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# The Influence of Social Media on Attitudes toward those with COVID-19

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#### Abstract

This survey of 400 Amazon Mechanical Turk participants examined the role that social media plays in influencing public opinion about people who contract COVID-19, commonly referred to simply as the *coronavirus*. Specifically, we examined responses to two statements: 1) "People with the coronavirus should take care of themselves and not expect handouts" and 2) "People who develop the coronavirus are genetically inferior to other people". These dependent variables were examined in relation to social media usage (i.e. – Facebook Intensity, the number of unique groups represented in the participant's social network, and so on). Results broadly indicated that frequent use of social media as a news source predicted increased beliefs that those with COVID-19 should not expect handouts and were genetically inferior.

#### Introduction

Facebook boasted over 2.6 billion monthly users worldwide in the first quarter of 2020 (Clement, 2020), at the onset of the COVID-19 pandemic, and roughly three-quarters of American adults use Facebook daily (Perrin & Anderson, 2019). Facebook usage in America has held steady for the last few years despite concerns over privacy, fake news, and censorship (Perrin & Anderson). Thus, while newer social media applications such as Instagram and Snapchat continue to grow, particularly among young people, Facebook, along with YouTube, appear to be holding on to their market share (Perrin & Anderson). With all of that social media use, it makes sense that a majority of Americans use social media media to get their news from social media, with Facebook (52%) being the most popular social media news source (Shearer & Grieco, 2019). The Q1 Nielsen Total Audience Report indicates that U.S. adults spend just under 4 hours per day on social media (Fottrell, 2018).

The impact of social media use on the user now has decades of studies (Farquhar & Davidson, 2015; Jones, 2002; Stroud, 2007). However, questions remain about how social media may shape users' concerns and fears. Additionally, over the past decade, social media has become a powerful tool for the delivery and consumption of news (Mitchell & Page, 2013). Nearly 50 percent of Facebook users and about 30 percent of the U.S. population as a whole report getting their news from social media (Mitchell & Page).

A potential risk with so much news being consumed online is based in the individualized nature of the medium (Negroponte, 1995). Through targeted searching, filtering stories, and following/blocking individuals, users are much more likely to create what a "daily me" scenario that scholars warned us about decades ago (Negroponte). In this scenario, the user's views become polarized and extremetized, effectively operating in an echo chamber wherein the user consumes heavy doses of content that only supports previously held positions. Thus, while a sea of information is available to the user, the individual experience is so tailored that it prevents opposing or new ideas from entering the conversation.

## **Literature Review**

A number of theories can be employed to help understand the impact that news consumption on social media is having. This study examines consumption of news through social media through the following lenses: 1) Selective Exposure, 2) Cultivation Theory, and 3) Network Characteristics and Behaviors.

## **Selective Exposure**

The concept of the *daily me* became popularized in the early stages of home computing (Negroponte, 1995), far before the boom of social media. Negroponte's term outlined a future in which the individual exerted total control over their media consumption in a manner that would be similar to having a newspaper publish only the stories that that specific reader wanted to read. Lost would be the chance of coming across challenging viewpoints or even information about entire communities of people of whom the reader had little interest. The last two decades have certainly shown Negroponte's forecast to be accurate in many regards. In the world of social media platforms, consumers click on that which makes them feel good. In terms of news, that means stories that support their firmly held beliefs. The practice of filtering information to the extent that the reader receives only the information that they *want* is common. (Sunstein, 2001). The result is a polarized, fragmented, uncaring, and uninformed society (Sunstein).

## **Cultivation Theory**

Cultivation Theory suggests that spending hours upon hours of the day with specific content – regardless of content type – will ultimately (re)shape the viewer's worldview toward that of the mediated experience (Riddle, 2009). Cultivation Theory originated through the study of heavy television consumption and perceived violence in the world (see especially Gerbner et al, 1986), but Cultivation's utility has more recently been broadened to other topics such as music videos (Beullins et al, 2012), perceptions of gender and sexuality (Netzley, 2010), violent video games (Williams, 2006), and new (digital) media (Morgan, Strahan, & Signorielli, 2015).

