The U.S. National Pandemic Emotional Impact Report

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Findings of a nationwide survey assessing the effects of the COVID-19 pandemic on the emotional wellbeing of the U.S. adult population.

June 2020
Background

The COVID-19 pandemic of 2020 has caused an unprecedented upheaval in the lives of Americans, as well as for people of other nations around the world. The multi-faceted changes in the state of society and everyday life that have directly and indirectly resulted from the pandemic are, without doubt, the most universally shared major stressor for adults in the U.S. in many decades. Although other stressful events, such as the 9/11 terrorist attacks and its surrounding events or the Great Recession of 2007 to 2009, adversely affected many people in the U.S. to a very significant degree, they did not turn normal life on its head for most of the population, pose an omnipresent threat to the physical safety of people in their daily environments, force most people to shelter at home and forego many meaningful and enjoyable activities and social connections, nor produce such widespread job losses and uncertainty about the future. The effects of these unique shared stressful circumstances on the mental wellbeing of the U.S. national population are presently poorly understood, and they need to be investigated and documented, as they may have long-term mental health consequences as well as implications for future national crises.

This report describes the findings of a nationwide Internet survey of U.S. adults that was carried out in part to assess the impact of the pandemic on the emotional wellbeing and functioning of the U.S. population in a broad manner. It was conducted at a point in time, in the second half of May of 2020, when the pandemic was just beyond its peak in the nation -- a time when the great majority of the population was still sheltering at home by orders or choice, non-essential businesses and services were still closed in most states, more than twenty thousand people were being diagnosed with COVID-19 daily, and a thousand or more people dying from the disease each day. At the time of this survey, unemployment had reached levels not seen since the Great Depression.

The project that produced the findings presented in this report is a part of a series of studies led by Dr. Olafur Palsson at the University of North Carolina at Chapel Hill to examine the role of specific psychological factors that make some individuals more vulnerable than others to experiencing adverse mental and physical consequences from stressful life events. The report is aimed at providing a detailed summary of the psychological effects of the pandemic on the U.S. population. The report does not address the specific psychological factors that are being studied by the research team that are hypothesized to determine the relative extent of the pandemic-
related experiences on different individuals. The results of those aspects of this project will be made public by the report authors in future scientific papers and presentations.

**It should be noted that data collection in this survey was completed on May 30, 2020, five days after George Floyd was killed by a police officer in Minnesota. Approximately ninety percent of responses had been collected before the start of the historic and multicultural movement across the United States to increase recognition and awareness about systemic racism in this country. The data presented here therefore present a snapshot of pandemic-related stress in the United States in the last two weeks of May, 2020 mostly without the influence of those events on the emotions and outlook of participants.**

About the Authors

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Survey Methodology

The data summarized in this report were collected by means of a secure Internet survey, using quota-based sampling designed to achieve a balanced representation of demographic sub-groups to make it nationally representative in regard to key U.S. population demographics. The nationwide sample of 1500 U.S. adults who completed the survey was identical to the U.S. population in regard to:

- Sex proportions (50% female, 50% male).
- Age group representation (30.0% ages 18-34 years, 24.5% 35-49 years, 25.0% 50-64 years, and 20.5% 65 years or older).
- Representation of Black/African-Americans (13%) and Hispanics/Latinos (18%) individuals.
- Percent with college education (33%).
- Regional representation (17.2% Northeast, 38.1% South, 20.9% Midwest, and 23.8% West).

The survey was conducted from the University of North Carolina at Chapel Hill (UNC-Chapel Hill), using Qualtrics XM survey software. Participants were recruited by Qualtrics, Inc. from panels of pre-registered survey-takers across the U.S. The survey included a number of built-in quality-assurance measures, including attention and speed checks and validation of completed questions. The study was reviewed before data collection started by the UNC-Chapel Hill Institutional Review Board, and was deemed IRB-exempt due to the anonymous survey method. The survey was an unfunded research project and was not sponsored or paid for by any organization or agency.

The survey was started on May 18, 2020, and completed 2 weeks later, on May 30.

Nature of the survey in a nutshell

A nationwide Internet survey conducted from May 18th to 30th, 2020, collecting responses from a sample of 1500 U.S. adults identical to the U.S. population in regard to:

- Sex ratio
- Regional distribution
- Age group representation
- Representation of blacks and Hispanics
- Education (% with college degree)
The vast majority of individuals in the national survey sample reported that they had been staying almost exclusively at home for several weeks due to COVID-19:

- 70% were still doing so at the time of the survey.
- 12.9% had been doing so but not anymore.
- 9.9% reported having been unable to do so due to their jobs or other important reasons.
- 2.9% said they did not do so because they lived in areas where this was not ordered/recommended.
- 4.7% stated that they had chosen not stay at home due to COVID-19 in spite of local or state orders or recommendations to do so.

Males were somewhat more likely than females to report having been unable to stay at home due to COVID-19 (11.3% vs. 8.5%), but there was little difference in that regard between race/ethnic groups.

