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Racial Disparities in COVID-19 Anxiety and Adversity

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The experience of the global COVID-19 pandemic has given rise to historically high levels of anxiety across a variety of populations. However, the effects of this event vary widely across group memberships. This empirical study used an online panel survey (N = 878) to investigate potential racial differences across multiple areas of COVID-19-era functioning in Black, Indigenous, People of Color (BIPOC)-identified respondents and Caucasian-identified respondents. Results suggested that BIPOC-identified respondents were significantly more likely to report higher levels of virus-related anxiety, to know 1 or more people who had tested positive for the virus and to experience problems in areas of daily functioning such as obtaining adequate food, accessing safe transportation, and addressing the unique challenges of parenting during the pandemic. In addition, BIPOC-identified individuals were significantly more likely to hold a job in a field that involved direct contact with others, such as health care or retail, that involved more potential virus exposure than other occupations. Overall, it appears that BIPOC-identified individuals are likely at higher risk for experiencing both anxiety and adversity due to COVID-19-related events. These results suggest multiple opportunities and pathways to better support BIPOC-identified individuals, families, and communities.

Keywords: coronavirus, COVID-19, race, pandemic, anxiety

The novel coronavirus first emerged in China in December 2019 and has since evolved into a global pandemic with multiple identified strains (Centers for Disease Control and Prevention [CDC], 2019). As of April 2021, the CDC had reported almost 32 million cases of COVID-19 infection in the United States and over 570,000 deaths. As a result, we have seen unprecedented disruption in how individuals around the globe live, work, study, travel, parent, and conduct social relationships (Lee, Jobe, & Mathis, 2020; Lima et al., 2020; Newby et al., 2020). The resulting changes, stressors, and fears are likely to have both immediate and lasting impacts on the mental health of people across the life span (Newby et al., 2020; Pfefferbaum & North, 2020).

As in earlier pandemics, the COVID-19 virus has increased overall fear, panic, and anxiety (Asmundson & Taylor, 2020; Chakraborty, 2020; da Silva et al., 2021; Jungmann & Witthöft, 2020; Lee et al., 2020; Wang et al., 2020). Of note, a small but significant portion of Americans appear to underestimate the risk of contracting COVID-19, as well as absolute and relative fatality risk, but this appears to be the exception rather than the more representative response (Niepel et al., 2020). Several recent studies have found U.S. rates of anxiety and depression reported at many times above the typical population level (Chakraborty, 2020; Lee et al., 2020), some up to eight times the characteristic rate (Twenge & Joiner, 2020), similar to mental health trends during past pandemics (Shevlin et al., 2020; Taylor, 2019; Usher et al., 2020). However, the scale and impact of COVID-19 in the United States, the duration of restrictions, multiple disruptions in the roll-out of vaccines, ongoing economic and social impact, and the uncertainty of future progress has led to a set of reactions unprecedented in previous viral pandemics (Chakraborty, 2020; Fetzer et al., 2020; Rubin & Wessely, 2020).

The elevated rates of mental health symptoms in adults appear to be related both to the myriad challenges of pandemic life as well as fear of the virus itself (Asmundson & Taylor, 2020; Cox et al., 2020; Lee et al., 2020) and have set the stage for a massive public mental health crisis as the pandemic continues and mental health effects remain widespread (da Silva et al., 2021; Nelson & Kaminsky, 2020; Pfefferbaum & North, 2020). In one study, an alarming 78% of respondents reported worsened mental health since the start of the pandemic (Newby et al., 2020). In June 2020, the *National Pandemic Emotional Impact Report* (Palsson et al., 2020), a multi-institutional survey of 1,500 adults, concluded that "At least a quarter of all US adults is presently in a condition of high emotional distress directly attributable to the pandemic." The rising rates of mental health distress have been observed in both

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healthy individuals as well as those with preexisting mental health conditions (Nelson & Kaminsky, 2020; Twenge & Joiner, 2020; Usher et al., 2020).

Yet, the many effects of the pandemic do not appear to occur in equal proportions across categories of identity and membership (Amirkhan, 2021; Eligon et al., 2020). As one physician put it, "Social determinants of health have plagued our nation for centuries, especially when it comes to communities of color", (Zarefsky, 2020, p. 1). Recent research suggests that overall, Black, Indigenous, and People of Color (BIPOC)-identified individuals are at elevated risk for illness, hospitalization, and death due to COVID-19 (Artiga et al., 2020; Centers for Disease Control and Prevention, National Center for Health Statistics, 2020; Garg et al., 2020; Henning-Smith et al., 2021; Wright & Merritt, 2020). Hawkins (2020) found that BIPOC-identified individuals experienced disproportionate "occupational segregation" into essential industries requiring greater physical proximity and, plausibly, greater COVID-19 exposure to others as compared to Caucasian-identified respondents (p. 817). The *National Pandemic Emotional Impact Report* (Palsson et al., 2020) found that people of racial and ethnic minorities were especially prone to pandemic-related emotional distress, and a *New York Times* article portrayed the pandemic as a vector of "potential devastation in black communities" (Eligon et al., 2020).

