

# Social Influences on Americans' Mask-Wearing Behavior during COVID-19

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**Abstract**—Based on a convenience sample of 2,092 participants from across all 50 states of the United States, a survey was conducted to explore Americans' mask-wearing behaviors during COVID-19 according to their political convictions, religious beliefs, and ethnic cultures from late July to early September, 2020. The purpose of the study is to provide evidential support for government policymaking so as to drive up more effective public policies by taking into consideration the variance in these social factors. It was found that the respondents' party affiliation or preference, religious belief, and ethnicity, in addition to their health condition, gender, level of concern of contracting COVID-19, all affected their mask-wearing habits both in March, the initial coronavirus outbreak stage, and in August, when mask-wearing had been made mandatory by state governments. The study concludes that pandemic awareness campaigns must be run among all citizens, especially among African Americans, Muslims, and Republicans, who have the lowest rates of wearing masks, in order to protect themselves and others. It is recommended that complementary cognitive bias awareness programs should be implemented in non-Black and non-Muslim communities to eliminate social concerns that deter them from wearing masks.

**Keywords**—COVID-19 pandemic, ethnicity, mask-wearing, policymaking implications, political affiliations, religious beliefs, United States.

## I. INTRODUCTION

THE world has experienced a pandemic caused by a novel coronavirus COVID-19 since late 2019. The virus spreads mainly from person to person through respiratory droplets produced when infected individuals cough, sneeze, or talk, according to the Centers for Disease Control and Prevention (CDC) [9]. Due to its highly contagious nature, COVID-19 has been spreading sustainably in global communities. Started in Wuhan, China, the coronavirus reached 188 countries with 28 million confirmed cases and close to one million deaths worldwide by mid-September, 2020 [41]. Among all concerned nations, the United States, Brazil, and Russia have observed a spiky increase in reported cases, while Spain, Italy, China, Japan, and other countries had possibly passed their peak by the summer of 2020 [20]. To slow down the spread of COVID-19, CDC [9] mandated that residents take various precautions, including washing hands for at least 20 seconds after activities with risks of potential infection, social distancing in public for 6 feet apart, disinfecting and cleaning household items, covering face with a mask or cloth when social distancing is impossible, and self-quarantining for

potential or asymptomatic patients.

Among all the precautions taken, mask-wearing is the most controversial with some states requiring the covering of the face in public, and some only requesting so when social distancing is hard to maintain [31]. Inconsistent federal, state, and international guidelines regarding mask wearing have caused confusion [42]. In the United States, face covering even carries cultural and religious meanings and manifests and reinforces political messages by aligning with or criticizing politicians who support mask-wearing policies [46]. Therefore, the debate over facemasks has escalated the situation and impeded the US government's effort to slow down the spread of COVID-19.

The US has been a politically divided country since its establishment in 1776. The outbreak of coronavirus has further fueled the polarization and the gap between two political parties: 91% Democrats are in favor of providing financial aid for state and local governments to cope with the pandemic, but only 58% of Republicans are on board [35]. Meanwhile, the majority of Republicans or Republican-leaning independents believe that the worst has passed and the rapid reopening of the economy must be executed immediately while most Democrats are not as optimistic and are skeptical of reopening the country too quickly [35].

The different perceptions of the severity have engendered different views on what actions to take. "Democrats and Democratic-leaning independents are about twice as likely as Republicans and Republican-leaning independents to say that masks should be always worn (63% vs. 29%)" with much more Republicans than Democrats saying that "masks should rarely or never be worn (23% vs. 4%)" [35]. Therefore, mask-wearing now has an additional layer of political significance, becoming the new symbol of the political divide of the US citizens: wearing a mask for public health is left-leaning, while refusing to wear a mask to uphold personal liberties is right-leaning. In addition, Orange county, CA, where the number of positive cases reported rose by 87.2% in 14 days and reached 19,247 on July 6th, 2020, met furious resistance when implementing mandatory face-covering policy to slow down the surge of the cases. Anti-mask protestors violently accused and attacked county leaders and complained that mandatory mask policy "violates their civil liberties" [18], [40].

Political leaders' actions are creating even greater driving force behind the dynamic of mask-wearing tendency in the US. President Donald Trump, representing Republicans, refuses to wear masks on almost all occasions and encourages participants of his presidential campaigns to gather in closed space without covering their faces [2]. This explicit opposition

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against mask-wearing sends an explicit message to the citizens that mask-wearing is not favored or recommended by the current most influential individual of the US. The trust of right-learners in Trump's statements, such as the virus will "disappear" someday, and actions, including not wearing facemasks, to cope with COVID-19, incurred a false sense of security that contributed to the lack of precautions taken by the U.S. citizens [44]. Such impacts evoked mounting criticism from the Democratic Party, which concerns the spread of COVID-19 as people follow Trump and other Republicans' examples in disregard of the recommendation of the CDC and local and state governments [19]. Democratic politicians, such as Nancy Pelosi, have established their firm ground on supporting mask-wearing by always covering their faces in public [17]. The intensifying tension between the two parties has been influencing Americans' mask-wearing perceptions and behaviors.