The small proportion of survey participants who chose to not stay home due to COVID-19 in spite of orders or recommendations to do so was predominantly male (66.3%) and mostly of non-Hispanic White race/ethnicity (80.3%).

Of the total population survey sample:

- 0.9% reported having had COVID-19, as confirmed by a positive test.
- 0.9% stated they had been clinically diagnosed with COVID-19, but no test done to confirm it.
- 4.6% of those not diagnosed with the infection reported that they had experienced symptoms that either they themselves (3.7%) or a healthcare provider (0.9%) thought were likely caused by COVID-19.
- 2.7% reported that a member of their household other than themselves had COVID-19.
- 12.1% said they had personally known somebody who had passed away from COVID-19.
c. Loss of job or reduced pay/income due to COVID-19

- Of the overall population sample surveyed, about 1 in 4 reported having lost a job or suffered reduced pay/income due to the COVID-19 pandemic (see Figure 1 below), and also about 1 in 4 respondents reported this had happened for other members of their household.

- When data were combined for the respondents themselves and others in their households, a total of 38.3% of households represented in the survey sample were affected by job loss or reduced pay/income as a result of the pandemic.

Figure 1. Percent of individuals in the survey who reported loss of job or reduced pay/income related to the pandemic, personally or by other members of their household.

- On average, individuals in the age groups of 18-34 and 35-49 years were most likely to report pandemic-related loss of job or reduced income, with similar rates among males and females (see Figure 2 below).

- Among individuals of ages 50-64 years, job or income loss was much more prevalent for males than females.

- People of different education levels in the survey sample, from high-school graduates to those with post-graduate college education, reported similarly prevalent pandemic-related loss of jobs or reduction in income.
Loss of a job or reduced income related to the pandemic was significantly more common overall among Hispanics/Latinos (36%) than Black (26%) or White (25%) respondents. It was more common among Whites and Hispanics/Latinos than Blacks in the 18-34 and 50-64 years age groups, and most commonly reported by Hispanics/Latinos in the 65+ age group (Figure 3).
d. Change in life stress compared to prior to COVID-19

- To assess pandemic-related changes in overall stress, survey respondents were asked to indicate how their life stress level had been in the past 4 weeks compared to the month of January (the period just before COVID-19 became a commonly perceived threat in the U.S.).
- The majority individuals (55%) reported their life to be more stressful now compared to January, whereas only 19% rated it less stressful, and 25% about the same (Figure 4).
- There were no differences between the sexes in how they rated their change in stress levels compared to January.
- Respondents under age 50 were more likely than older ones (24% vs. 14%) to report less stress compared to January.
- Among race/ethnicity subgroups, Hispanic/Latino individuals most frequently reported that their stress was increased in the past 4 weeks compared to January (61.1%). The percentage for white and black respondents was 55.0% and 50.8%, respectively.

Figure 4. Responses to the question: “Compared to the month of January of this year, how has your personal level of life stress been over the past month (that is, the past 4 weeks)?”

<table>
<thead>
<tr>
<th>% of survey responders</th>
<th>Much less now</th>
<th>A little less now</th>
<th>About the same</th>
<th>A little more now</th>
<th>Much greater now</th>
</tr>
</thead>
<tbody>
<tr>
<td>8%</td>
<td>11%</td>
<td>27%</td>
<td>32%</td>
<td>23%</td>
<td></td>
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</tbody>
</table>

Percent of individuals experiencing more life stress in past 4 weeks compared to the month of January:

- 55%
e. Overall Emotional Impact of the Pandemic

- **The Pandemic Emotional Impact Scale (PEIS):** The survey used the 16-question PEIS as the primary tool to assess and compare the effects of the pandemic situation on different individuals (see the Appendix for a copy of the full questionnaire).
- The PEIS was created specifically for the study by reviewing current news stories and published interviews about the effects of the pandemic on the emotional wellbeing and life functioning on individuals in the U.S., and systematically identifying repeated themes. This was done in order to construct a measure that could assess a broad range of common ways in which different people were being affected by pandemic-related threats and life experiences.
- For each item on the PEIS, respondents were asked to indicate how much their wellbeing and functioning had been different in the past 4 weeks in a specific way, compared to how it was before the beginning of the COVID-19 pandemic in the U.S. The response options were “Not at all”, “A little bit”, “Moderately”, “A lot” and “Extremely”. The results are detailed below.

**Figures 5-21:** Distribution of ratings by the survey participants on each of the 16 items on the Pandemic Emotional Impact Scale.

