Severe Depression and COVID-19:

Communities In Need Across The U.S.

Acknowledgements

Mental Health America (MHA) was founded in 1909 and is the nation's leading community-based nonprofit dedicated to addressing the needs of those living with mental illness and promoting the overall mental health of all. Our work is driven by our commitment to promote mental health as a critical part of overall wellness, including prevention services for all, early identification and intervention for those at risk, and integrated care, services, and supports for those who need them, with recovery as the goal.

Key Stakeholder Involvement

Special thank you to the following key stakeholders for their contributions to this brief and the building of MHA's Screening Mapping Project.

Executive Summary

As the nation works to mitigate the public health crisis introduced by COVID-19, we have a critical responsibility to ensure a fast and coordinated response to address the growing mental health crisis exacerbated by the pandemic.

The data collected from over 2.6 million users visiting MHA Screening (at www.mhascreening.org) in 2020 is the largest dataset collected from a help-seeking population experiencing mental health conditions during COVID-19. Analysis and dissemination of this data will aid a timely and effective response to the increasing rates of anxiety, depression, psychosis, loneliness, and other mental health concerns in our country.

In 2021, MHA analyzed the data collected from **725,949 individuals** who took a depression screen (PHQ-9) in the United States in 2020. Of those screened, **nearly one-third (32%, N=233,397)** scored with symptoms of severe depression – a group that increases to **nearly two-thirds (62%, N=455,207)** when combined with those whose results indicated moderately severe symptoms.

In May 2021, MHA published our brief, Suicide and COVID-19: Communities in Need Across the US, evaluating data from individuals reporting frequent thoughts of suicide or self-harm on the depression screen (PHQ-9). This brief, *Severe Depression and COVID-19: Communities in Need Across the US,* is the second in our series and explores the data from individuals scoring at risk for severe depression. Depression is a risk factor for suicide, but suicidal ideation and severe depression are distinct mental health challenges, and they can each be experienced independently. While there is overlap between the communities in greatest need of resources to address severe depression and suicidal ideation, there are also key differences, which are presented throughout this brief.

State-Level Severe Depression Risk

- The three states with the highest number of people scoring with symptoms of severe depression on the PHQ-9 depression screen in 2020 were **California** (N=12,395 individuals scoring with severe depression), **Texas** (N=8,779), and **Florida** (N=5,769).
- **West Virginia** had the highest percentage of individuals score with symptoms of severe depression of those who took a depression screen (38%, N=618), followed by **Arkansas** (37%, N=985), **Nevada** (36%, N=1,126), **Kentucky** (36%, N=1,446), and **Oklahoma** (36%, N=1,206).
- **Alaska** had the highest proportion of individuals score at risk for severe depression compared to the overall state population (0.078%, N=567), followed by **Indiana** (0.041%, N=2,763), **Alabama** (0.041%, N=2,002), **Wyoming** (0.040%, N=231), and **Arizona** (0.038%, N=2,790).
- When weighted to match state demographics for gender and age, **Alaska** still had the highest percentage of the population screening with symptoms of severe depression (N=506*, 0.069%), followed by **Wyoming** (N=224*, 0.039%), **Alabama** (N=1,888*, 0.039%), **Indiana** (N=2,569*, 0.038%), and **Utah** (N=1,196*, 0.037%).

County-Level Severe Depression Risk

- The three counties in the United States with the highest number of individuals scoring with symptoms of severe depression on the PHQ-9 in 2020 were **Los Angeles County, California** (N=2,249), **Maricopa County, Arizona** (N=1,294), and **Cook County, Illinois** (N=1,175).
- **Large County Analysis:** **Bexar County, Texas** had the highest percentage of the population scoring with symptoms of severe depression out of the most populous counties (0.0304%, N=610), followed by **Clark County, Nevada** (0.0294%,

N=666), **Maricopa County, Arizona** (0.0288%, N=1,294), **San Bernardino County, California** (0.0280%, N=611), and **Riverside County, California** (0.0266%, N=658).

- **Small and Mid-Size County Analysis:** **Carroll County, Kentucky** had the highest percentage of the population score with symptoms of severe depression (0.0753%, N=8), followed by **Baraga County, Michigan** (0.0731%, N=6), **Unicoi County, Tennessee** (0.0727%, N=13), **Dearborn County, Indiana** (0.0687%, N=34), and **Richland County, Montana** (0.0648%, N=7).