The diverse ethnicity present in the United States also contributes to the different mask-wearing choices of the people. Historically, different ethnic groups have had different perceptions and usages of face masks in daily life. Asian countries, especially Japan, have established a social norm of mask-wearing before the onset of the coronavirus. Since the 1950s, the Japanese have started using masks as a safeguard against air pollution while Chinese people have embraced daily mask-usage after the shock of the Asian Flu Pandemic in 1957 and the SARS epidemic in 2005 [24]. Slowly, wearing masks in public has become something socially acceptable. Subsequently, it has been much easier for Asian Americans to immediately follow the government's face-covering recommendations. In comparison, Blacks and other non-white ethnic groups are more reluctant to cover their faces primarily due to the concern of racial profiling and harassment. Two Black men were kicked out of Walmart for wearing masks [23]. An Oregon county exempted people of color from mandatory mask policy, directly contributing to the disparity of mask-wearing behaviors among different ethnic groups [43]. Latinos also experienced discrimination in terms of wearing non-medical masks [14]. Public health officials in Ohio's most populous county have warned African Americans and communities of color not to wear masks that stereotype or paint "gang symbols." Colored people are concerned about wearing a mask with no obvious sign of medical use because they might have a better chance of being discriminated against in grocery stores and other public places [14].

In addition to political and ethnic factors, the religious impact on the public's view of mask-wearing can hardly be ignored. The United States is a dominantly Christian country, where there are about 20.8% Catholic, 25.4% Evangelical Protestant, and 14.7% Mainline Protestant [36]. In Christian beliefs, truth is "unveiled," and all humans are made in God's image with humanities' distinct faces with the ability to express emotions and self-consciousness only possessed by humans. Faces, thus, are considered an essential part of Christian identity and serve as a connection to God [13]. Such a belief persuades some Christians to avoid face-covering by seeing a mask as a desecration of their faith [15]. In fact, an

Ohio legislator refuses mask-wearing by claiming his Juedo-Christian principles [38]. Moreover, in some extreme cases, religious beliefs have driven people to disregard mandatory social distancing and other necessary precautions with the belief that Jesus protects them from the virus. A woman interviewed by CNN asserted that she was not worried of getting infected because she was "covered in Jesus' blood" when she was asked whether she was concerned about infecting other people if she got sick [39]. For Islamic women, choosing to wear Islamic veils involves historical, religious and cultural implications, which complicate the issue, begetting different mask-wearing behaviors [37].

The utilization of face-covering has been shown to have dramatic and significant impact on a country's control of COVID-19 cases. In comparison to the U.S. neighbor, Canada, the United States saw twice as many confirmed cases while having a double mortality rate of more than 200 deaths per million versus a little over 100 per million in Canada in early May [34]. Political leadership's influence of mask-wearing has played a crucial role in causing the huge difference. While Canada was bulking up personal protective equipment (PPE), such as masks, gloves, etc., and distributing them to local provinces on the basis of need, the United States struggled to supply infection hotspots and carry out adequate testing for contact tracking due to political division and favoritism [49]. The crisis that the United States faced when combating COVID-19 can be partially ascribed to its' citizens' lack of unanimous preventive actions, including mask-wearing [22].

Considering the effectiveness of mask-wearing in preventing further virus spreading when social distancing in other nations, this study is important because its findings can provide evidential support for government policymaking so as to drive up more effective public policies by taking into consideration the variance in social factors. In addition, ordinary people can have a better understanding of their peers in the large context, such as their party members, their ethnic group, or their religious group, in terms of wearing a mask to combat COVID-19 or future pandemics.

Recognizing the significance of masking-wearing behaviors' impacts on the spread of virus and the remarkable influences of political, religious, and ethical factors on Americans' mask-wearing tendencies during the COVID-19 pandemic, this study sought to explore among Americans the correlation between religions and face mask usages, the degree of partisanship's influence on individuals' face masks wearing when dealing with the novel coronavirus, and examine different ethnic groups' perceptions and behaviors regarding face coverage and the reasons behind those choices. Fundamentally, this study aimed to answer the question: What is the social impact on Americans' mask-wearing behavior during COVID-19? This general research question is broken down into the following three specific research questions:

- RQ1: Overall, how did people change their mask-wearing behavior over time?
- RQ2: How do partisanship impact Americans' perceptions of mask-wearing in public to slow down the spread of coronavirus?

- RQ3: How do various ethnic groups react to mandatory or requested mask-wearing policies?
- RQ4: What roles do religious beliefs play in influencing Americans' choices of wearing masks when social distancing is impossible?