“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

![Figure 5. More worried about your finances](image-url)
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Figure 6. More anxious or ill at ease

Figure 7. Having more difficulty concentrating
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Figure 8. Being less productive

Figure 9. More worried about your personal health or safety
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

**Figure 10. Being more bored**

<table>
<thead>
<tr>
<th>Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>27%</td>
</tr>
<tr>
<td>A little bit</td>
<td>21%</td>
</tr>
<tr>
<td>Moderately</td>
<td>18%</td>
</tr>
<tr>
<td>A lot</td>
<td>19%</td>
</tr>
<tr>
<td>Extremely</td>
<td>16%</td>
</tr>
</tbody>
</table>

**Figure 11. More difficulty sleeping**

<table>
<thead>
<tr>
<th>Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>35%</td>
</tr>
<tr>
<td>A little bit</td>
<td>21%</td>
</tr>
<tr>
<td>Moderately</td>
<td>18%</td>
</tr>
<tr>
<td>A lot</td>
<td>14%</td>
</tr>
<tr>
<td>Extremely</td>
<td>13%</td>
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</tbody>
</table>
"How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?

Figure 12. Feeling more lonely or isolated

- Not at all: 35%
- A little bit: 22%
- Moderately: 16%
- A lot: 14%
- Extremely: 13%

Figure 13. Feeling more down or depressed

- Not at all: 36%
- A little bit: 21%
- Moderately: 18%
- A lot: 15%
- Extremely: 11%
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Figure 14. More worried about getting necessities like groceries or medications

![Bar chart](image)

<table>
<thead>
<tr>
<th>Level</th>
<th>% of all survey responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>30%</td>
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<tr>
<td>A little bit</td>
<td>24%</td>
</tr>
<tr>
<td>Moderately</td>
<td>23%</td>
</tr>
<tr>
<td>A lot</td>
<td>14%</td>
</tr>
<tr>
<td>Extremely</td>
<td>9%</td>
</tr>
</tbody>
</table>

Figure 15. More worried about the health and safety of family members or friends

![Bar chart](image)

<table>
<thead>
<tr>
<th>Level</th>
<th>% of all survey responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>13%</td>
</tr>
<tr>
<td>A little bit</td>
<td>21%</td>
</tr>
<tr>
<td>Moderately</td>
<td>25%</td>
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<tr>
<td>A lot</td>
<td>20%</td>
</tr>
<tr>
<td>Extremely</td>
<td>21%</td>
</tr>
</tbody>
</table>
"How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Figure 16. More frustrated about not being able to do what you usually enjoy doing

Figure 17. More worried about possible breakdown of society
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Figure 18. Feeling more angry or irritated

Figure 19. Feeling that the future seems darker or scarier than before
“How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?”

Summary observations about scores on the 16 individual items of the Pandemic Emotional Impact Scale:

- Every single item on the PEIS was reported to be experienced at least a little bit by the great majority of respondents, confirming that this entire list of different aspects of emotional impact was highly relevant to the pandemic experiences of the general population.

- It is noteworthy that 7 different areas of specific emotional impact were reported as having been experienced to a moderate or greater extent by more than half of the entire population sample over the past four weeks. In descending order of frequency of "Moderate" or higher response, these were: More worry about the health and safety of family members or friends (66% of respondents), feeling more frustrated about not being able to do what they usually enjoy doing (58%), more worry about their own personal health or safety (57%), more worry about possible breakdown of society (56%), more worry about their personal finances (53%), being more bored (53%), and being more anxious or ill at ease (51%).
The Pandemic Distress Index: In order to quantify the overall degree of emotional impact of the pandemic situation and experiences on individuals, and enable comparisons of this across demographic subgroups, we calculated a Pandemic Distress Index Score for survey respondents based on their responses to the 16 items on the Pandemic Emotional Impact Scale (PEIS). This score is the sum number of all PEIS items given a "Moderate" or greater rating by each respondent.

The validity of this approach to assessing pandemic-associated distress is demonstrated by the fact that the resulting Pandemic Distress Index, summarizing in a single number the collective impact of different pandemic-specific subjective experiences and reactions, correlated very robustly with the probability of individuals having clinically significant levels of anxiety and depression on the PHQ-4 (Spearman's Rho of 0.59 and 0.58, respectively), a validated screening measure of psychological distress also administered in the survey. As seen in Figure 21, the percentage of respondents with significant anxiety and depression rises steadily and steeply with increasing scores on the Pandemic Distress Index.

Figure 21. The relationship between Pandemic Distress Index scores and the percent of individuals with clinically significant symptoms of anxiety and depression on the PHQ-4*. *Clinically significant anxiety and depression scores were defined as scores of 3 or higher on those PHQ-4 questionnaire subscales.
The great majority of people in the survey sample (90.7%) rated one or more types of pandemic-related emotional impact as moderate or greater in intensity on the PEIS, as seen in Figure 22. The median score was 8, meaning that half of respondents experienced 8 or more different types of pandemic-related emotional impact with at least moderate intensity.

**Figure 22. Distribution of Pandemic Distress Index scores in the survey sample.**

![Distribution of Pandemic Distress Index scores](image)

Higher Pandemic Distress Index scores were substantially associated (Figure 23) with greater life stress (Spearman’s Rho = 0.57) and lower happiness ratings (Rho = -0.40) of survey respondents.

