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Evaluating the Relationship Between Confidence and Anxiety During the COVID-19 Pandemic

Althea M. Devereux
University of New Hampshire

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Althea Devereux, Kristen Clark
University of New Hampshire
Department of Nursing

Introduction

The physical tolls of the COVID-19 pandemic have been severe and widespread. As of May 2021, over 580,000 people have died from the virus, and there have been 32,608,287 cases in the United States (US) (CDC, 2020). The pandemic has had considerable psychological effects on the US population as well. Data from previous contagious disease outbreaks reveals that mental health worsens as a result of misinformation around health protocols, job loss, increased childcare expenses and stigma surrounding illness. (Brooks et al., 2020; Cao et al., 2020). With the COVID-19 pandemic putting the US into lockdown mode, and requiring many citizens to quarantine, it is having the same mental health effects on the population (Rajkumar, 2020; Torales et al., 2020). According to data gathered from a nationally-representative samples of adults in the US an estimated 80 million individuals have reported newly developed symptoms of depression or anxiety since April 2020, and more than 1 in 4 experienced psychological distress in the early stages of the pandemic (Cutler, 2020; Holingue et al., 2020). As the pandemic continues, the effects reach beyond just physical sickness from a virus to include emotional and psychological complications.

The response of the US health care system during the COVID-19 pandemic is influential on the mental health outcomes of the population. Data gathered during and prior to the COVID-19 pandemic suggests that there is a significant negative correlation between better patient-provider relationships and mental health outcomes. (AlRuthia et al., 2020; Birkhäuer et al., 2017; Dang et al., 2017; Harris & Sandal, 2021; Olaisen et al., 2020). This indicates that increased trust and confidence in primary care teams is associated with lower symptoms of anxiety and depression. Many studies have focused on specific vulnerable patient populations, such as diabetic adults or adults newly diagnosed with HIV (AlRuthia et al., 2020; Dang et al., 2017).

The results of these studies may be relevant to the US population during the COVID-19 pandemic, because there is a similar concern of physical and mental health complications. However, since COVID-19 is a new circumstance, there is currently little data on the relationship between confidence and mental health during the pandemic. There is also a lack of data on confidence on the institutional level, most of the current data is focused on primary care providers (AlRuthia et al., 2020; Birkhäuer et al., 2017; Dang et al., 2017; Harris & Sandal, 2021; Olaisen et al., 2020.

It is also likely that racial and ethnic related health disparities are compounded by the epidemic. A study of African American men found a relationship between increased trust in health care and better health outcomes (Cuffee et al., 2013). However, for racial minority groups, many studies have found historical events contribute to lower levels of confidence in the healthcare system (Armstrong et al., 2008; Boulware et al., 2003; Cuffee et al., 2013). Consequently, these populations may have lower trust in public health during the COVID-19 pandemic. This mistrust is a deep rooted feeling among people of color in the United States, stemming from a history of repetitive exploitation, discrimination and negligence by the health care field (Sullivan, 2020).

There are differential effects of the COVID-19 pandemic on racial minority groups. The physical and mental tolls of the COVID-19 pandemic have disproportionally impacted racial minority groups in the United States. Black or African American non-Hispanic persons and Hispanic or Latino persons have been greatly impacted by the virus. These groups have a higher rate of covid cases, hospitalizations and deaths compared to White Americans (Armstrong et al., 2008; Boulware et al., 2003; Cuffee et al., 2013). More demographic data on COVID-19 patients from the CDC as of June 2020 reported that African Americans and Hispanic/Latinos make up a

higher rate of cases than is in proportion to their representation of the population (Tai et al., 2021). Racial minority groups in the United States have seen disproportionately impacts on both their physical and mental health during the pandemic. Confidence in public health employees is crucial for better health outcomes, and marginalized populations in the United States also face more difficulty establishing trust during the pandemic. Minority groups are more likely to face communication limitations due to issues of health literacy and language barriers, causing a relative lack of reliable information reaching certain minority communities (Blumenshine et al., 2008). Further structural barriers that result in socioeconomic inequalities, such as African Americans making up a higher percentage of essential workers and being more likely to take public transportation than white Americans may contribute to the disproportionate effects of the pandemic on the African American community (Tai et al., 2021).

The purpose of this study is to determine if there is a relationship between confidence in public health and symptoms of anxiety in the US population during the COVID-19 pandemic. Secondarily, we aim to determine whether there are differences in this relationship among Black and Hispanic/Latino subgroups. We hypothesize that increased confidence in public health will be associated with fewer symptoms of anxiety among the general population, and that Hispanic and Black non-Hispanic participants there will be a negative relationship with a smaller effect size between confidence in public health and symptoms of anxiety.