## II. LITERATURE REVIEW

A massive literature search on the topic of this study was conducted in May 2020. Due to the proximity and unexpectedness of the novel coronavirus in the United States, very few studies were found to examine the cultural impacts on Americans' mask-wearing behaviors. Most studies [4], [11], [26], [37] of COVID-19 focus on revealing the scientific aspects of the virus. Other works that discuss the cultural impacts during COVID-19 are articles without original research findings. However, studies on past pandemics or epidemics shed light on this study. For instance, Siu conducted a study on the changes in sociocultural meanings of the facemask in Hong Kong since the Severe Acute Respiratory Syndrome (SARS) Outbreak [40]. She discovered that both people's perceptions of those who wear masks and perceptions of masks changed due to the outbreak. Specifically, people were compelled to wear masks to be seen as normal, civil, and responsible mainly through the effect of mass media that enhance the meaning behind mask-wearing behaviors. Even though that study was conducted in Hong Kong after the epidemic was ended, it informed this study, carried out in the United States in the midst of the pandemic, by shaping its research questions and putting the findings in perspective.

Hung [21] examined how face masks were used in the United States to prevent the spread of Influenza. He took into account the efficacy of face masks, historical usage, and perceptions of masks, policies, and laws, and some social values. Instead of examining the broad range of potential variations that play a role in influencing Americans' mask-wearing behaviors as Hung did, this study focuses on the social impacts on Americans' mask-wearing behaviors.

A meta-analysis of 172 related studies found that "masks in general are associated with a large reduction in risk of infection from SARS-CoV-2, SARS-CoV, and MERS-CoV" and serves as a compelling indication that use of face masks is "protective for both health-care workers and people in the community exposed to infection" during COVID-19 [11]. This conclusion is supported by another study of CDC, which examined the effectiveness of seven types of masks [42]. In addition, both studies provide substantial evidence that suggests face masks help cut risks of infectious respiratory viruses, justifying the potentiality of slowing down the spread of COVID-19 through massive usage of masks in communities.

Knotek II [26] examined the beliefs of individual US consumers on wearing masks during COVID-19. The research discovered that most respondents wore masks in July and some respondents are less likely to follow the social distancing guidelines while wearing masks. Also, it found that while a majority of respondents said they would be most likely to wear a mask if requested by government authorities, the

likelihood of reported result depends largely on age and the effectiveness of the mask. Nevertheless, no prior studies are found to have examined the specific social factors that influence Americans' mask-wearing behaviors during the COVID-19. Thus, this study is the first of its kind that has detailed social impacts on Americans' attitudes and actions in wearing a mask based on a sample containing respondents from all states in the United States.

## III. METHODOLOGY

A survey was conducted to collect thoughts regarding wearing a mask from people around the United States. Since coming up with a systematic probability sample was out of the question, a convenience sample was used.

In total, 16 questions were designed. To find out why the respondents wish to wear or not to wear a mask, one open-ended question was included. A pilot test was conducted to eliminate any possible confusion and mistake. To spread the word about the survey, the authors promoted the survey on multiple social media to galvanize friends to answer the survey and repost the survey to their friends. A reputable survey company was enlisted to help drive up more responses. The survey was conducted for more than a month from late July to early September 2020.

The authors were fully aware that the conclusions from the survey can only be applied to this convenience sample.

SPSS was used to analyze the data. Most of the analysis stayed on the descriptive level, but correlations between demographic variables and other variables were explored. Since most of the data were on the nominal level and ordinal level, non-parametric procedures were applied. The significance level was set at  $< 0.001$ .

## IV. FINDINGS

### A. RQ1: Overall, How Did People Change Their Mask-Wearing Behavior Over Time?

Here is a profile picture of the respondents in this convenience sample. Most respondents (83%) were not sure if they had contracted COVID-19; 12% said no, and only 5% did contract it. The respondents were asked if their relatives or friends whom they had physical contact had contracted COVID-19 since such an answer may also affect their mask-wearing behavior; 65% said "Not sure"; 12% said "No"; 27% said "Yes." Most respondents were either concerned (41%) or somewhat concerned (48%) about contracting COVID-19. In fact, female respondents (91%) were much more concerned than their male counterparts (84%) ( $X = 28.41$ ,  $df = 2$ ,  $p < 0.001$ ). Though, in March, there was no statistically significant difference in wearing a mask between men (always wore: 42%; did not wear: 19%) and women (always wore: 44%; did not wear: 20%), the situation changed drastically in August: significantly more women (88%) always wore a mask than men (78%) did ( $X = 39.17$ ,  $df = 3$ ,  $p < 0.001$ ). Across genders, the number of respondents who always wore a mask in relatively crowded spaces doubled from 43% in March to 86% in August.

Among those who did not get COVID-19 yet in March, 32% did not wear a mask, but this number was drastically reduced to 2% in August. In fact, from March to August, the number of people who did not always wear a mask was drastically reduced no matter whether they had got or not got COVID-19. However, significantly more people who had not got COVID-19 always wore a mask in August after coronavirus had been rampant in the United States for about half a year, see Table I.