The current study sought to expand this area of research by surveying a large community sample of individuals and comparing a range of pandemic-related experiences across individuals of different racial identities. Primary outcomes of interest were differences in occupational and personal risk, mean anxiety, and problems in daily functioning. It was hypothesized that BIPOC-identified individuals would report significantly more anxiety, more occupational and personal risk, and more problems in areas of daily functioning than Caucasian-identified individuals.

Table 1
Demographic Characteristics of Study Respondents

Characteristic	*N*	Percentage
Age (in years)		
18–24	48	5.5
25–34	477	54.3
35–44	190	21.6
45–54	86	9.8
55–64	54	6.2
65–74	20	2.3
75 or older	1	0.1
Gender		
Male	550	62.6
Female	293	33.4
Genderfluid/genderqueer	27	3.1
Transgender	3	0.3
Other gender identity	3	0.3
Race		
Caucasian	542	61.7
African American	60	6.8
Asian American	151	17.2
Native American/First Peoples/Indigenous	44	5
Hawaiian/Pacific Islander	13	1.5
Multiracial	19	2.2
Other Racial Identity (e.g., Italian, Indian as entered by participants)	35	4
Ethnicity		
Hispanic/Latinx	174	19.8
Not Hispanic/Latinx	671	76.4
Medical Field Employment		
Yes	227	25.9
No	638	72.7
Occupational Proximity, Other		
Yes	227	25.9
No	644	73.3
Personal Knowledge of a Person Testing Positive		
Yes	258	29.4
No	615	70.0

Note. Due to missing data, some categories may not add up to 100%.

Method

Participants

This study was conducted using the Mechanical Turk (MTurk) platform to recruit respondents (N = 878). In this platform, adults over 18 register with the MTurk service as independent contractors ("Workers") and are shown a list of potential surveys for which they qualify based on survey requirements. Workers choose surveys to complete based on brief descriptions of the studies; the entire process is completed online, avoiding any potential health risk to participants or researchers.

This survey was open to interested United States-based participants over the age of 18. The demographics of the resulting respondents are detailed in Table 1.

Procedures

All study procedures were approved by the college's institutional review board. All data were collected in 2020 prior to the widespread availability of an approved COVID-19 vaccine. Participants were recruited via the MTurk platform; interested United States-based workers were directed to a Qualtrics survey in English containing all measures and, after reading and signing the informed consent document, completed the survey along with three attention-check items spaced throughout the survey. Failing any attention check item resulted in the worker being removed from the study. Once a worker completed the study in Qualtrics, each received a unique randomly generated survey code to enter into the MTurk platform to document completion. Participants who completed this final step were provided with a written study debriefing, detailing the purpose of the study and contact information for the primary investigator, and financially compensated for their participation.

Measures

Anxiety

Participants completed the Generalized Anxiety Disorder Screener (GAD-7), a seven-item screening measure designed to identify potential cases of generalized anxiety disorder and to assess symptom severity (Spitzer et al., 2006). This measure has been validated for use with both clinical and nonclinical populations with high reliability and validity (Kroenke et al., 2007; Löwe et al., 2008; Spitzer et al., 2006). The GAD-7 items describe the most prominent diagnostic features of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* diagnostic criteria A, B,

and C for generalized anxiety disorder (American Psychiatric Association, 2013). Respondents are asked how often during the last 2 weeks they have been bothered by each of the 7 core symptoms of generalized anxiety disorder, for example, "feeling anxious, nervous, or on edge." Available response options are "not at all," "several days," "more than half the days," and "nearly every day," scored as 0, 1, 2, and 3, respectively. Total GAD-7 scores can range from 0 to 21. Using total score, respondents with a score of 5–9 are marked mild, 10–14 are marked moderate, and 15 or over marked as severe anxiety (Spitzer et al., 2006).

Problems in Areas of Daily Functioning

We used publicly available, government-issued materials provided by the Substance Abuse and Mental Health Services Administration (2020) and the Centers for Disease Control and Prevention (2019) to form a bank of six potentially stressful areas of functioning during a pandemic, for example, "problems accessing adequate food" and "problems in parenting." The questions in this area were specifically phrased to elicit responses solely based on problems due to COVID-19, rather than preexisting difficulty in these areas. Respondents were asked to mark current level of pandemic-caused stress in each area on a 4-point Likert scale ranging from 1 (*no problems*) to 4 (*significant problems*).