Social platforms have for nearly a decade been an important voice in the creation, dissemination, and consumption chain (Broersma & Graham, 2012). This impact showed itself quite clearly in the 2016 U.S. Presidential Election, wherein 14 percent of participants called social media their "most important" source of news (Allcott & Gentzkow, 2017). The number is now up to roughly 1 out of every 5 Americans getting their news from social media (Pew Research Center, 2020). Further, that 20 percent of Americans have been shown to be less knowledgeable about the coronavirus and politics, and less engaged than their counterparts (Pew Research Center, 2020).

Framed by Cultivation Theory (Gerbner et al., 1986) which suggests heavy television viewers begin to see reality as television portrays it, we speculate that heavy consumers of social media might begin to do the same. That is, their worldview shifts to match that of the social media environment in which they spend so much time. Generally, studies have supported the Cultivation Theory prediction that the more time one spends with the mediated world, the greater the shift in perceived reality toward that world. This has been found particularly for fears of crime and victimization as well as terrorism and victimization (Callanan, 2012; Romer, Jamieson, & Aday, 2003).

In sum, Facebook and other social media platforms impact how users view the world around them. Indeed, research has shown that the sheer volume of Facebook friends is connected to lower tolerance for Others (Davidson & Farquhar, 2015). This project considers the role that social media might play in shaping one's view of those with COVID-19, a question that has not been fully considered in the growing body of attitudinal research on this topic.

#### **Network Characteristics and Behaviors**

In an examination of social media practices and impact, it is appropriate to first include baseline measurements that speak to a user's Facebook usage and network makeup. Given that we now have decades of research on the impact of social media (boyd and Ellison, 2007), most notably on Facebook, we can point to particular measures that have shown themselves to be consistent. Notably for Facebook, we have the Facebook Intensity Scale, which focuses on how important Facebook is to an individual. The measure examines the number of Facebook friends, time spent on the site, and daily behaviors with a series of Likert statements such as "Facebook has become a part of my daily routine." Broadly speaking, having a bigger network of Facebook friends, spending lots of time on the site, and having a deep connection with Facebook leads to higher Facebook Intensity scores.

Network diversity involves the presence of multiple sub-groups within one's social (Facebook) network. It is presumed that those with larger social networks on Facebook will have more sub-groups represented. However, past research has shown that the diversity of a network often connects with positive outcomes such as increased tolerance whereas mere network size connects with negative outcomes such as *decreased* tolerance for others (Davidson & Farquhar, 2015). To examine the number of unique social subgroups present within one's Facebook network, we rely on a measure used by McCarty et al (2001) to determine network size by asking the social media user to identify unique groups represented in their Facebook network.

## Stigma and People with COVID-19

A notable body of research has been conducted since the early days of the COVID-19 pandemic. Much of it has examined behavioral responses to the pandemic such as hand-washing, masking, and social distancing (Doogan, Buntine, Linger & Brunt, 2020), adherence to public health guidelines (Czeiler, Tynan, & Howard et al., 2020), beliefs and understandings of the virus (Akesson, Ashworth-Hayes, Hahn, Metcalfe, & Rasooly, 2020), and perception of risk from the virus (Zhang, 2021). In addition, considerable research has considered the role of political views on attitudes toward COVID-19 and virus-related issues (Gadarian, Goodman, & Pepinsky, 2021; Tyson, 2020; Van Kessel & Quinn, 2020).

