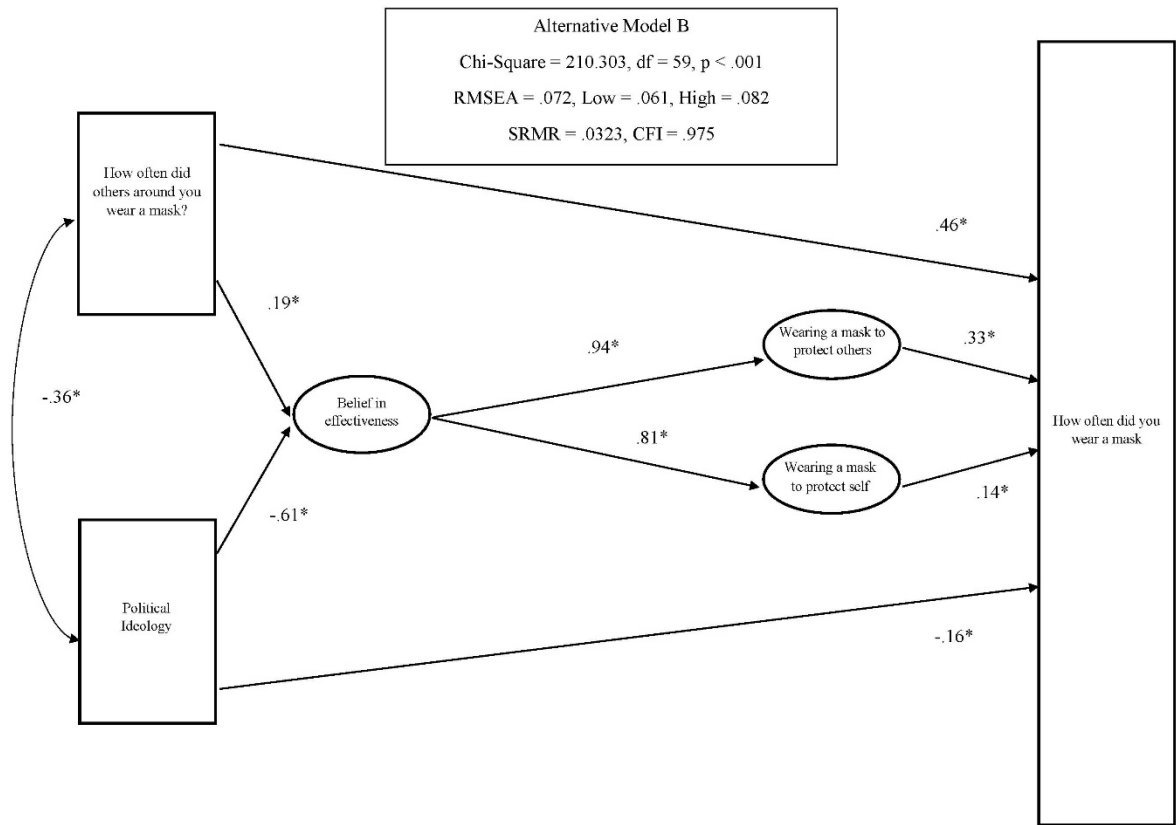
Alternative Structural Model A



Note. . * Indicates significant path. Political ideology was assessed by the following question “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.”

Figure 8

Alternative Structural Model B



Note. * Indicates significant path. Political ideology was assessed by the following question “Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal, 100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.”

Appendix A
Demographic Questionnaire

Q2.1 What is your gender?

- Man
 - Woman
 - Trans or Transgender
 - Non-binary
 - A gender identity not listed here (please explain)

 - prefer not to answer
-

Q2.2 Please indicate the race or races with which you identify [select all that apply].

- American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or Other Pacific Islander
 - White
 - Other (please explain) _____
-

Q2.3 Please indicate your ethnicity.

- Hispanic or Latino or Spanish origin
 - Not Hispanic or Latino or Spanish origin
 - Other (please specify) _____
-

Q2.4 How would you describe your sexual orientation?

- Heterosexual ("straight", prefer partners of opposite gender)
 - Homosexual (gay/lesbian)
 - Bisexual
 - Other _____
-

Q2.5 What is your age?