TABLE I  
PERCENTAGE OF RESPONDENTS WHO WORE A MASK IN MARCH AND IN  
AUGUST 2020 BASED ON COVID-19 STATUS

	Having contracted COVID-19	Not sure	No
Didn't wear	11% / 2%	19% / 2%	32% / 2%
Rarely wore	13% / 6%	15% / 3%	17% / 3%
Sometimes wore	26% / 18%	21% / 8%	20% / 15%
Always wore	50% / 74%	45% / 87%	31% / 80%

$X = 29.16$ ,  $df = 6$ ,  $p < 0.001$ , March (left), August (right)

A similar pattern was found for those who had heard that their relatives or friends whom they had physically seen over the prior six months had contracted COVID-19. Whether hearing their relatives or friends having contracted COVID-19 did not make much of a difference to the respondents in March since many of them (contracted: 22%, not sure: 19%, No: 20%) did not wear a mask, and fewer than half (contracted: 37%, not sure: 46%, No: 42%) always wore a mask. Nevertheless, things changed for these people drastically in August: the respondents who did not wear a mask dropped to below 3%, and most of them wore one (contracted: 82%, not sure: 87%, No: 85%).

This study also attempted to find out whether COVID-19 brought concerns to those people who had suffered from severe diseases, such as cancer, heart diseases, chronic respiratory diseases, lung diseases, etc. The study shows that the more of such diseases a respondent had suffered from, the more they were concerned about contracting COVID-19 ( $X = 42.53$ ,  $df = 6$ ,  $p < 0.001$ ). However, significantly more respondents without any severe diseases (48%) wore a mask than those did have such diseases (39%) regardless the number of diseases ( $X = 17.98$ ,  $df = 3$ ,  $p < 0.001$ ). Such a difference was totally wiped out in August with no significant differences between the two groups observed.

Based on the literature reviewed [4], [11]-[17], [19], [21], [23], [24], [26], eight reasons to wear a mask and 15 reasons not to wear a mask were included in the survey. Here are the top three reasons that the respondents who wore a mask picked, see Fig. 1.

1. Wearing a mask is a display of civic responsibility to protect others (93%).
2. Wearing a mask is recommended by health experts (90%).
3. Wearing a mask provides an additional layer of protection (87%).

And here are the top three reasons that the respondents who did not wish to wear a mask picked, see Fig. 2.

1. Wearing a mask creates a false sense of security (54%).
2. Wearing a mask hinders effective communication and interpretation of emotions (48%).
3. Wearing a mask increases social seclusion (41%).