Opportunities for Policy, Programs, and Research

This data will help communities implement the following federal, state, and local strategies to better support individuals at risk for severe depression:

- Identify where individuals are currently in need of mental health supports and target interventions within communities;
- Coordinate data and generate a better understanding of mental health needs;
- Identify and provide support to programs and resources that already exist in communities;
- Generate new resources to address unmet need;
- Create systemic policy change to prevent future mental health concerns; and
- Move beyond an issues-based approach to create an environment that promotes mental wellness at the population level.

Severe Depression and COVID-19: Communities in Need Across the U.S

COVID-19 has had a profound negative effect on the mental health of the nation. Throughout the COVID-19 pandemic, Mental Health America (MHA) has witnessed an increasing number[1] of people experiencing anxiety, depression, psychosis, loneliness, and other mental health concerns. As the nation strives to mitigate the public health crisis introduced by COVID-19, we have a critical responsibility to ensure a fast and coordinated response to address these mental health concerns, so we are not left with a mental health crisis long after the virus itself is under control.

Since 2014, Mental Health America has provided online mental health screening to roughly 1 million users a year. In 2020, that number expanded to over 2.6 million users. Prior to this series of briefs, MHA has published multiple reports and research studies[2] using the data collected from the MHA Screening Program[3] but had never released this data at a county level. County-level data are difficult to find, leaving public administrators like county board members, local health officials, and school administrators with little insight into their communities' specific problems and how best to invest in services like mental health care.

In 2021, MHA plans to release four briefs publishing data from MHA Screening at a state and county level. MHA's first brief covered rates of suicidal ideation across the US in 2020. This brief is the second in our series and summarizes depression data MHA has collected from over 725,000 individuals in the United States. The third and fourth brief, to be published in fall and winter of 2021 will cover psychosis and trauma. The research, policy, and program opportunities outlined in this brief were developed from a meeting with key stakeholders, including federal partners, researchers, providers and industry partners, mental health advocacy organizations, and school advocates.

Suicidal ideation and severe depression are associated but distinct mental health challenges. People living with major depression are at greater risk of suicide, and that risk increases with the severity of depression. However, not everyone who experiences severe depression will experience suicidal ideation. Of individuals who die by suicide, it is estimated that 60% have had a mood disorder, including major depression.[4] While there is some overlap between the communities in greatest need of resources to address severe depression and suicidal ideation, there are also key differences, which are presented throughout this brief.

At the end of 2021, MHA anticipates the release of a publicly available dashboard where individuals can obtain information about the counts and rates of suicide, severe depression, psychosis, and trauma in their counties. For those interested in exploring these data in detail, MHA will release a process where administrators and researchers can request access to the fuller dataset to identify and collaborate with MHA on future research, policy, and program opportunities.

The severe depression data presented throughout this report represents the minimum number of individuals who are struggling with severe depression for the first time. Before initiating care at a primary care visit or with a mental health professional, individuals are likely to turn to the internet to seek information and solutions about their concerns. Reaching people during this time provides insight into the kinds of challenges people face and the opportunities that exist to help people at the earliest stages of awareness.

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[1] https://mhanational.org/mental-health-and-covid-19-what-mha-screening-data-tells-us-about-impact-pandemic
[2] https://mhanational.org/about-mha-screening#ScreeningReportsandResearch
[3] http://www.mhascreening.org/
[4] https://www.hhs.gov/answers/mental-health-and-substance-abuse/does-depression-increase-risk-of-suicide/index.html

MHA Screening

In 2014, Mental Health America (MHA) created the Online Screening Program (www.mhascreening.org), a collection of 10 free, anonymous, confidential, and clinically validated screens that are among the most commonly used mental health screening tools in clinical settings. These include the Patient Health Questionnaire 9-item tool (PHQ-9) to screen for depression.[5]