Q2.6 Political Affiliation (select one):

- Democrat
- Republican
- Independent
- None
- Other _____

Q2.7 Which of the following best describes your current relationship status? (select one)

- Single, not dating
 - Single, dating
 - In a Relationship
 - Cohabiting (living together)
 - Married (or equivalent)
 - Divorce/Separated
 - Widowed
 - Other _____
-

Q2.8 Which of the following best describes your current place of residence? (select one)

- With parents
 - Apartment, house, condo
 - On-campus residence hall/dormitory
 - Fraternity/sorority house
 - Boarding house
 - Other _____
-

Q2.9 How often did you attend religious services in the past year? (select one)

- Every week
 - At least once per month
 - Less than once per month
 - Not at all in the past year
-

Q2.10 What is your religious affiliation? (check one)

- Roman Catholic
- Protestant (including Lutheran)
- Latter Day Saints (Mormon)
- Other "Christian" (please specify) _____

- Jewish
 - Atheist
 - Agnostic
 - Other (please specify) _____
-

Q2.11 Number of years of education

- less than 8th grade
 - some high school
 - high school graduate
 - some college or technical schooling
 - college graduate (Bachelor's degree or equivalent)
 - some post-graduate education
 - post-graduate degree (Masters, PhD, etc.)
-

Q2.12 Have you ever attended college or technical school?

- No
 - Yes, but I am no longer attending college
 - Yes, I am currently a student
-

Q2.13 Have either of your parents (or the parent you primarily resided with as a child) earned a four-year college or bachelor's degree?

- Yes
 - No
 - Other (please explain) _____
-

Display This Question:

If Have you ever attended college or technical school? = Yes, I am currently a student

Q2.14 What is your current student status?

- First-year undergraduate student (freshman)
 - Second-year undergraduate student (sophomore)
 - Third-year undergraduate student (junior)
 - Fourth-year (or beyond) undergraduate student (senior)
 - Graduate/professional student (already obtained Bachelor's degree or equivalent)
-

Display This Question:

If Have you ever attended college or technical school? = Yes, I am currently a student

Q2.15 Where do you attend college?

Q2.16 In which state did you spend most of the COVID-19 pandemic?

▼ Alabama ... I do not reside in the United States

Q2.17 What is your current employment status?

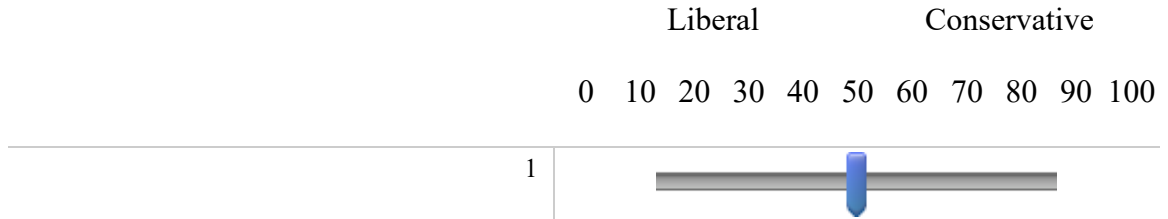
- Employed full-time (40 or more hours per week)
- Employed part-time (up to 39 hours per week)
- Unemployed and currently looking for work
- Unemployed and not currently looking for work
- Retired
- Self-employed
- Unable to work
- Student with a part-time job
- Student with a full-time job
- Student with no other employment

Q2.18 What is your annual household income? If you are a dependent, select the response that best corresponds with your family's income.

- Less than \$20,000
- \$20,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- Over \$150,000

Q2.19 Do you consider yourself more liberal or conservative? Please indicate where you think you fall on the liberal-conservative slider below, with 0 being extremely liberal,

100 being extremely conservative, and the midpoint (50) being exactly in-between liberal and conservative.



Q2.20 Some people think of themselves as having both liberal views *and* conservative views. Do you think of yourself in this way?

- Yes
- No
- Maybe



Q2.21 Please provide your best estimate of how liberal *and* conservative you are by moving the slider to match your estimates. The total must equal 100%.

For example, if you think about 60% of your views are liberal and 40% of your views are conservative, you would move the "liberal" slider to 60 and "conservative" slider to 40.

_____ Liberal
_____ Conservative

Q2.22 Did you vote in the 2016 Presidential election?

- Yes
 - No
 - Prefer not to respond
-

Display This Question:
If Did you vote in the 2016 Presidential election? = Yes

Q2.23 Who did you vote for in the 2016 Presidential election?

- Donald Trump
 - Hillary Clinton
 - Gary Johnson
 - Evan McMullin
 - Other _____
-

Q2.24 Did you vote in the 2018 midterm election?