**Figure 23. Relationship of Pandemic Distress Index scores to happiness and stress ratings.**

![Relationship of Pandemic Distress Index scores to happiness and stress ratings](image)
Higher Pandemic Distress Index scores were correlated (Spearman’s Rho = -0.30) with poorer overall quality of life ratings by survey respondents on a 5-point scale from “Poor” to “Excellent” (from the validated PROMIS Global-10 questionnaire). This negative relationship was mostly apparent for individuals with Pandemic Distress Index scores above 6, who were more likely to give their life either poor or fair quality ratings than those with lower Pandemic Distress Index scores, as seen in Figure 24.

![Figure 24](image)

**Figure 24.** The relationship between Pandemic Distress Index scores and low quality of life self-ratings in survey sample. The figure shows the percent of individuals with different distress scores reporting either poor (red) or fair (yellow) quality of life on a 5-point quality of life scale from poor to excellent.

- Pandemic Distress Index scores were highest among individuals in the age groups of 18-34 years and 35-49 years. In both of those age groups, females had higher average distress score than males. Older individuals had substantially lower distress scores, especially those of age 65 or older. Unlike the younger groups, there was very little difference between the sexes in average distress scores among survey respondents of age 50 and older (Figure 25).
The average Pandemic Distress Index scores of males and females were not significantly different in the overall survey sample (7.6 versus 7.9). The sexes also generally rated the 16 types of emotional impact on the PEIS as moderate or greater with similar frequencies. The seven items on the scale where males and females differed most in their ratings are presented in Figure 26.
There was little difference in Pandemic Distress Index scores between respondent subgroups of the same sex according to their parent status (Figure 25). Women had higher scores than men in all parent status categories except among parents of infants/toddlers. Fathers of children under 18 had higher average Pandemic Index Scores than men with no minor children.

Females with children under age 18 were substantially more likely to report clinically significant* levels of anxiety symptoms compared to females without minor children. Males were more likely to have clinically significant* depression scores if they had children under age 18.

Figure 27. Average Pandemic Distress Index scores by sex and parent status.

Note: Only respondents under age 50 were included in comparisons in the graphs on this page. Parent status categories could overlap, as some parents had children in multiple age groups.

*Clinically significant anxiety and depression scores were defined as scores of 3 or higher on those PHQ-4 questionnaire subscales.
- The Pandemic Distress Index scores of the major race/ethnicity subgroups were similar in the youngest age group (18-34 years) although black and Hispanic/Latino individuals had somewhat higher scores than white respondents. In the age groups of 35-49 and 50-64 years, Hispanic/Latino respondents had the highest average Pandemic Distress Index scores, whereas black respondents had the highest scores in the 65 and older age group (Figure 27).

- Comparison of individuals in the survey sample with different education levels showed that people of all education levels had very similar average Pandemic Distress Index scores (Figure 28).

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**Figure 29.** Comparison of Pandemic Distress Index scores by race/ethnicity and age group.

**Figure 30.** Comparison of Pandemic Distress Index scores by education level.
• The 38% of survey respondents who reported that either they or other members of their household had lost jobs or had suffered reduction in income due to the pandemic situation scored significantly higher on average than others in the total survey sample on the Pandemic Distress Index, and they also had a higher prevalence of clinically significant anxiety and depression symptoms (Figure 31 A-C).

• The 12% of survey respondents who reported knowing somebody personally who had passed away from COVID-19 showed a relative elevation in Pandemic Distress Index scores compared to others in the survey sample (Figure 32).

Figure 31. Pandemic Distress Index scores of respondents in households with loss of jobs or income compared to other respondents.

Figure 32. Pandemic Distress Index scores of respondents who personally knew somebody who had passed away from COVID-19, compared to other respondents.
There was only modest difference in average Pandemic Distress Index scores between survey participants in different geographic regions of the U.S., with a slightly lower average score in the Midwest compared to other regions.

People living in communities of different sizes also had generally similar average levels of pandemic-related distress, but those who lived out in the country outside of any communities had lower average Pandemic Distress Index scores that those in communities of any size (Figure 34).

**Figure 33.** Comparison of average Pandemic Distress Index scores of individuals living in the four major regions of the United States as defined by the U.S. Census Bureau.

**Figure 34.** Comparison of average Pandemic Distress Index scores of individuals living in communities of different sizes.
To provide a clearer picture of how pandemic-related distress differentially affected segments of the American population, the Pandemic Distress Index scores were divided by quartiles into low (lowest 25% of scores), moderate (quartiles 2 and 3) and high (highest 25%) pandemic distress, and the proportions of demographic subgroup falling into each distress class were tabulated.

As seen in Table 1, this revealed more clearly the general pattern seen in figures presented before: People under 50 scored high on pandemic distress more frequently than older individuals, Hispanics/Latinos and blacks more frequently than whites, whereas there was no difference between males and females, people of different education levels or by different parent status. Finally, people living in rural settings outside of community areas were less likely to experience high pandemic distress on average than people living in towns or cities.