We seek to fill a gap in this growing literature by examining attitudes toward those who may be infected with the virus. Better understanding attitudes toward those who may be sick with the virus is important theoretically and empirically. Theoretically speaking, a deeper understanding of the predictors of negative attitudes toward those who are ill can expand the applicability of Erving Goffman's (1963) concept of stigma. Stigma occurs when there is a gap between what a person "ought to be" and how they actually are. This poses challenges because when an individual or group becomes stigmatized not only do they have to engage in laborious impression management, their interactions with others can be marred by prejudice and "otherizing". Thus, the possibility of stigma due to having COVID-19, or being seen as a vector for the virus, can result in the empirical reality of distrust, discrimination, avoidance, and even violence. Indeed, research on other viruses in recent decades has established that associations between illness and certain racial, ethnic, or otherwise marginalized groups can produce negative consequences. For example, feelings of vulnerability to disease are correlated with xenophobic attitudes toward immigrants (Faulkner, Schaller, Park, & Duncan, 2004). Similarly, research conducted during the avian influenza pandemic found that disease threat and exclusionary immigration attitudes were mediated by social dominance orientation and belief in a dangerous world (Green, Krings, Staerkle, Bangerter, Clemence, Wagner-Egger, & Bornand,

2010). This project seeks to extend this conversation about disease and prejudice by examining attitudes in the early days of the 2020 COVID-19 pandemic.

For this study, we are examining views toward those who have contracted the coronavirus, focusing on assumptions about genetic inferiority and the role of government in addressing their needs. Importantly, we consider the role of anti-Chinese sentiment to predict those attitudes, in light of associations made between the virus and Chinese people in popular media and by prominent political figures (Jia & Lu, 2021).

## **Anti-Chinese Attitudes**



The current study was conducted in May of 2020, still relatively early in the pandemic when the virus was not well understood. Notably, President Trump, during press conferences and on social media, often blamed China for the virus (NPR, 2021) and used language and twitter handles to associate the virus with China and Chinese people (Snopes, 2020). Indeed, a recent study found that former President Trump's tweets containing the phrase, "Chinese Virus", led to a significant increase in anti-Asian hashtags the week following (Hswen, Xu, Hing, Hawkins, Brownstein, & Gee, 2021). In this context, we consider the role that anti-Chinese sentiment and stereotypes may play in attitudes toward those with COVID-19. Indeed, stereotypes traced back to the 19th century in the United States characterize Chinese people and culture as uncivilized, dirty, and diseased (Lee, 2017). Thus, historical narratives inform the current associations of the coronavirus with Chinese people. Unfortunately, this may be leading to a recent rise in prejudice, hostility, and even violence against Asians (Croucher, Nguyen, & Rhamani, 2020; Pillai, Yellow Horse, & Jeung, 2021; Wen, Aston, Liu & Ying, 2020).

The following sections list our research questions, explain our methods and data, and present findings.

## **Research Questions**

RQ1: How do social media use (FB Intensity, filter behaviors), network makeup (number of unique groups), and views of Chinese (anti-Chinese scale) affect beliefs about caring for people with COVID-19?

RQ2: How do social media use (FB Intensity, filter behaviors), network makeup (number of unique groups), and views of Chinese (anti-Chinese scale) affect beliefs that people with COVID-19 are genetically inferior?

### **Methods**

## **Data & Methods**

Respondents for this study were recruited from Amazon's Mechanical Turk, an online labor market in which employers post computer-based tasks and hire workers to complete these tasks. Amazon Mechanical Turk has become a common source for participants for experimental behavior research and survey completion (Berinsky, Huber & Lenz, 2010; Mason & Suri, 2011). Though MTurkers are not necessarily representative of the broader U.S. population (Berinsky et al., 2012), they can be similar to Internet-based populations (Buhrmester et al., 2011).

We posted our "HIT" (Human Intelligence Task) and provided a short description of the survey that read, "short survey about social media, COVID19, and other current events". Those who opted to complete the survey (accept the HIT) were given a URL address that linked them to Qualtrics. The pay rate for a completed survey was \$.25. All of the respondents were in the United States.

## Measures

Dependent Variables. In considering the potential for stigma regarding the coronavirus, we adapt measures drawn from the Prejudice Against People with a Mental Illness (PPMI) scale (Kenny, 2016). The original scale of 28-items was designed to capture four components of negative attitudes or prejudice: Fear/Avoidance, Malevolence, Authoritarianism, and Unpredictability. We focus on the component of Malevolence. Malevolence measures capture ideas that people with a mental illness are inferior, undeserving of assistance, and do not warrant sympathy (Kenny, 2016). For our two dependent measures we substituted the term "coronavirus" for "mental illness". Our two dependent measures were based on the survey questions, "people with the coronavirus should not expect handouts" and "people with the coronavirus are genetically inferior". There were five response categories ranging from "strongly disagree" to "not sure", to "strongly agree".