- Yes
 - No
 - Other (please explain) _____
-

Q2.25 Did you vote in the 2020 Presidential election?

- Yes
 - No
 - Prefer not to respond
-

*Display This Question:
If Did you vote in the 2020 Presidential election? = Yes*

Q2.26 Who did you vote for in the 2020 Presidential election?

- Donald Trump
 - Joe Biden
 - Howie Hawkins
 - Jo Jorgensen
 - Other _____
-

Q2.27 Do you generally vote in favor of your own political party or affiliation?

- Yes
 - No
 - I have never voted/Prefer not to say
-

Q2.28 What do you like most about your political party or affiliation?

Appendix B

Moral Foundations Questionnaire

Part 1. When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:

[0] = not at all relevant (This consideration has nothing to do with my judgments of right and wrong)

[1] = not very relevant

[2] = slightly relevant

[3] = somewhat relevant

[4] = very relevant

[5] = extremely relevant (This is one of the most important factors when I judge right and wrong)

_____ Whether or not someone suffered emotionally

_____ Whether or not some people were treated differently than others

_____ Whether or not someone's action showed love for his or her country

_____ Whether or not someone showed a lack of respect for authority

_____ Whether or not someone violated standards of purity and decency

_____ Whether or not someone was good at math

_____ Whether or not someone cared for someone weak or vulnerable

_____ Whether or not someone acted unfairly

_____ Whether or not someone did something to betray his or her group

_____ Whether or not someone conformed to the traditions of society

_____ Whether or not someone did something disgusting

_____ Whether or not someone was cruel

- _____ Whether or not someone was denied his or her rights
- _____ Whether or not someone showed a lack of loyalty
- _____ Whether or not an action caused chaos or disorder
- _____ Whether or not someone acted in a way that God would approve of

Part 2. Please read the following sentences and indicate your agreement or disagreement:

[0]	[1]	[2]	[3]	[4]	[5]
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

- _____ Compassion for those who are suffering is the most crucial virtue.
- _____ When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.
- _____ I am proud of my country's history.
- _____ Respect for authority is something all children need to learn.
- _____ People should not do things that are disgusting, even if no one is harmed.
- _____ It is better to do good than to do bad.
- _____ One of the worst things a person could do is hurt a defenseless animal.
- _____ Justice is the most important requirement for a society.
- _____ People should be loyal to their family members, even when they have done something wrong.
- _____ Men and women each have different roles to play in society.
- _____ I would call some acts wrong on the grounds that they are unnatural.
- _____ It can never be right to kill a human being.

_____ I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing.

_____ It is more important to be a team player than to express oneself.

_____ If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty.

_____ Chastity is an important and valuable virtue.

The Moral Foundations Questionnaire (full version, July 2008) by Jesse Graham, Jonathan Haidt, and Brian Nosek.

For more information about Moral Foundations Theory and scoring this form, see:
www.MoralFoundations.org

MFQ Item Key, July 2008

--Below are the items that compose the MFQ20. Variable names are IN CAPS

--Besides the 30 test items there are 2 “catch” items, MATH and GOOD

PART 1 ITEMS (responded to using the following response options: not at all relevant , not very relevant, slightly relevant, somewhat relevant, very relevant, extremely relevant)

MATH - Whether or not someone was good at math [This item is not scored; it is included both to force people to use the bottom end of the scale, and to catch and cut participants who respond with last 3 response options]

Harm:

EMOTIONALLY - Whether or not someone suffered emotionally

WEAK - Whether or not someone cared for someone weak or vulnerable

CRUEL - Whether or not someone was cruel

Fairness:

TREATED - Whether or not some people were treated differently than others

UNFAIRLY - Whether or not someone acted unfairly

RIGHTS - Whether or not someone was denied his or her rights

Ingroup:

LOVECOUNTRY - Whether or not someone’s action showed love for his or her country

BETRAY - Whether or not someone did something to betray his or her group

LOYALTY - Whether or not someone showed a lack of loyalty

Authority:

RESPECT - Whether or not someone showed a lack of respect for authority

TRADITIONS - Whether or not someone conformed to the traditions of society

CHAOS - Whether or not an action caused chaos or disorder

Purity:

DECENCY - Whether or not someone violated standards of purity and decency

DISGUSTING - Whether or not someone did something disgusting

GOD - Whether or not someone acted in a way that God would approve of

PART 2 ITEMS (responded to using the following response options: strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, strongly agree)

GOOD – It is better to do good than to do bad. [Not scored, included to force use of top of the scale, and to catch and cut people who respond with first 3 response options]

Harm:

COMPASSION - Compassion for those who are suffering is the most crucial virtue.