Table 1. Prevalence of low (lowest quartile), moderate (quartiles 2 and 3) and high (top quartile) Pandemic Distress Index Scores in different demographic subgroups.

<table>
<thead>
<tr>
<th></th>
<th>Low Pandemic Distress</th>
<th>Moderate Pandemic Distress</th>
<th>High Pandemic Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24.7%</td>
<td>50.9%</td>
<td>24.4%</td>
</tr>
<tr>
<td>Female</td>
<td>21.5%</td>
<td>51.3%</td>
<td>27.2%</td>
</tr>
<tr>
<td><strong>Age Group:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34 years</td>
<td>10.7%</td>
<td>52.7%</td>
<td>36.7%</td>
</tr>
<tr>
<td>35-49 years</td>
<td>17.4%</td>
<td>51.0%</td>
<td>31.6%</td>
</tr>
<tr>
<td>50-64 years</td>
<td>29.3%</td>
<td>50.9%</td>
<td>19.7%</td>
</tr>
<tr>
<td>65+ years</td>
<td>40.3%</td>
<td>49.4%</td>
<td>10.4%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (non-Hispanic)</td>
<td>28.4%</td>
<td>50.9%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Black (non-Hispanic)</td>
<td>15.9%</td>
<td>52.8%</td>
<td>31.3%</td>
</tr>
<tr>
<td>Hispanic/Latino (of any race)</td>
<td>11.5%</td>
<td>47.8%</td>
<td>40.7%</td>
</tr>
<tr>
<td><strong>Parent status (among adults under age 50):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No children</td>
<td>21.0%</td>
<td>53.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Minor children (under 18)</td>
<td>14.0%</td>
<td>51.1%</td>
<td>34.9%</td>
</tr>
<tr>
<td>Only adult (18 year+ children)</td>
<td>34.7%</td>
<td>48.4%</td>
<td>16.9%</td>
</tr>
<tr>
<td><strong>Community size:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City (50,000+ inhabitants)</td>
<td>22.5%</td>
<td>49.9%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Town (2,500-50,000 inhabitants)</td>
<td>20.0%</td>
<td>55.3%</td>
<td>24.7%</td>
</tr>
<tr>
<td>Village or small town (&lt; 2,500 inhabitants)</td>
<td>25.6%</td>
<td>51.1%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Place in the country - not in city/town/village</td>
<td>40.8%</td>
<td>41.7%</td>
<td>17.5%</td>
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<tr>
<td><strong>Education:</strong></td>
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</tr>
<tr>
<td>High school graduate or less</td>
<td>25.5%</td>
<td>44.3%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Some college or technical school</td>
<td>21.3%</td>
<td>55.9%</td>
<td>22.8%</td>
</tr>
<tr>
<td>Undergraduate college degree</td>
<td>21.9%</td>
<td>53.0%</td>
<td>25.1%</td>
</tr>
<tr>
<td>Graduate college degree</td>
<td>23.8%</td>
<td>50.5%</td>
<td>25.7%</td>
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</table>
g. High Pandemic Distress: Effects on Wellbeing

- Contrasting individuals with low, moderate and high impact on the Pandemic Distress Index on indicators of general well-being revealed the striking relationship of high amount of pandemic-related changes in emotional experience to poorer psychological well-being. As can be seen in Table 2 below, individuals with high pandemic distress were more than 40 times as likely to have clinically significant levels of anxiety and more than 20 times as likely to have clinically significant depression symptoms, compared to people with low pandemic distress. People with high pandemic distress were also 3 times as likely to give their overall quality of life a low rating (poor or fair).

- Compared to people in the low pandemic distress group, ratings of overal life stress in the past month of those who scored high on pandemic distress were 4 points higher on average on a 10-point rating scale, and happiness ratings 2.6 point lower.

Table 2. Comparison of indicators of wellbeing in individuals with low (lowest quartile), moderate (quartiles 2 and 3) and high (top quartile) Pandemic Distress Index Scores.

<table>
<thead>
<tr>
<th></th>
<th>Low Pandemic Distress</th>
<th>Moderate Pandemic Distress</th>
<th>High Pandemic Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinically significant anxiety symptoms*</td>
<td>1.7%</td>
<td>22.8%</td>
<td>69.3%</td>
</tr>
<tr>
<td>Clinically significant depression symptoms*</td>
<td>3.5%</td>
<td>24.1%</td>
<td>74.1%</td>
</tr>
<tr>
<td>Mean life stress over past month (0-10 scale)</td>
<td>3.0</td>
<td>5.6</td>
<td>7.2</td>
</tr>
<tr>
<td>Mean happiness over past month (0-10 scale)</td>
<td>8.5</td>
<td>6.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Percent with low quality of life self-ratings (either fair or poor rating given)</td>
<td>11.0%</td>
<td>22.7%</td>
<td>34.1%</td>
</tr>
</tbody>
</table>