The PHQ-9 depression screening tool consists of nine scored items to assess risk for depression. For each item, respondents are asked, "Over the last two weeks, how often have you been bothered by any of the following problems?" The nine items include: little interest or pleasure in doing things; feeling down, depressed, or hopeless; feeling tired or having little energy; feeling bad about yourself - or that you are a failure or have let yourself or your family down; trouble concentrating on things; and thoughts that you would be better off dead, or of hurting yourself; among others. Respondents can select one of four options: not at all, several days, more than half the days, or nearly every day. The 10th question of the screening tool is not included in scoring but asks, "If you checked off any problems, how difficult have these problems made it for you at work, home, or with other people?" For that question, individuals can select: not difficult at all, somewhat difficult, very difficult, or extremely difficult.
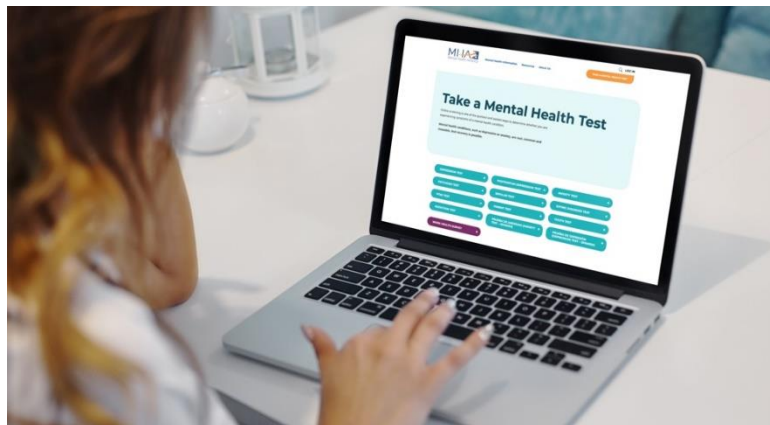
From January to December 2020, 944,108 individuals took the PHQ-9 depression screen to check on their mental health, which was 185% higher than the total number of depression screens taken in 2019 (N=331,089). On average, 2,586 people took a depression screen per day in 2020. The data from these screens comprise the largest dataset collected from a help-seeking population experiencing mental health conditions during COVID-19. The screening results also constitute one of the largest datasets collecting and distributing national mental health information in real-time, allowing us to recognize and react to changes in the mental health of the nation as they occur.

The following analysis of 725,949 people represents a subset of our data pulled from individuals who found MHA Screening organically. In 2020, the MHA Depression screen was one of the top results on Google for the search term "depression test." Severe depression is defined as any result where an individual reports experiencing symptoms of depression more than half the days to nearly every day for a period of two weeks and thus scored between 20-27 points on the Patient Health Questionnaire-9. People who score moderately severe are still significantly impacted, but for the purposes of this study, the report focuses only on the 233,397 users with severe depression and highest need for imminent support.

The MHA Screening dataset collects information from a help-seeking population, meaning individuals access the mental health screening tools while searching for mental health resources and support online. As a result, users are more likely to screen at-risk or with moderate-to-severe symptoms of mental health conditions than the general population. Thus, the population represented within this dataset differs from other national mental health datasets collected by federal agencies such as the Centers for Disease Control (CDC) and the U.S. Census Bureau Household Pulse Survey, both of which survey a sample of the general U.S. population. This convenience sample allows MHA to understand the experiences of the nearly 1 million individuals with the highest need who were actively seeking help for depression in 2020, and therefore can be interpreted as a minimum unmet need for immediate resources and support across the United States.

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[5] Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9. *Journal of general internal medicine*, 16(9), 606-613. http://onlinelibrary.wiley.com/doi/10.1046/j.1525-1497.2001.016009606.x/pdf

MHA Screening also captures information about an individual's mental health needs earlier than other datasets. When people first begin experiencing symptoms of a mental health condition, they often look for answers and resources online, long before speaking to a provider. The data from MHA Screening often capture the mental health needs of people who have not received any prior mental health support. As such, the data can be an indicator of imminent mental health need, which allows for it to be used for earlier intervention and detection of mental health concerns before they become crises.

The following analysis is of the data collected from individuals who took the PHQ-9 depression screen in the United States in 2020. For detailed information on data cleaning and methodology, see the Appendix.

725,949 Organic Users in 2020

Demographics of Depression Screening Population

Severe Depression

Of the 725,949 individuals who took a depression screen in 2020, 32% (N=233,397) scored with symptoms of severe depression.

Depression Screen Result	Count	Percentage
Minimal Depression	20,892	2.88%
Mild Depression	82,305	11.34%
Moderate Depression	167,545	23.08%
Moderately Severe Depression	221,810	30.55%
Severe Depression	233,397	32.15%
Grand Total	725,949	100.00%

The 10th question in the PHQ-9 asks, "If you checked off any problems, how difficult have these problems made it for you at work, home, or with other people?" Seventy-six percent (N=176,818) of individuals who scored for severe depression reported that it was either very difficult or extremely difficult. Thirty-nine percent (N=92,044) indicated that their symptoms made their experiences at work, at home, or with others extremely difficult.