ANIMAL - One of the worst things a person could do is hurt a defenseless animal.

KILL - It can never be right to kill a human being.

Fairness:

FAIRLY - When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.

JUSTICE – Justice is the most important requirement for a society.

RICH - I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing.

Ingroup:

HISTORY - I am proud of my country's history.

FAMILY - People should be loyal to their family members, even when they have done something wrong.

TEAM - It is more important to be a team player than to express oneself.

Authority:

KIDRESPECT - Respect for authority is something all children need to learn.

SEXROLES - Men and women each have different roles to play in society.

SOLDIER - If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty.

Purity:

HARMLESSDG - People should not do things that are disgusting, even if no one is harmed.

UNNATURAL - I would call some acts wrong on the grounds that they are unnatural.

CHASTITY - Chastity is an important and valuable virtue.

Appendix C

Oftenness of Mask Wearing, Subjective Norms, and Social Distancing Questionnaire

Q3.1 How do you perceive others who choose to wear masks in public?

- Extremely positively
- Positively
- Neutral
- Negatively
- Extremely negatively

Q3.2 How do you perceive others who choose not to wear masks in public?

- Extremely positively
 - Positively
 - Neutral
 - Negatively
 - Extremely negatively
-

Q3.3 Which of the following best describes your plan to be vaccinated against COVID-19?

- Already vaccinated
 - Partially vaccinated
 - Have an appointment to be vaccinated
 - Willing to be vaccinated but have yet to make an appointment
 - Unable to be vaccinated for health reasons
 - Unsure if I will be vaccinated
 - Will likely not be vaccinated
 - Definitely will not be vaccinated
 - Other (please explain) _____
-

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated

Or Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated

Q3.4 In the past year, prior to being vaccinated, how often did you eat indoors at a restaurant?

- More often than in a typical year
- About the same amount as a typical year
- Less often than in a typical year
- Very rarely (much less often than in a typical year)
- Never

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? != Already vaccinated

And Which of the following best describes your plan to be vaccinated against COVID-19? != Partially vaccinated

Q3.5 In the past year, how often have you eaten indoors at a restaurant?

- More often than in a typical year
- About the same amount as a typical year
- Less often than in a typical year
- Very rarely (much less often than in a typical year)
- None

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated

Or Which of the following best describes your plan to be vaccinated against COVID-19? = Partially vaccinated

Q3.6 In the past year, prior to being vaccinated, how often did you attend social events with more than 10 people who do not live in your household?

- More often than in a typical year
- About the same amount as a typical year
- Less often than in a typical year
- Very rarely (much less often than in a typical year)
- None

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? != Already vaccinated

And Which of the following best describes your plan to be vaccinated against COVID-19? != Partially vaccinated

Q3.7 In the past year how often have you attended social events with more than 10 people who do not live in your household?

- More often than in a typical year
- About the same amount as a typical year
- Less often than in a typical year
- Very rarely (much less often than in a typical year)
- None

Q3.8 Was there ever a state or county/city mask mandate where you live?

- State wide mandate
- County/city wide mandate
- Both a state and county/city wide mandate
- No mask mandate

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated

Or Which of the following best describes your plan to be vaccinated against COVID-19? = Partially vaccinated

Q3.9 Prior to being vaccinated, were you more or less likely to shop at stores that required masks and enforced mask wearing?

- Only shop at stores that enforce mask wearing
- Prefer stores that enforce mask wearing
- No preference
- Prefer stores that do not enforce mask wearing
- Only shop at stores that do not enforce mask wearing

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? != Already vaccinated

And Which of the following best describes your plan to be vaccinated against COVID-19? != Partially vaccinated

Q3.10 Are you more or less likely to shop at stores that require masks and enforce mask wearing?

- Only shop at stores that enforce mask wearing
- Prefer stores that enforce mask wearing
- No preference
- Prefer stores that do not enforce mask wearing
- Only shop at stores that do not enforce mask wearing

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated

Or Which of the following best describes your plan to be vaccinated against COVID-19? = Partially vaccinated

Q3.11 Prior to being vaccinated, how often did you wear a mask in the following situations?