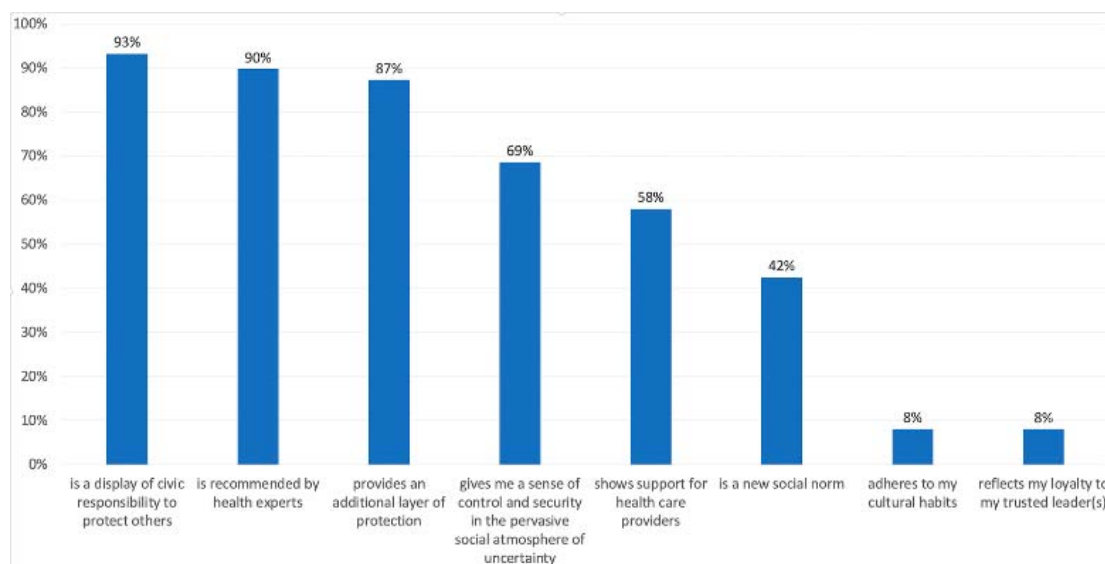


Fig. 1 Percentage of respondents' reasons for wearing a mask

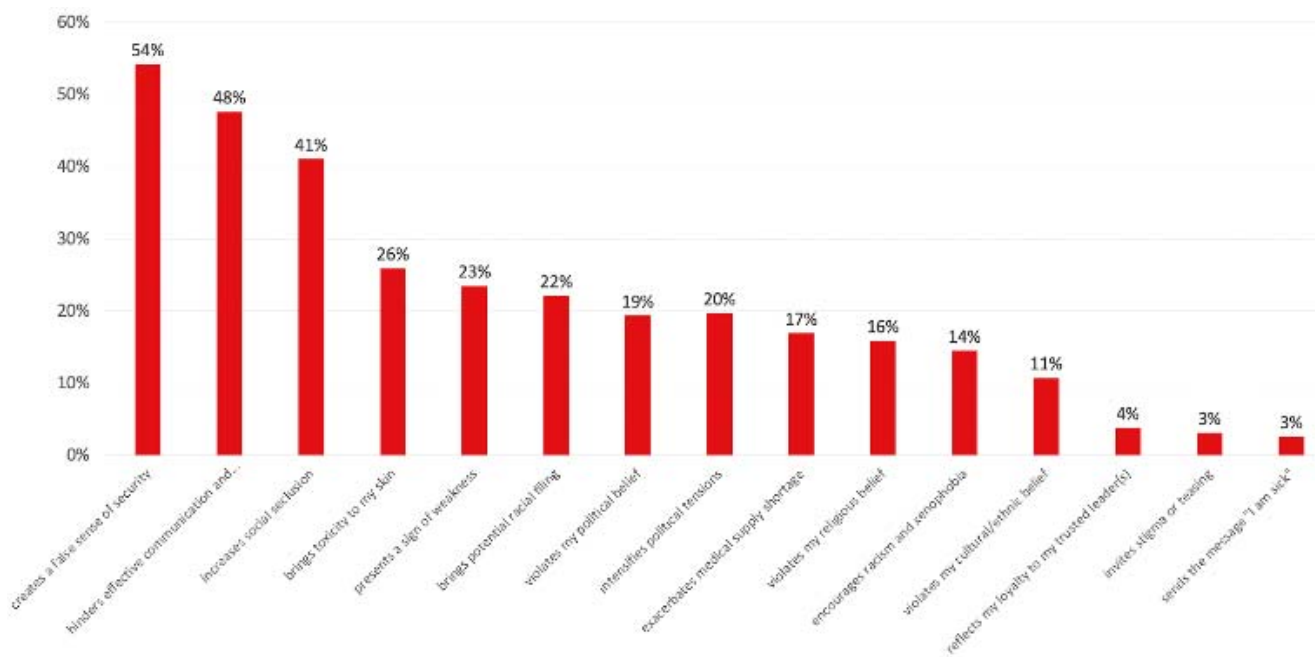


Fig. 2 Percentage of respondents' reasons for not wearing a mask

TABLE II  
PERCENTAGE OF RESPONDENTS WHO WORE A MASK IN MARCH AND IN AUGUST 2020 ALONG THE PARTY LINE

	Democrats (a/b)	Republicans (a/b)	Democrat-leaning independents (a/b)	Republican-leaning independents (a/b)	Non-leaning Independents (a/b)	Other (a/b)
Didn't wear	17% / 1%	25% / 3%	18% / 1%	33% / 5%	17% / 1%	18% / 5%
Rarely wore	16% / 2%	15% / 9%	16% / 1%	13% / 4%	14% / 1%	13% / 3%
Sometimes wore	25% / 7%	18% / 17%	24% / 6%	15% / 14%	19% / 9%	22% / 8%
Always wore	42% / 90%	41% / 71%	42% / 92%	39% / 77%	50% / 89%	47% / 85%

March (a):  $X = 44.44$ ,  $df = 15$ ,  $p < 0.001$ ; August (b):  $X = 108.16$ ,  $df = 15$ ,  $p < 0.001$

#### B.RQ2: How Do Partisanship Impact Americans' Perceptions of Mask-Wearing in Public to Slow down the Spread of Coronavirus?

Along the party line, Republicans (33%) were much less concerned about getting COVID-19 than Democrats (49%) did. Likewise, republican-leaning independents (32%) were much less concerned than democrat-leaning independents (44%) ( $X = 102.09$ ,  $df = 10$ ,  $p < 0.001$ ). According to Table II, in March, the number of Republicans and Democrats who always wore a mask in relatively crowded public spaces (41% vs 42%) were not much different, but significantly more Republicans (25%) did not wear a mask than Democrats (17%) did. Likewise, significantly more Republican-leaning independents (33%) did not wear a mask than Democrat-leaning independents (18%) did. Non-party-leaning independents were the most active in wearing a mask (50%) in March. However, in August, things changed drastically. Significantly more Democrats (90%) and Democrat-leaning independents (92%) wore a mask than Republicans (71%) and Republican-leaning independents (77%). Non-party-independents (89%) were, again, in the top group in terms of always wearing a mask.