Occupational and Personal Risk

Respondents answered two questions to assess for occupation-based COVID-19 exposure: employment in a medical position requiring close patient contact (e.g., nurse, paramedic, certified nursing assistant) and employment in a nonmedical position requiring close customer contact (e.g., store clerk, restaurant employee). To assess personal risk, respondents also indicated if they personally knew one or more people who had tested positive for the COVID-19 virus.

Demographics

At the end of the survey, respondents self-reported the following demographic characteristics: age, gender, racial identity, ethnic identity, knowledge of at least one personally known individual who had contracted the COVID-19 virus, and current employment type.

Data Analytic Approach

All analyses were conducted using the Statistical Package for the Social Sciences (SPSS), Version 25. Power analysis conducted in the G*Power program (Faul et al., 2009), with an alpha value of .05 and a minimum power level of .90, suggested a minimum sample size of 183 for the intended analyses; the final sample size was 878. Demographic data were analyzed using frequencies to create percentages for each group. Specific to race/ethnicity, several subcategories had too few respondents to conduct statistical analysis and so for that purpose, race/ethnicity data were collapsed into a binary BIPOC/non-BIPOC variable. This variable was used to conduct *t* tests for variables in problems of daily functioning and anxiety. Category-based hypotheses in occupational and personal risk were tested using chi-square analyses.

Results

Occupational and Personal Risk

Racial identity was collapsed into binary Caucasian and BIPOC categories for this analysis due to the small number of respondents in some racial categories. Results of χ^2 tests of independence indicated that BIPOC-identified respondents were significantly more likely to experience COVID-19 occupational risk due to employment in an interpersonal setting (e.g., nursing assistant, retail, food service) than Caucasian respondents and also significantly more likely to report personal risk, personally knowing one or more people who had tested positive for the virus (Table 2).

Problems in Areas of Daily Functioning and Anxiety

Racial identity was again collapsed into a binary (Caucasian and BIPOC) variable for this analysis due to the small number of respondents in some racial categories. An independent-samples *t* test of mean score for concerns in areas of daily functioning in each of the six identified areas suggested that BIPOC-identified respondents were significantly more likely to experience problems in all six included areas of daily functioning (Table 3). An independent-samples *t* test of mean anxiety scores also reflected significantly more anxiety in BIPOC-identified respondents than Caucasian respondents (see Table 3). Although the small number of respondents in some racial categories did not provide enough power to complete a full analysis by race, preliminary results have been provided as a supplement for reader review (Table 4).

Discussion

Based on the results of this study, it appears that BIPOC-identified individuals are likely at higher risk for experiencing both anxiety and adversity due to COVID-19 events. BIPOC-identified individuals reported significantly more anxiety than Caucasian-identified respondents, higher personal and occupational risk of exposure to COVID-19, and more pandemic-related problems across six major areas of daily functioning: housing, food, health care, transportation, relationships, and parenting.

Clearly, this is not to say that Caucasian-identified individuals are not in need of assistance. As many other authors have noted (see Henning-Smith et al., 2021 for an overview of several of these publications), the COVID-19 pandemic has affected virtually every person in some way, and many subidentities of Caucasian

Table 2
Chi-Square Results for Occupational/Personal Risk and Knowledge of Persons Testing Positive for COVID-19

Characteristic	Percentage	χ^2	ϕ
Occupational Risk		34.47**	.218
Caucasian	18.1		
BIPOC	37.6		
Personal Knowledge		26.99**	177
Caucasian	23.2		
BIPOC	39.8		

* $p < .05$. ** $p < .01$.

Table 3
Independent-Samples T-test Results for Problems in Daily Functioning and Anxiety

Characteristic	*M*	*t*-statistic	r^2
Problems in safe housing		9.97***	.07
Caucasian	1.77		
BIPOC	2.34		
Problems in adequate food		7.25***	.06
Caucasian	1.87		
BIPOC	2.37		
Problems in adequate healthcare		6.67***	.05
Caucasian	1.88		
BIPOC	2.36		
Problems in transportation		11.10***	.16
Caucasian	1.82		
BIPOC	2.63		
Problems in close relationships		7.91***	.09
Caucasian	1.86		
Black, Indigenous, People of Color	2.43		
Problems in parenting		8.09***	.10
Caucasian	1.73		
Black, Indigenous, People of Color	2.30		

* $p < .05$. ** $p < .01$. *** $p < .001$.

individuals such as rural communities and low-income families are experiencing many similar challenges via structural and institutional policies that disadvantage them. In this study, however, the focus on racial identity as a categorical variable revealed stark differences in the experiences of BIPOC and Caucasian respondents. Based on the findings in this study, BIPOC-identified individuals and communities appear to be experiencing higher threat across multiple life domains and are more likely to require emotional, social, and/or financial pandemic-related support than Caucasian-identified individuals.