*Clinically significant anxiety and depression scores were defined as scores of 3 or higher on those PHQ-4 questionnaire subscales
Conclusions

This nationally representative Internet survey of 1500 adults in the United States, carried out in the second half of May of 2020, provides a detailed picture of the emotional impact of the COVID-19 pandemic on the general population. The survey included a new measure specifically for this purpose – The Pandemic Emotional Impact Scale (see Appendix) -- that provides a more comprehensive assessment of this impact than previously obtained on a national level during this pandemic crisis. The findings indicate that the emotional wellbeing of most adults in America has been broadly and substantially affected by COVID-19 and the related changes in life and society, but that some sub-populations have suffered more than others. In particular, the survey results indicate that younger adults and people of racial and ethnic minorities have been psychologically affected more than others by the pandemic. The survey results demonstrate that the effects of the pandemic in society are markedly undermining the emotional wellbeing, happiness and quality of life of a large proportion of Americans.

Effects on daily life, jobs and income

The vast majority of survey respondents (83%) reported having stayed at home almost exclusively for at least several weeks due to COVID-19. At the time of the survey, 70% reported that they were still staying home. Nearly one in ten people reported that they were not able to stay home due to their jobs or other important reasons, and 4.7% reported that they had chosen not to stay home in spite of local or state orders to do so. Those who decided voluntarily not to stay home were most commonly non-Hispanic white males.

Job loss and reduced income associated with COVID-19 were common among the survey respondents, with 38% of households reporting either lost jobs or reduced income. About one-third of individuals of both sexes under the age of 50 reported income reduction or job loss, as did males of ages 50-64 years, but females age 50-64 and people age 65 and older reported such losses at lower rates.

Respondents who had lost jobs or income due to the pandemic were more likely than others to exhibit clinical levels of depression and anxiety, and had higher pandemic-specific emotional distress than those whose income was not impacted. With two out of every five households affected by financial losses and with a corresponding impact on symptoms of anxiety and
depression, it is clear that the financial and occupational effects alone of COVID-19 have had psychological impact on a very substantial and diverse portion of the U.S. population.

The observation that job loss or reduced income due to the pandemic was similarly prevalent for people of different education levels went against initial expectations, especially since jobs requiring higher education can often be adapted to remote work more easily than jobs requiring lower education levels. However, many jobs that do not require higher education, such as in food production or crucial services like transportation, might be more likely to have been considered ‘essential’ positions and in some cases even in increased demand during this period, thus potentially explaining these results.

**Personal experiences with COVID-19**

A total of 1.8% of the survey participants reported that they had been diagnosed with COVID-19 (0.9% reported having been tested and 0.9% having been diagnosed by a doctor without a test). It is noteworthy that the 0.9% test-confirmed diagnoses matched almost perfectly the total percentage of U.S. adults who had tested positive for COVID-19 (0.8% or 1.9 million positive cases) at the time of the survey. However, an additional 4.6% of the survey respondents reported that, although they were not formally diagnosed, they suspected that they had been infected with COVID-19 due to symptoms they had experienced. Just over 12% of the survey respondents stated that they personally knew someone who had died from COVID-19, and those individuals had higher average pandemic-related distress scores than others in the survey sample, though they did not have increased indicators of anxiety or depression.

**Stress**

When asked to compare their stress levels to the month of January of 2020 (the month before COVID-19 started to become a widely recognized threat in the U.S.), 55% of respondents reported that their life had been more stressful over the past month. There were no differences between men and women or between people of different education levels in reported change in stress, but respondents under age 50 were more likely to report increase in stress compared to January than their older counterparts. This may reflect relatively greater pandemic-related disruption of the lives of younger individuals on average, with job losses, forced change in work style, or interruption of education, as well as more changes in social and daily activities in the younger group compared to the older respondents. Hispanic/Latino respondents were the most likely to report an increase in stress (61%), followed by White (55%) and Black (51%) respondents.
Pandemic-specific emotional impact

One of the noteworthy findings of this survey is how broad the emotional effects of the pandemic are on the general population. Half of all survey respondents endorsed eight or more different types of pandemic-related emotional impact assessed on the Pandemic Emotional Impact Scale (PEIS) as having been experienced at least moderately in the past 4 weeks.

The pandemic-related emotional changes most frequently experienced to at least a moderate extent by survey respondents were the following:

- More worry about the health and safety of family members or friends (66% of respondents)
- Feeling more frustrated about not being able to do what they usually enjoy doing (58%)
- More worry about their own personal health or safety (57%)
- More worry about possible breakdown of society (56%)
- More worry about own finances (53%)
- Being more bored (53%)
- Being more anxious or ill at ease (51%)

Only about one in every ten of respondents did not endorse any of the 16 pandemic-related emotional effects assessed by the PEIS at a moderate or greater level of impact -- meaning that nearly all the people surveyed had been directly affected emotionally in some specific ways by the pandemic.