#### C.RQ3: How Do Various Ethnic Groups React to Mandatory or Requested Mask-Wearing Policies?

Ethnicity did make a difference in terms of mask-wearing behavior. While the survey included options for the respondents to choose Native American, Native Hawaiian and Pacific Islander, Two or More races, and Other, there were too few cases in those categories; as a result, they had to be excluded from the statistical analysis since such inclusion would have skewed the data. The percentage of Asians (44%) who were concerned about contracting COVID-19 was not that much different from Caucasians (42%) and African Americans (40%) but was significantly different from that of Latinos (35%) ( $X = 41.89$ ,  $df = 14$ ,  $p < 0.001$ ). In addition, African Americans (20%) had the highest percentage of respondents who were not concerned at all in comparison to Latinos (15%), Caucasians (11%), and Asians (8%) ( $X = 13.31$ ,  $df = 6$ ,  $p < 0.001$ ). Asians were the most active in wearing a mask both in March (64%) and in August (93%). 40% of African Americans always wore a mask in March, but in August, they had the lowest "Always wore" rate—66% in comparison to Caucasians (84%) and Latinos (83%), see Table III. By studying the responses for not wearing a mask from those African American respondents who did not always wear a mask, the study found that the most typical answers were: "hinders effective communication and interpretation of

emotions,” “invites stigma or teasing,” “creates a false sense of security,” and “brings potential racial profiling.”

TABLE III  
PERCENTAGE OF RESPONDENTS WHO WORE A MASK IN MARCH AND IN  
AUGUST 2020 BY ETHNICITY

	Caucasian (a/b)	Latino (a/b)	African American (a/b)	Asian (a/b)
Didn't wear	25% / 3%	19% / 1%	20% / 3%	9% / 1%
Rarely wore	19% / 3%	16% / 6%	10% / 7%	8% / 1%
Sometimes wore	21% / 10%	26% / 10%	30% / 24%	19% / 5%
Always wore	35% / 84%	39% / 83%	40% / 66%	64% / 93%

March (a):  $X = 163.45$ ,  $df = 9$ ,  $p < 0.001$ ; August (b):  $c = 62.14$ ,  $df = 9$ ,  $p < 0.001$

The findings regarding ethnic groups' different mask-wearing tendencies in March and August show a continuous pattern of Asians' active participation in wearing masks in crowded public spaces. Many Asian respondents said that their tendency to wear a mask had been informed by scientific studies, expert statements, and other countries' pandemic prevention performances. One respondent stated, “In other countries which have been more successful in controlling the pandemic, one of the biggest actions they have taken is mandating masks in public spaces.” Another respondent agreed, “Wearing a mask has proven to be very effective in slowing the spread, especially if you look at how other countries handled the virus well.” Besides total faith in the effectiveness of wearing masks, Asian respondents also attributed their mask-wearing willingness to their cultural background. For instance, one respondent said, “Very common in Asian countries (like Korea - where the cases are low and it is normal to wear a mask even when not sick).” Because of their cultural tendency to wear masks normally even before the outbreak of COVID-19, most Asians employed mask-wearing more often than other ethnic groups did.

*D.RQ4: What Roles Do Religious Beliefs Play in Influencing Americans' Choices of Wearing Masks When Social Distancing Is Impossible?*

Religious belief was also found to have made a difference in these respondents' mask-wearing behaviors. Since there were too few cases under Buddhism and Hinduism, they had to be dropped from calculations. No significant differences were observed among people with different religious beliefs in terms of getting COVID-19; at least 85% of people with any religious belief were concerned or somewhat concerned about contracting COVID-19. Non-religious respondents led all respondents with a religious belief both in March (48%) and in August (92%) by always wearing a mask. Among religious people, Jewish people had the highest percentage of always wearing a mask both in March (42%) and in August (88%), while Islamic people made the least progress from March (46%) to August (51%) in terms of always wearing a mask, see Table IV.

Muslims who did not always wear a mask in relatively crowded places cited the following top four reasons: “brings potential racial filing” (14%), “creates a false sense of

security” (13%), “invites stigma or teasing” (12%), and “increases social seclusion” (11%). One of the Muslim respondents who did not wear masks at all explained, “I don't think wearing a mask will solve any problems, so I don't have one.” Another respondent concurred: “It doesn't matter whether we wear a mask or not. We believe that we can't get sick.” In comparison, Jews and Catholics, who had the highest percentage of “Always wore” among all religious populations, both expressed more confidence and trust in the scientists and government. Even though Christians were not as active as Catholics and Jews in always wearing a mask, they still wore masks often. One Christian respondent explained that he wore a mask because he owed this duty to his “God, family and friends.”