*Independent Variables*. We include five measures of social media use: Facebook Intensity, Number of Unique Groups, Blocking/Unfriending, Receipt of News from Social Media, and Trust of Social Media as a News Source.

Facebook intensity is a 6-item scale that captures use and intensity of engagement with Facebook such as "Facebook has become part of my daily routine" and "I feel out of touch if I haven't logged onto Facebook for a while". Response categories were Likert Scales ranging from "strongly agree" to "strongly disagree". Prior to scale creation, these were reverse coded such that higher scores indicate higher engagement with Facebook. The Cronbach's Alpha measure of internal consistency yielded a score of .889.

Number of unique groups represents the total number of groups identified by the respondent as part of their network. The average number of unique groups reported was 5.09, with a minimum of 0 and maximum of 14 possible groups such as "Family", "Coworkers", "Friends through religious organizations", and the like.

To capture "selective exposure" we asked the question, "how likely are you to block or unfriend someone in your feed because of what they post about politics or current events?" The 5 response categories ranged from "very unlikely" to "very likely". Higher scores indicate a greater likelihood of engaging in this behavior to "weed out" opposing or unappealing perspectives.

We incorporate the use of social media as a news source. This variable measures how often respondents get their news from social media. Response categories were never, hardly ever, sometimes, and often. Higher scores indicate more frequent receipt of news from social media.

Finally, we asked respondents if they trust or distrust social media as a news source. About 35 percent of respondents indicate that they trust social media as a news source.

*Control Variables.* We control for gender (1=male, 0=female) and race (1=white, 0=non-white). In addition, we control for education with a 7-item ordinal measure ranging from "less than high school" to "doctorate". Political views is a 7-item ordinal measure ranging from "extremely conservative" to "extremely liberal". Social class is a 5-item ordinal measure ranging from "upper class" to "lower class".

To investigate the relationship between sentiments about Chinese people and attitudes toward those with COVID-19, we created an "anti-Chinese scale" by combining three interval-level survey questions that produced a Cronbach's Alpha of .799. The first asked whether the Chinese were considered "trustworthy" or "untrustworthy". The response categories ranged from 1 (trustworthy) to 7 (untrustworthy). The second question asked whether the Chinese tend to be "patriotic" or "unpatriotic", with response categories ranging from 1 (patriotic) to 7 (unpatriotic). The final question asked if Chinese people tend to be "hard working" or "lazy" with response categories ranging from 1 (hard working) to 7 (lazy). Higher scores on the scale indicate greater endorsement of stereotypes and prejudice toward Chinese people.

## Findings

Table 1 provides the sample descriptives. A total of 389 respondents completed all questions on the survey. Regarding the dependent variables of interest, the mean of 2.96 shows that people tend toward disagreement or uncertainty with the statement indicating people sick with the virus should not expect handouts. Similarly, people tend toward disagreement with the statement linking coronavirus with genetic inferiority (2.35).

In terms of our social media measures, respondents show a moderate degree of intensity of engagement with Facebook (4.12). The average number of unique groups on Facebook is just over 5. About 40% of the sample are likely to block or unfriend someone on social media because of what they post about politics or current events. Respondents report a moderately high frequency of receiving news from social media (3.28). Finally, about 35% of respondents report that they trust social media as a news source.

Regarding demographics and other controls, about 50% of the sample is male, 71% identify as white, and the mean level of education is roughly a 2-year degree (4.59). In terms of political views respondents tend toward moderate to conservative (3.94). Reported social class shows most respondents are working or middle class (2.95). The mean score on the anti-Chinese scale is 1.45 showing generally low levels of hostility toward Chinese people.