Although some methods and structures exist to address many of these concerns, the nature of the pandemic response in the United States and historical experiences of BIPOC-identified communities are both likely to present obstacles to their utilization. In many areas of the country, African Americans and other BIPOC groups are likely to die of COVID-19 at rates much higher than population data would suggest (Eligon et al., 2020; Wright & Merritt, 2020). Utilization rates of any available vaccines in these communities are lower than hoped, with widespread vaccine mistrust in communities of color due to historical medical mistreatment of many BIPOC-identified individuals (Simon, 2020; Wright & Merritt, 2020). The resulting general lack of faith in the health care system's treatment of these communities, and a scarcity of timely and accurate health information, also present barriers to addressing disparities in both anxiety and adversity due to COVID-19 (Chakraborty, 2020; Eligon et al., 2020; Wright & Merritt, 2020).

However, clear examples exist from previous public health emergencies of successful partnerships with high-risk groups including African American, rural, and Indigenous communities (Chakraborty, 2020; Eligon et al., 2020; Henning-Smith et al., 2021; Wright & Merritt, 2020), partnerships which often resulted in better outcomes in health care, effective advocacy, and resource support. Working with community leaders to ensure clear, evidence-based messaging for group members, messaging which acknowledges historical trauma as well as current attempts to increase reliability and trust, may increase the likelihood of initiative success. In addition, deliberately and respectfully engaging the strong social networks and support that often characterize BIPOC communities (Henning-Smith et al., 2021; Nelson & Kaminsky, 2020) may also be useful in the current pandemic effort. Prior research can serve as a beginning template for other groups hoping to partner with and support BIPOC individuals and communities during the COVID-19 pandemic.

Table 4
Mean Anxiety Score by Racial Identity

Racial identity	Mean GAD-7 score
Caucasian	13.43
African American	13.68
Asian American	15.68**
Native American/First Peoples/Indigenous	16.14**
Hawaiian/Pacific Islander	17.62*
Multiracial	16.26
Other Racial Identity (e.g., Italian, Indian as entered by participants)	14.22

Note. GAD-7 = Generalized Anxiety Disorder Screener.
* $p < .05$. ** $p < .01$.

Strengths and Limitations

This study was able to access a large number of respondents at an historical point when COVID-19 was spreading quickly and anxiety was fast becoming a public health focus. The inclusion of questions regarding occupational and personal risk and the subjective experience of anxiety allowed for multiple analyses that shed light on specific aspects of the pandemic experience for individuals across many types of identities. These results will ideally provide further information to assist governments, nonprofits, and providers in tailoring assistance to specific populations for maximum positive impact.

However, the current results must be considered in the context of the study's limitations. The sample was approximately 60% Caucasian, with only 38.3% of respondents self-identifying with a BIPOC racial identity. Second, because of the small number of respondents

in many racial subcategories, the study could not provide the level of detailed group-based analysis that other mono-identity samples may be able to offer, instead collapsing many unique racial identities and cultures under one label, Third, it is not possible to determine from this study whether the higher mean anxiety level, increased adversity, and higher occupational and personal risk levels seen in this sample of BIPOC-identified respondents also existed prepandemic, or if the pandemic has created a significant change in adversity, risk, anxiety.

Finally, the sample was collected entirely via an MTurk Worker task, which may not provide a fully representative and generalizable sample. Previous research has identified several potential concerns with using an MTurk sample, include less racial and ethnic diversity than the general U.S. adult population (Walters et al., 2018), but this may be changing during the pandemic (Difallah et al., 2018). Due to the nature of the online work, both devices and services that permit access to the Internet are required, which may prevent respondents of lower socioeconomic status from participating (Buhrmester et al., 2011; Paolacci & Chandler, 2014).

Future Directions

Future research in this area would benefit from larger, more diverse samples which include an adequate number of respondents in racial subcategories to permit full analysis of these variables by racial identity. In addition, combining this historical sample with ongoing data collection over the course of the pandemic would provide a snapshot of the evolution of these experiences across the life span of a major public health crisis.

Conclusion

These results support Henning-Smith et al.'s (2021) assertion that "risks and resources are inequitably distributed by race and ethnicity, and changes are required to address it. The pandemic response provides an opportunity to do so" (p.2). Organizations working with BIPOC individuals and communities should be aware of the strong need for timely, relevant support and clear information in these communities and identify ways in which they can work with communities in empowered ways to advocate for member needs as well as access to usable and relevant resources.

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