	Always	Mostly	Sometimes	Rarely	Never	N/A (not applicable)
At the grocery store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a restaurant (when not seated at table)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In your home with family who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your home with friends who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At the gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a park with other people not from your household (within 6 feet of you)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While walking outside with others not from your household (within 6 feet of you)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:
 If Which of the following best describes your plan to be vaccinated against COVID-19? = Already vaccinated
 Or Which of the following best describes your plan to be vaccinated against COVID-19? = Partially vaccinated

Q3.12 Prior to being vaccinated, how often did others around you wear a mask in the following situations?

	Always	Mostly	Sometimes	Rarely	Never	N/A (not applicable)
At the grocery store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a restaurant (when not seated at table)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your home with family who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In your home with friends who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At the gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a park with other people not from your household (within 6 feet of you)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While walking outside with others not from your household (within 6 feet of you)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:
 If Which of the following best describes your plan to be vaccinated against COVID-19? != Already vaccinated
 And Which of the following best describes your plan to be vaccinated against COVID-19? != Partially vaccinated

Q3.13 How often have you worn a mask in the following situations?

	Always	Mostly	Sometimes	Rarely	Never	N/A (not applicable)
At the grocery store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

At a restaurant (when not seated at table)

At a party

In your home with family who do not live with you

In your home with friends who do not live with you

At the gym

At a park with other people not from your household (within 6 feet of you)

While walking outside with others not from your household (within 6 feet of you)

Display This Question:

If Which of the following best describes your plan to be vaccinated against COVID-19? != Already vaccinated

And Which of the following best describes your plan to be vaccinated against COVID-19? != Partially vaccinated

Q3.14 How often have others around you worn a mask in the following situations?

	Always	Mostly	Sometimes	Rarely	Never	N/A (not applicable)
At the grocery store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a restaurant (when not seated at table)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In your home with family who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In your home with friends who do not live with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At the gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At a park with other people not from your household (within 6 feet of you)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While walking outside with others not	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

from your
household
(within 6
feet of you)

Q3.15

Have you ever tested positive for COVID-19?

- Yes
- No
- Other _____

Q3.16 Have you ever been hospitalized for COVID-19?

- Yes
- No

Q3.17 Do you know someone, besides yourself, who has tested positive for COVID-19?

- Yes
- No
- Other _____

Q3.18 Do you know someone, besides yourself, who has been hospitalized for COVID-19?

- Yes
- No

Q3.19 We are trying to better understand attitudes toward mask wearing, COVID-19, and social distancing. However, multiple choice questions can only tell us so much. Is there

any additional information about COVID-19, social distancing, and/or mask wearing you would like to share?

Appendix D

Mask Wearing Attitudes

Q6.1 Have you worn a facemask because of concerns about COVID-19?

- Yes
- No
- Other (please explain) _____

Q6.2 Please indicate how strongly you agree or disagree with the following statements about mask wearing.

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither Disagree nor Agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
During the COVID-19 pandemic, I have worn a face mask to protect myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The main reason to wear a face mask is to protect others from illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facemasks are a good way to slow the spread of Covid-19.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facemasks are unsafe because they force you to touch your face.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The main reason I have worn a face mask is to protect myself from COVID-19.

I have worn face masks to protect other people from COVID-19.

Facemasks are a good way to protect other people from COVID-19.

The feeling of a facemask is gross.

Wearing a face mask protects oneself from illness.

Protecting other people by wearing a face mask is my civic duty.

Facemasks provide a false sense of security.

Face masks are too uncomfortable.

Face masks are dangerous because they make it harder to breathe.

I do not like being forced to wear a facemask

Given the choice, I would never have worn a face mask.

The government has a duty to protect its citizens by implementing mask mandates when appropriate.

COVID-19 is a serious health crisis.

The government should have no authority over what people do with their bodies, including mask mandates.

Regardless of whether a mask mandate was in place, I would have worn a face mask in public spaces where other people were present.

Q6.3 Since mask wearing was recommended by the CDC (April 2020), up until the recommendations were changed for vaccinated people (May 2021) how often did you wear a mask in public around other people?

- Always
- Mostly
- Sometimes
- Rarely
- Never

Q6.4 Since the CDC changed the mask recommendations for vaccinated people (May 2021), how often have you continued to wear masks in public when unable to socially distance from others?

- Always
- Mostly
- Sometimes
- Rarely
- Never