Methods

This cross-sectional study relied on secondary data from Pew Research Center's Wave 66 survey of the American Trends Panel (ATP). The study was conducted by Ipsos Public Affairs on behalf of the Pew Research Center. The ATP is a national, probability-based sample of adults

living in the United States (US). The Wave 66 survey was conducted from April 20, 2020 to April 26, 2020. The target population for the survey was non-institutionalized adults over the age of 18, living in the US. Participants were recruited in two ways: three landline and cell phone random-digit dial surveys, and two address-bases sample surveys. Participants were given the option to complete the survey in English or Spanish and were offered between $5-$20 for completion of the survey. Demographic information was sourced from panel profile surveys.

Demographic data collected included: age, race/ethnicity, sex, and highest level of education completed. Age was measured by asking participants to enter their age and birthday. Sex was measured by asking participants to select a mutually exclusive category (*i.e..,* male, female, refuse). Education was measured by asking participants to answer which mutually exclusive category describes their degree or level of school, ranging from "no schooling completed" to "doctorate degree". Race and ethnicity was measured by two questions. One question had participants self-select yes or no to a question asking if they were of Hispanic, Latino, or Spanish origin. Participants were then asked to select all answers that apply to their race or origin (*i.e.*, White, Black or African American, Asian or Asian American, American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, some other race or origin).

Symptoms of Anxiety

Symptoms of anxiety were measured by five items, which allowed participants to self-report on symptoms of anxiety felt over the past 7 days on a Likert-type scale (ranging from 1-"rarely or none of the time", to 4-"most or all of the time"). The participants' responses were recoded and totaled to create a single continuous variable in our analysis ranging from 5 to 20.

Confidence in Public Health

Confidence in public health was measured by multiple questions in the Wave 66 Survey. The participants were asked "Thinking about the coronavirus outbreak, how in general do you think each of the following has responded?" with "public health officials such as those at the CDC" being one of the items in question. Participants chose from a likert-type scale for their answer (ranging from 1-"greatly exaggerated risk" to 5-"not taken the risk seriously at all"). This was reverse coded to reflect indicate that greater numbers indicate greater confidence in public health for ease of interpretation.

Analysis

The demographic characteristics of the total sample were analyzed using descriptive statistics. The relationship between symptoms of anxiety and confidence in public health was analyzed using a Spearman correlation. Statistical analysis were conducted using STATA 15 (Stata Corp, 2017). Sensitivity analyses were run for participants who identified as Hispanic and Black non-Hispanic.

Results

Demographics

The sample in this study included a total of 10,139 participants. See Table 1 for full details. White non-Hispanic participants made up 68.43% of our sample ($n = 6,938$), 16.93% were Hispanic ($n = 1,717$), 7.77% were Black non-Hispanic ($n = 788$), and 5.59% reported that they were of other race/ethnicity ($n = 567$). In our sample, most participants were at least high school graduates, and the majority had a college or postgraduate degree. Almost half of participants had a family income of $75,000+ ($n= 4,583$).

Confidence in Public Health and Anxiety

A Spearman rank correlation showed that there was a statistically significant positive association between confidence in public health and symptoms of anxiety ($r_s = 0.09, p < .001$), meaning that when confidence in public health increases, symptoms of anxiety increase. Among Black non-Hispanic participants, there was a weaker association between x and y ($r_s = 0.078, p = .028$. Among Hispanic participants there was a positive relationship with a smaller effect size ($r_s = 0.054, p = .025$). See Table 2 for Results.

Discussion

Using nationally representative cross-sectional data, this study found that greater confidence in public health was positively associated with symptoms of anxiety; however, the effect size of the relationship was smaller for Black non-Hispanic participants and Hispanic participants compared to the general population. These findings are not consistent with previous studies, that suggested a better relationship with healthcare providers leads to fewer symptoms of anxiety (AlRuthia et al., 2020; Birkhäuer et al., 2017; Dang et al., 2017; Harris & Sandal, 2021; Olaisen et al., 2020).

The results of this study may be related to individuals who have high confidence in public health being more likely to take the pandemic seriously, thus increasing their symptoms of anxiety. A study of health behaviors during the pandemic indicates that individuals who viewed media sources that downplayed the danger of COVID-19 took the pandemic less seriously and participated in fewer preventative health behaviors, while individuals who viewed media sources that represented the danger of COVID-19 seriously participated in more preventative health behaviors (Zhao et al., 2020). Individuals who took the pandemic more seriously, and were aware of the alarming infection, hospitalization and death rates may be more likely to experience

greater symptoms of anxiety. As Zhao et al. found, individuals who have confidence in media that takes the threat of the pandemic seriously may also be more likely to participate in activities such as quarantining, isolating and avoiding contact with others. These behaviors are found to be associated with increased anxiety (Brooks et al., 2020), which may explain why our study found a positive relationship between confidence in public health and symptoms of anxiety.