If you checked off any problems, how difficult have these problems made it for you at work, home, or with other people?	Minimal Depression	Mild Depression	Moderate Depression	Moderately Severe Depression	Severe Depression
Not difficult at all	58.77% (N=12,278)	20.96% (N=17,253)	8.83% (N=14,795)	4.23% (N=9,379)	1.81% (N=4,227)
Somewhat difficult	38.90% (N=8,128)	67.22% (N=55,328)	63.91% (N=107,070)	46.97% (N=104,193)	22.43% (N=52,352)
Very difficult	1.93% (N=404)	10.08% (N=8,295)	22.91% (N=38,391)	36.70% (N=81,414)	39.44% (N=92,044)
Extremely difficult	0.39% (N=82)	1.74% (N=1,429)	4.35% (N=7,289)	12.09% (N=26,824)	36.32% (N=84,774)
Grand Total	N=20,892	N=82,305	N=167,545	N=221,810	N=233,397

Gender

Seventy-one percent (N=417,620) of respondents identified as female, 27% identified as male, and 2% identified as another gender. Among the entire sample, 3% (N=19,097) identified as transgender.

Gender	Count	Percentage
Male	162,348	27.44%
Female	417,620	70.58%
Another gender	11,704	1.98%
Grand Total	591,672	100.00%

Respondents who identified as another gender were most likely to score with symptoms of severe depression on the depression screen.

Depression by Gender

Depression Screen Result by Gender	Female Count	Female Percentage	Male Count	Male Percentage	Another Gender Count	Another Gender Percentage
Minimal Depression	8,665	2.07%	6,851	4.22%	86	0.73%
Mild Depression	39,591	9.48%	22,673	13.97%	465	3.97%
Moderate Depression	91,272	21.86%	40,191	24.76%	1,541	13.17%
Moderately Severe Depression	132,086	31.63%	47,447	29.23%	3,418	29.20%
Severe Depression	146,006	34.96%	45,186	27.83%	6,194	52.92%
Grand Total	417,620	100.00%	162,348	100.00%	11,704	100.00%

Race/Ethnicity

Individuals who took a depression screen in 2020 were more diverse than the general U.S. population. Fifty percent (N=274,909) of respondents identified as white. Consistent with early findings of increased mental health concerns among Asian individuals in 2020,[6] 19% of individuals who took a depression screen in 2020 identified as Asian or Pacific Islander, significantly higher than the proportion of the general U.S. population that identifies as Asian or Pacific Islander (6%).[7] Twelve percent of respondents identified as Hispanic or Latino, 8% were Black or African American, and 6% identified their race/ethnicity as "Other."

Race/Ethnicity	Count	Percentage
Asian or Pacific Islander	102,891	18.56%
Black or African American (non-Hispanic)	46,336	8.36%
Hispanic or Latino	67,791	12.23%
More than one of the above	25,388	4.58%
Native American or American Indian	6,266	1.13%
Other	30,795	5.55%
White (non-Hispanic)	274,909	49.59%
Grand Total	554,376	100.00%

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[6] Abrams, Z. (April 2021). The mental health impact of anti-Asian racism. *Monitor on Psychology, 52*(5). https://www.apa.org/monitor/2021/07/impact-anti-asian-racism
[7] U.S. Census Bureau (2019). Population Estimates 2019. *U.S. Census Bureau QuickFacts*, https://www.census.gov/quickfacts/fact/table/US/PST045219

Depression by Race/Ethnicity

Individuals who identified as Native American or American Indian were most likely to score for severe depression (41%, N=2,580), followed by individuals who identified their race as "Other" (38%, N=11,654) and who identified as more than one race (38%, N=9,546).

Depression Screen Result by Race/Ethnicity	Count Scoring with Severe Depression	Percentage Scoring with Severe Depression
Asian or Pacific Islander	33,789	32.84%
Black or African American (non-Hispanic)	14,920	32.20%
Hispanic or Latino	22,953	33.86%
More than one of the above	9,546	37.60%
Native American or American Indian	2,580	41.17%
Other	11,654	37.84%
White (non-Hispanic)	90,382	32.88%
Grand Total	185,824	

Age

Most individuals who took a depression screen in 2020 were youth ages 11-17 (41%, N=246,725), followed by young adults ages 18-24 (33%, N=193,914), and 25-34 (15%, N=91,714).

Age	Count	Percentage
"11-17"	246,725	41.39%
"18-24"	193,914	32.53%
"25-34"	91,714	15.38%
"35-44"	34,763	5.83%
"45-54"	16,270	2.73%
"55-64"	9,020	1.51%
"65+"	3,727	0.63%
Grand Total	596,133	100.00%

Youth ages 11-17 were also more likely than any other age group to score with symptoms of severe depression on the PHQ-9 (39.49%, N=97,432).