## Table 1: Sample Descriptives

## n = 389

Measures	Mean/Proportion	Range/St Dev
Dependent Variables		
Those with virus should not expect handouts	2.96	1.0–5.0
Those with virus are genetically inferior	2.35	1.0–5.0
Social Media Measures		
Facebook Intensity	4.12	1.2–6.0

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Number of Unique Groups on FB	5.09	0.0–14.0
Block/Unfriend on SM	.40	
Frequency of News from Social Media	3.28	1.0–5.0
Trust SM as News Source	.35	
Control Measures		
Male	.50	
White	.71	
Degree earned	4.59	1.0–7.0
Political Views	3.94	1.0–5.0
Social Class	2.95	1.0–5.0
Anti-Chinese Scale	1.45	.43–3.0

Table 2 presents the findings regarding *Research Question 1* from the linear regression predicting attitudes toward the belief that people with Covid-19 should take care of themselves and not expect handouts.

Four of the five social media measures were significantly predictive. The higher the intensity of engagement with Facebook, the more one feels that people with Covid-19 should take care of themselves. The more unique groups one has in their Facebook network the less likely one is to agree with this statement. Those who engage in blocking or unfriending more frequently are more likely to feel Covid-19 patients should take care of themselves. Finally, the more frequently one gets their news from social media the more they feel sick people should care for themselves without handouts.

Regarding our control measures, men are more likely than women to feel that Covid-19 patients should take care of themselves, as are those who are more politically conservative. Those who score higher on the Anti-Chinese scale are also more likely to endorse self-sufficiency for people sick with Covid-19.

## Table 2: Dependent Variable: People with Covid-19 should take care of themselves and not expect handouts

## Linear Regression n = 349

Measures	Beta	S.E.
Social Media Measures		
Facebook Intensity	.131*	.056
Number of Unique Groups on FB	117*	.018
Block/Unfriend on SM	.132**	.120
News from Social Media	.201***	.062
Trust SM as News Source	.075	.128
Control Measures		
Male	.091*	.110
White	058	.123
Degree earned	.091	.048

Political Views	171***	.033
Social Class	059	.080
Anti-Chinese Scale	.237***	.094
Adjusted r2 = .295		

#### +p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.001

Table 3 presents the linear regression findings regarding *Research Question 2*, predicting beliefs that people with Covid-19 are genetically inferior to others.

The more intensely one engages with Facebook, the more one believes that people with Covid-19 are genetically inferior. The more unique groups one has in their network, the less likely one is to endorse this view. Those who block or unfriend others due to posts about political or current events are more likely to believe in the genetic inferiority of Covid-19 patients. The more often one gets their news from social media the more likely they are to believe in genetic inferiority. Those who trust social media as a news source are more likely to believe someone with Covid-19 is genetically inferior. However, this measure should be interpreted with caution as the p-value is .060.

Three of our control measures are also predictive. Men and those who tend toward political conservatism are more likely to believe Covid-19 patients are genetically inferior. Likewise, the higher one scores on the Anti-Chinese scale, the more likely one is to agree with the genetic inferiority of people diagnosed with Covid-19.

## Table 3: Dependent Variable: People with Covid-19 are genetically inferior to otherpeople

## Linear Regression n = 349

## **Happiness**

Measures	Beta	S.E.
Social Media Measures		
Facebook Intensity	.228***	.054
Number of Unique Groups on FB	203***	.017
Block/Unfriend on SM	.264**	.116
News from Social Media	.185***	.062
Trust SM as News Source	.082+	.124
Control Measures		
Male	.131**	.107
White	.021	.119
Degree earned	057	.046
Political Views	160***	.032
Social Class	.114	.078
Anti-Chinese Scale	.206***	.091
Adjusted r2 = .495		

## Discussion

The broad takeaway from this study is that social media matters. Specifically, one's filtering and consumption behaviors shape views of the world around them. As Facebook Intensity, filtering behaviors (such as blocking content), and using social media as a news source increase, so does the view that the sick should take care of themselves and that the sick are genetically inferior. In opposition to these connections stands the number of unique groups, which, as in past research (Davidson & Farquhar, 2015), was linked with more tolerant views. In this case, an increased number of groups in one's network shapes beliefs that the sick should be taken care of and that the sick are not genetically inferior.