Emotional distress related to COVID-19 as measured by the PEIS was linearly associated with higher frequency of clinical levels of anxiety, depression, and general life stress and, unsurprisingly, was also associated with lower reported levels of overall happiness. In other words, the more a respondent experienced of the various pandemic-related changes in emotional functioning measured by the PEIS, the more likely that person was to have clinical levels of anxiety and depression. This has significant mental health implications for the near future as well as ongoing effects of COVID-19 waves and potentially for future pandemics. The PEIS (which is included in the Appendix of this report) and the Pandemic Distress Index calculated based on its scores may be a useful, simple tool to broadly quantify the extent of pandemic-related impact on a given individual, and thereby assess risk of adverse effects on well-being and mental health. It is striking to observe that more than two-thirds of all people scoring in the top quartile of scores on
the Pandemic Distress Index reported clinically significant levels of anxiety and/or depression symptoms on the PHQ-4 screening questionnaire.

Pandemic emotional impact by subgroups

Gender and parent status
Women did not differ from men overall in their Pandemic Distress Index scores in the survey sample. Among individuals under the age of 50, women reported slightly higher levels of pandemic-related emotional impact compared to men, but this sex difference was not seen in the older age group. Relative to men, women reported more pandemic-related changes in sleep, health worry (about one’s own health and the health of others), productivity, mood, and frustration with not being able to do as much what they usually enjoy doing.

Interestingly, the amount of emotional impact directly related to COVID-19 did not differ much between people with children under age 18 and those with no minor children. Among women, however, those who had children under 18 reported elevated rates of clinically significant anxiety symptoms compared to women with no minor children, as well as compared to men who had children of similar ages. The reason for this pattern may be suggested by findings of other studies which have found that a majority of women, whether working or not, still hold more of the burden for household management, child-rearing, and emotional labor in their household, which may have been further compounded during the pandemic by the sudden addition of homeschooling and personal childcare tasks. In contrast, men who had children under the age of 18 had elevated rates of clinically significant depression symptoms compared to men with no children.

Race/ethnicity
Among the three major race or ethnic groups we compared, Hispanics/Latinos had the highest average Pandemic Distress Index score (9.9), Blacks had an intermediate score (8.7), and Whites had the lowest average score (7.0). All three groups were relatively similar in pandemic related distress among 18-34 years olds, but Hispanics/Latinos had higher scores than the other race/ethnic groups in the 35-49 and 50-64 years age groups. On the other hand, Black survey respondents reported the higher levels of pandemic-related distress than White and Hispanic/Latino survey participants in the 65 years and older group.

It is well established in the literature on racial and socio-economic factors that racial and ethnic
minorities are subject to multiple significant and constant sources of extra stress in America, and our survey results indicate that a pandemic may further add to that burden for these minority populations. The increased levels of pandemic-related distress related to race and ethnicity that we found in our survey likely point to the effects of COVID-19 further exacerbating the existing disparities these groups suffer already, including barriers to healthcare access, less job security and lack of financial resources to cope with extended economic shut-down, greater job hazards, fear of discrimination, increased burden of chronic health problems, and unsafe and hostile living environments.**

**Education**

There were no differences found between people with different education levels in pandemic-specific emotional distress. This is noteworthy, as it suggests, like several other aspects of the survey data, that the COVID-19 pandemic has affected American adults more broadly than most other major stressful events in recent history.

**Age groups**

In contrast to the general lack of sex differences and differences between people of different education levels in pandemic-related distress, comparisons of age groups in the survey sample showed a marked difference between younger and older individuals. People in the age groups of 18-34 and 35-49 years reported similar and relatively high Pandemic Distress Index scores. In contrast, people of ages 50-64 had much lower distress scores related to the pandemic, and these were lower still among survey respondents 65 years of age or older; those oldest individuals had average Pandemic Distress Index scores that were half or less of the scores of people under 50. This may seem counter-intuitive, as older people are commonly known to be at greatly increased risk of serious illness or death if they become infected by COVID-19. It would seem reasonable to assume that this very real threat would cause older individuals greater distress than younger people. However, the lower pandemic-related distress reported by the older survey participants is likely to be the result of the fact that older individuals in society have been relatively protected from many of the major types of upheaval and threats other than health threats associated with the pandemic. For example, actual and potential job losses, disruption in education and work life due to lockdowns and school closures, suddenly having to take care of children and multi-task at home while trying to maintain job productivity, and bans on social

gatherings are emotionally trying pandemic-related effects that are likely to affect older
generations in society far less.

Regions and community size
Pandemic-related distress was relatively similar across all the four major geographic regions of
the U.S., again indicating that the negative psychological effects of the pandemic have been
widely shared by the entire nation. Analyses of Pandemic Distress Index scores by community size
revealed, however, that people living outside of organized communities, such as on farms,
reported substantially lower pandemic-related distress on average compared to people living in
villages, towns or cities. This makes sense as COVID-19 is a communicable disease where the
threat is in interacting with others, and especially in crowded places. Moreover, people living out
in the country away from cities and towns may be more self-sufficient and less reliant on jobs or
services that were affected or halted by the pandemic.