TABLE IV  
PERCENTAGE OF RESPONDENTS WHO WORE A MASK IN MARCH AND IN  
AUGUST 2020 BY RELIGIOUS BELIEFS

	Non-religious (a/b)	Christian (a/b)	Catholic (a/b)	Jewish (a/b)	Islam (a/b)
Didn't wear	16% / 1%	20% / 4%	29% / 1%	16% / 1%	14% / 3%
Rarely wore	14% / 1%	19% / 5%	13% / 3%	16% / 2%	14% / 14%
Sometimes wore	22% / 6%	21% / 10%	21% / 11%	26% / 9%	26% / 32%
Always wore	48% / 92%	40% / 81%	37% / 85%	42% / 88%	46% / 51%

March (a):  $X = 47.47\%$ ,  $df = 12$ ,  $p < 0.001$ ; August (b):  $X = 90.24\%$ ,  $df = 12$ ,  $p < 0.001$

## V. DISCUSSION AND CONCLUSIONS

This study has demonstrated a close connection between government policymaking timeline and citizen's mask-wearing behavior. In February 2020, COVID-19 was in its surging stage. Instead of advising people to wear a mask, the Trump administration announced that it was sending 18 tons of masks, gowns and respirators to China [29]. Ordinary citizens were discouraged from wearing a mask in public. For instance, on February 29, Dr. Jerome Adams, American Surgeon General, urged people on Twitter not to buy masks. In March, the World Health Organization (WHO) and the U.S. CDC both stated that healthy members of the general public should not wear a mask and should reserve masks for people who were sick [48]. As this study has shown, the percentage of the respondents wearing a mask was relatively low in March. However, from April 8th to August 18th, 35 states required that their citizens wear a mask when out in public space because of the drastic increases in the number of COVID-19 cases and deaths [25]. Correspondingly, the number of the respondents who always wore a mask doubled in August. Many respondents stated that they always wore a mask because their workplaces or grocery stores had become mask-mandatory. Thus, states mandatory policies influence people's mask-wearing behaviors.

Despite the sharp increase in all American residents' mask-wearing behaviors over the months, Democrats and Democrat-leaning independents have demonstrated a significantly more proactive attitude toward mask-wearing than Republicans and Republican-leaning independents. This study coincides with Walsh's 2020 reporting, which shows that, nationally, Democrats who reported wearing a mask in public rose from

49% to 65% from April to June while only 35% of Republicans had reported wearing masks at the end of June [45]. The different choices made by the party members are likely attributed to their different levels of trust in the government and state officials. Democrats and Democrat-leaning independents tended to show faith in health experts. One Democrat respondent stated, "I believe the medical experts when they say mask wearing is a critical way to protect against transmitting the virus." Another Democrat respondent also showed support: "I believe it's very important to follow guidelines set out by the government, health workers and the people around us." On the contrary, Republicans and Republican-leaning independents tended to express disbelief in the seriousness and veracity of the pandemic as warned by the government and local officials. One Republican respondent wrote, "The pandemic is just a big flu. Media exaggerate it too much." A Republican-leaning independent shared a similar opinion: "I don't believe the CDC data. The Democrats controlled states, cities want to increase fear, destroy our economy to ruin Trump's reelection. It's plain evil. Period."

The findings from this study demonstrate the impact of political leaders' influences on their respective party members. For instance, one Republican respondent asserted that he chose not to wear masks in public because "[His] President says it's okay to go without masks" and "[he is] not afraid of any virus." President Trump's constant effort of downplaying the risk presented by the virus in public, as he confessed to Bob Woodward in their recorded February 2020 interview, is one of the powerful factors [5]. In contrast, many Democrat respondents expressed that they always wore a mask in crowded public spaces because masks had been recommended by medical experts and required by CDC guidelines [10].

Political tensions between the two parties demonstrate the importance of both parties working together to implement collective responses when coping with COVID-19 and future crises to avoid confusions and antagonizing sentiments among citizens. Political tensions and confrontations diminish citizens' trust in government and confound them, causing unhelpful actions from citizens that impede the entire nation's coping efforts. Therefore, it is recommended that, when facing a future crisis, two parties put away their political differences, and work unitedly to provide the most accurate and unambiguous guidance to the US citizens for optimal outcomes. The bottom-line is that the government should not politicize healthcare issues so that lives can be saved.

African Americans' low and stagnant mask-wearing rate should be highly concerning to policymakers. While two of their major concerns "creates a false sense of security" and "hinders effective communication and interpretation of emotions" were shared by all respondents, their other two major concerns "invites stigma or teasing" and "brings potential racial filing" are hardly shared by the sample, as Fig. 2 demonstrates. This finding is not incidental. A tweet depicting the dilemma of the population of color struggling to "survive" from both racial profiling and COVID-19 transmission was retweeted more than 17,000 times [1]. Their

concerns and subsequent mask-wearing behavior have cost them dearly. According to the independent APM Research Lab, between August 18 and September 15, 2020, African-Americans had the highest COVID-19 fatality rate (97.9 deaths per 100,000), while Asians (40.4 deaths per 100,000) and Whites (46.6 deaths per 100,000) had the lowest rates [4]. Based on such findings, it is recommended that future public policies focus on raising the awareness of the severity of a pandemic and the necessity of adhering to government guidance rigorously among African Americans so that they will prioritize wearing a mask to save their own lives despite potential stigmatization and racial profiling. It is also recommended that training of non-black races to eliminate cognitive bias based on race be implemented to create an environment where black people can feel safe when wearing masks in public. Only by obliterating any concerns that prevent African Americans from wearing masks can their concerns of stigma and potential racial profiling be mitigated. Such training would increase the number of people wearing masks and thus help keep everyone safer.