Selective Exposure, Cultivation Theory, Network Characteristics, and Social Distance

A trust for and frequent use of social media for news was connected with negative outcomes in this study. This is particularly true when combined with filtering behaviors (which social media is so apt at providing). It certainly appears that selective exposure was occurring within our participants, and that that filtering was leading to a polarized set of messages being consumed. This process is akin to that which was outlined decades ago by Negroponte (1995) and subsequently by Sunstein (2001).

The primary outcome here is a singular view that gets repeated and emphasized. It becomes an echo chamber. In terms of cultivation, this finding is consistent with past research that also indicated a skewed world-view based on heavy consumption of particular content. Past examples of this have included skewed views regarding gender and sexuality (Netzley, 2010), violent video games (Williams, 2006), and new (digital) media (Morgan, Strahan, & Signorielli, 2015). In this project, it seems that using social media as a news source and "filtering" out differing views and perspectives leads to stigmatizing and malevolent views of those who are sick with the coronavirus.

One combatant to a polarized view is the inclusion of diversity in one's network. This requires avoidance of filtering behaviors and active engagement with those that are different from the user. As in previous studies (Davidson & Farquhar, 2015), the number of unique groups identified in a participant's social network predicts positive social outcomes. In this case, those outcomes were focused on seeing those sick with COVID as *not* being inferior and also that we should care for those who are sick.

Of particular note is the relationship between anti-Chinese views and more malevolent attitudes toward those who are ill with the coronavirus. In our first analysis examining the withholding of assistance to people sick with the virus, the anti-Chinese scale was the strongest predictor (.237) of this attitude. In the model examining beliefs that the virus indicates genetic inferiority, the anti-Chinese scale (.206) was second only to the Facebook intensity scale (.228) as a predictor. As described previously, there is a long history in this country of viewing Asian people as unclean, perpetually foreign, and vectors for disease (Lee, 2017). Compounding these pre-existing stereotypes was the use of social media by former President Trump to explicitly identify the virus with China (NPR, 2021; Snopes, 2020). In the current political climate wherein powerful political divisions have characterized the experience with COVID-19 (Mordecai & Connaughton, 2020), symbolic representations become more salient than factual realities, as can be seen in the public response to face coverings (Wisconsin State Journal, May 2020). If the narrowing of information exposure on social media gets combined with longstanding stereotypes and hostility toward Asian people, the result may be more hostility and malevolence toward those sick with a virus they did not choose to contract. Not only does this pose risks for Chinese people, or anyone appearing to be Chinese, in terms of stereotypes and violence, this likely shapes the types of approaches and policies people are willing to support to help those who are sick. Future research should consider the links between racial or ethnic hostility and support for public policy to assist those directly or indirectly negatively affected by the current pandemic. Another area for future research is the possibility that sentiments changed over the course of the COVID-19 pandemic. This study was conducted in May of 2020, when little was known about the virus and its origins. It is possible that sentiments have shifted over the many months as scientists and researchers learned

more about the virus. In addition, as more people became infected over the year, attitudes may have softened given that most people either became sick themselves or knew someone who experienced the virus. However, it is also possible that people have become more entrenched in their views as they continue to winnow down their online social networks.

In sum, this project addressed a gap in the literature on attitudes during the COVID-19 pandemic by considering sentiments toward those sick with the virus, a notably under-researched area. Further, in the context of a pandemic in which many are working from home, learning from home, and otherwise isolated from friends and family, we considered the influence of social media – possibly the only social outlet safely available over the past year – on those attitudes. We find that social media can indeed play a significant role in shaping attitudes toward those sick with coronavirus. It is important to highlight, however, that the influence of social media is complex and can produce positive and negative attitudes toward the ill. We hope the findings presented here can contribute to a broader dialogue about the complexity inherent in the use of social media.

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