It is also important to take into consideration that our study, along with much of the current research on confidence in health care and anxiety symptoms, is correlational and therefore the direction of the relationship is unconfirmed (Birkhäuer et al., 2017; Giordano & Lindström, 2016). A study on the nature of trust/health relationship revealed that instead of correlational, the association is more circular in pattern, meaning trust effects health-outcomes and health outcomes effect trust (Giordano & Lindström, 2016). Because our analysis was correlational and the direction of the relationship is unconfirmed, our results may be the outcome of worsening symptoms of anxiety related to COVID-19 stressors leading to increased confidence in public health.

Our study found a smaller effect size in the sensitivity tests with Hispanic and Black non-Hispanic participants than with the general population. This may be the result of the increased emotional toll the pandemic has had on marginalized races in the United States. Racial minority groups have faced a larger impact from the alterations made to daily life to prevent the spread of the virus. Compared to White Americans, fewer African American workers had the privilege of working from home, more were on the frontlines working as essential workers, and used public transportation (Tai et al., 2021). Racial minority groups felt the impacts of the pandemic related economic fallout more harshly too. Prior to the pandemic, 22% of African Americans were living in poverty and 19% of Hispanics were, leaving them more vulnerable to the financial difficulties

associated with the pandemic (Tai et al., 2021). The small effect size seen in the sensitivity analysis for Hispanics and Black non-Hispanics may be a result of those populations facing many additional stressors during the pandemic that may have impacted symptoms of anxiety (Gibbs et al., 2020).

Limitations

There are many limitations to our study. The data set was gathered cross-sectionally, meaning we did not have pre/post coronavirus data on symptoms of anxiety. This limits our ability to differentiate between baseline anxiety symptoms versus increased symptoms due to the pandemic. Another limitation in our study is the convenience sample. Our study may not have been representative of the entirety of the US population, especially in regards to minority groups. The analyses we ran in our study were another limitation. We ran a simple correlational analyses, meaning the direction of the association between our variables is unconfirmed. Our analyses did not control for extraneous variables related to the population or the COVID-19 pandemic. Our study resulted in a small effect size, it is unclear whether the effect size observed is enough to male meaningful differences in the manifestation of anxiety symptoms.

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Conclusions

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This study contributes to the current data on the relationship between confidence and health by focusing on it in the context of mental health during the COVID-19 pandemic. The psychological effects of the pandemic have had a huge impact on the US, causing increased incidence of anxiety, depression and other mental illness (Cutler, 2020). With this surge of poor mental health caused by the pandemic, it is important for nurses, specifically public health workers, to understand their influence on the mental health of the population. While previous

data suggests increased confidence in public health leads to lower symptoms of anxiety, our analysis found a positive association between confidence in public health and symptoms of anxiety. Our study was unique in that it focused on the confidence/provider relationship during the pandemic, and it focused on the provider at the institutional level. There is lack of research with this criteria.

The findings of our analysis suggest public health workers should focus on developing and spreading more information on mental wellness strategies and coping methods for the psychological toll of the pandemic. The increases anxiety positively associated with increased trust in public health may indicate that individuals are not receiving adequate resources for managing stressors of the COVID-19 pandemic.

Further research addressing the direction of the relationship between trust and mental health is needed. There is also a need for further research on the relationship between mental health outcomes and confidence in healthcare on the institutional level, as much of the current research is on the provider level. As the pandemic continues on, follow up research on the prolonged effects of mental health is also important, as this study was conducted at the beginning of the pandemic.

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Table 1: Characteristics of the Sample Population

Variable	Total Sample N = 10,139 N (%)
Personal Characteristics	
Age, in years	
18 to 29	1,090 (10.75%)
30 to 49	3,211 (31.67%)
50 to 64	2,694 (26.57%)
65+	2,694 (26.57%)
Race/Ethnicity	
White non-Hispanic	6,938 (68.43%)
Black non-Hispanic	788 (7.77%)
Hispanic	1,717 (16.93%)
Other	567 (5.59%)
Educational Attainment	
Less than high school	276 (2.72%)
High school graduate	1,160 (11.44%)
Some college, no degree	2,049 (20.21%)
Associate's degree	987 (9.73%)
College graduate / some post grad	2,966 (29.25%)
Postgraduate	2,680 (26.43%)
Family Income	
$75,000+	4,583 (45.2%)
$30-$74,999	3,332 (32.86%)
<$30,000	1,798 (17.73%)

Table 2: Results of Spearman's Rho Analysis Discussing Relationship Between Confidence and Symptoms of Anxiety

	R_s	P
All participants confidence in public health and symptoms of anxiety	0.0906	<.001
Black non-Hispanic participants confidence in public health and symptoms of anxiety	0.0788	.0283
Hispanic participants confidence in public health and symptoms of anxiety	0.0541	.0257