Numerous Asian respondents cited other countries' effective policies that helped them contain the deadly virus when explaining their reasons to wear masks. Some of the traits that those countries share in their coping efforts are government's apolitical responses and decisiveness [6]. This strategy resulted in clear instructions and citizens' faithful policy execution. Moreover, Taiwan and New Zealand, where the control of the virus ranked top globally, made immediate responses, such as mandatory lockdown order and mask-wearing requirements, in early 2020, when the outbreak was still under control [47]. In comparison, official guidance in the United States was first promulgated in March, and only some states mandated short periods of lockdown and mask-wearing policies when cases were extremely high [30]. Also, the debate over the political conflicts' impact on the accuracy of information has been deterring many citizens from adamantly and wholeheartedly following the federal and state guidance. Considering these deficiencies in the US' coping efforts in fighting against COVID-19, the government should consider ways that can expedite the process of reaching consensus among the Congress, the White House, the state governments, and municipal offices to implement policies promptly to minimize deaths resulting from a pandemic. Likewise, pandemic awareness campaigns should be run among religious groups, especially among Muslims (51%) and Christians (81%) because they had the lowest rates of always wearing a mask in relatively crowded spaces in August 2020, while non-religious people had the highest rate (92%). Just like African American respondents, Muslim respondents also cited "brings potential racial filing" and "invites stigma or teasing" as their top reasons in addition to the other two top reasons "creates a false sense of security" and "increases social seclusion" for not always wearing a mask. It is commonly known that Muslims tend to have relatively large families, maintain extended family relations, and frequently join religious rituals, such as Ramadan, with a huge crowd [33]. For Muslim women in the United States, wearing a niqab or Islamic face



veil often receive open hostility [3]. Therefore, Muslims' concerns are understandable. In addition, Muslim men have the tradition of keeping their thick beard for religious purpose; therefore, wearing a mask over a thick beard is challenging [28], though the respondents in this study did not mention this technical difficulty of wearing a mask. Such a difficulty might have also caused the low rate of masking wearing among the Muslim respondents. Though 3.45 million American Muslims constitute only 1.1% of the U.S. population [32], coronavirus does not distinguish races. Not always wearing a mask in relatively crowded places may risk their own lives and hurt others'. On the other hand, the mainstream religious groups embodied by Protestant Christians and Catholics have exerted a tremendous amount of influence on their congregations during COVID-19. Some priests defiantly held church services amid COVID-19 lockdowns [27], while some pastors called upon their congregations not to wear a mask [12], [16], putting their church members' lives at risk. Ironically, some of these priests either were sent into ICU with coronavirus or died of it [7], [8], [11]. When answering the open-ended question, one female respondent, a Catholic church's board member, wrote 533 words in response to tell her heart-breaking story of breaking from her church's teaching regarding how to deal with COVID-19. She left the church and took her four children out of the Catholic school. Though "feeling my faith leave me," she decided to "keep my faith to myself." This respondent wrote an eye-opening anecdote to show the impact of such church teaching:

I went to Home Depot for the 1st time. Masks were required to enter the store. Great, I thought. As I was nearing the paint aisle, I saw the enrollment director for our Catholic schools. Her and her husband were shopping together and not wearing masks. This means they took them off after walking past the man at the door. Interesting. I smiled with my eyes and we had a brief, pleasant exchange. Over and over it was my conservative Catholic friends not believing in masking.

This anecdote begs for answers to many questions. For instance, between obeying religious leaders' teaching and taking personal responsibility when handling a pandemic, how can a religious person make a sound decision? Should the government hold legally accountable those religious leaders who have involuntarily caused human deaths during a pandemic? Can the law be applied to punish those church leaders who intentionally violate the government ruling regarding lockdown during a pandemic? Public policymaking should take into consideration such historical lessons to make improvement before the next pandemic hits humankind.

This study has its limitations. First, since the study is based on a non-systematic probability sample, no external validity can be claimed. Fortunately, since the survey was successfully run, this study can present a glimpse of what 2,092 ordinary Americans across all 50 states, all genders, all ethnic groups, all political groups, and all religious groups were thinking about wearing a mask to combat COVID-19. Second, many more women (73%) than men (26%) responded to the survey. As a result, the findings are heavily skewed towards women's

views. Though the lack of control of who gets to participate in a convenience sample was predicted, bigger efforts could have been made to encourage more men to join the survey. Third, some religious groups and some ethnic groups should have been over-sampled, though it was very difficult to reach people from those groups.

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