Strengths and limitations of the survey
This survey project had two principal strengths. The first of these is the assessment of a broad
range of specific pandemic-related emotional effects, in a way that could be summed in a single
meaningful index placing individuals of any demographic group on a spectrum of pandemic-specific
emotional distress. The Pandemic Emotional Impact Scale questionnaire that was developed
specifically for this project, though used here for the first time, is showing evidence of good
psychometric properties and is freely available to researchers and clinicians, along with the
population norms from this project, and can be used for evaluation of adults facing pandemic
threat. The wide range of items it assesses clearly tap commonly shared emotional experiences in
the COVID-19 era, because every one of the types of emotional impact listed on the questionnaire
was reported to be experienced to some extent by large proportions of the population sample. The
breadth of these items gives a relatively comprehensive picture of the emotional effects of this
type of health threat and crisis situation in society, even though there are undoubtedly additional
items that could be added in future work.

The second major strength of the survey was the quota-controlled demographic balance
implemented in the sampling, which by design produced a sample that closely matches the major
demographic features of the U.S. population. The sample of 1500 survey completers was
practically identical to the overall population of the country in regard to sex and age group
composition, relative representation of Black and Hispanic/Latino individuals, nationwide regional distribution of participants, and education level. This makes it reasonable to draw general conclusions about the state of emotional impact on the American general population from the findings.

As is the case for any national Internet survey of relatively modest sample size, there are certain limitations to the dataset collected and the findings presented. First, strictly speaking the results only directly represent those adult individuals living in the United States who a) speak and read English fluently enough to complete the survey, and b) who have access to a computer or mobile devices, as well as Internet access. Second, the sample size of this survey was not large enough to allow separate analysis of findings from Asian Americans or other of the less prevalent race/ethnic minorities in the U.S. such as Native Americans, and therefore does not include information specifically on the relative pandemic impact of those subgroups. The same is the case for some potentially vulnerable demographic subgroups, such as people with disabilities or LGBTQ individuals. Moreover, the survey only examined the effects on adults, leaving out children, who are an important group to study in regard to pandemic-related psychological effects. The impact of the pandemic on all of those special demographic groups should be the focus of other researchers who can better access and concentrate on these sub-populations in their research.

A further limitation of this survey, like any other cross-sectional observational study, is that cause and effect cannot be determined with any certainty from the patterns revealed in the results; and especially if no specific hypotheses have been made in advance in regard to predicted patterns. Most importantly in regard to the findings presented in this report, this means that it is hard to know to what extent the increasing pandemic-specific emotional effects directly cause the observed strongly associated steadily increasing prevalence of anxiety and depression. That can only be examined in other types of analyses, using other types of measures and optimally multiple time points of measurement.
Summary

The results of the survey presented here show that COVID-19 and the extensive related changes in everyday life in America have negatively affected both the lives and emotional wellbeing of the vast majority of adults in the United States to a substantial degree. This is reflected in the fact that 83 percent of survey respondents had been staying home and greatly limiting their usual activities due to the pandemic, and 38% of all households represented in the sample had experienced job loss or reduced income due to the pandemic. On the emotional side, half of the entire population sample reported experiencing at least eight specific types of pandemic-related emotional impact to a moderate or greater extent over the past month, and nearly everybody (over 90%) had experienced one of those types of emotional effects to that extent. Adults under the age of fifty and people of racial and ethnic minorities, and especially Hispanics/Latinos, seem to have been more affected by the pandemic compared to others on average. It can be stated with certainty based on the survey findings that at least a quarter of all U.S. adults is presently in a condition of high emotional distress directly attributable to the pandemic. These results highlight the far-reaching and multifaceted personal effects of COVID-19, with substantial implications for the mental health and well-being of the U.S. population in the near future. They underscore the importance of devoting adequate resources and research efforts to addressing these mental health effects and determining helpful interventions and prevention strategies that can be implemented on a large scale throughout the remaining course of the COVID-19 pandemic in the country, and in any future pandemics.
Appendix

THE PANDEMIC EMOTIONAL IMPACT SCALE

How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic in the U.S.?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>A lot</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. More worried about your finances</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. More anxious or ill at ease</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. More difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Being less productive</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. More worried about your personal health and safety</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Being more bored</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. More difficulty sleeping</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Feeling more lonely or isolated</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Feeling more down or depressed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. More worried about getting necessities like groceries or medications</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. More worried about the health and safety of family members or friends</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Feeling more frustrated about not being able to do what you usually enjoy doing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. More worried about possible breakdown of society</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Feeling more angry or irritated</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. Feeling that the future seems darker or scarier than before</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Feeling more grief or sense of loss</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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