Depression Screen Result by Age	11-17	18-24	25-34	35-44	45-54	55-64	65+
Minimal Depression	1.53% (N=3,782)	2.19% (N=4,247)	3.70% (N=3,394)	5.30% (N=1,841)	7.22% (N=1,175)	10.08% (N=909)	12.77% (N=476)
Mild Depression	7.27% (N=17,932)	10.10% (N=19,584)	15.30% (N=14,035)	18.34% (N=6,376)	18.03% (N=2,934)	18.98% (N=1,712)	22.32% (N=832)
Moderate Depression	19.77% (N=48,786)	23.25% (N=45,088)	26.29% (N=24,111)	25.98% (N=9,033)	24.91% (N=4,053)	23.65% (N=2,133)	24.74% (N=922)
Moderately Severe Depression	31.94% (N=78,793)	31.92% (N=61,889)	29.18% (N=26,765)	27.00% (N=9,386)	25.35% (N=4,125)	24.79% (N=2,236)	23.69% (N=883)
Severe Depression	39.49% (N=97,432)	32.54% (N=63,106)	25.52% (N=23,409)	23.38% (N=8,127)	24.48% (N=3,983)	22.51% (N=2,030)	16.47% (N=614)
Grand Total	100.00% (N=246,725)	100.00% (N=193,914)	100.00% (N=91,714)	100.00% (N=34,763)	100.00% (N=16,270)	100.00% (N=9,020)	100.00% (N=3,727)

Household Income

Fifty percent (N=180,821) of respondents to the depression screen reported a household income under $40,000.

Household Income	Count	Percentage
Less than $20,000	107,745	29.53%
$20,000 - $39,999	73,076	20.03%
$40,000 - $59,999	52,571	14.41%
$60,000 - $79,999	39,171	10.74%
$80,000 - $99,999	27,714	7.60%
$100,000 - $149,999	34,891	9.56%
$150,000+	29,655	8.13%
Grand Total	364,823	100.00%

Individuals who reported lower household incomes were more likely to screen with severe depression than those who reported higher household incomes. Among individuals who reported a household income of less than $20,000, 38% (N=41,438) screened for severe depression.

Household Income	Count Scoring with Severe Depression	Percentage Scoring with Severe Depression
Less than $20,000	41,438	38.46%
$20,000 - $39,999	24,771	33.90%
$40,000 - $59,999	16,162	30.74%
$60,000 - $79,999	11,240	28.69%
$80,000 - $99,999	7,518	27.13%
$100,000 - $149,999	8,974	25.72%
$150,000+	7,284	24.56%
Grand Total	117,387	

Mental Health Care

Finally, most individuals who took a depression screen in 2020 and scored for severe depression had never received any prior mental health care. Of those who scored with symptoms of severe depression, 70% (N=135,194) had never been diagnosed with a mental health condition before, and 67% (N=135,817) had never received any kind of treatment or supports for their mental health.

Among screeners with severe depression: Are you currently, or have you ever been, diagnosed with a mental health condition by a professional?	Count	Percentage
No	135,194	69.89%
Yes	58,238	30.11%
Grand Total	193,432	100.00%

Among screeners with severe depression: Have you ever received treatment/support for a mental health problem?	Count	Percentage
No	135,817	67.14%
Yes	66,467	32.86%
Grand Total	202,284	100.00%

State – Level Severe Depression Risk

The three states with the highest number of people scoring with symptoms of severe depression on the PHQ-9 depression screen in 2020 were California (N=12,395), Texas (N=8,779), and Florida (N=5,769). Each of the below state counts represents the number of individuals in each state who took the PHQ-9 depression screen and scored with symptoms of severe depression through the MHA Online Screening Program in 2020. These findings indicate the number of individuals who need support for severe depression at this point in time. **Nearly 8% of the U.S. adult population and 15% of youth ages 12-17 experienced an episode of major depression in the past year.**[8] Severe depression is defined as any result where an individual reports experiencing symptoms of depression more than half the days to nearly every day for a period of two weeks and thus scored between 20-27 points on the Patient Health Questionnaire-9. People who score moderately severe are still significantly impacted, but for the purposes of this study, the report focuses only on the 233,397 users with severe depression and highest need for imminent support.

The percentage of individuals with severe depression is calculated as the percentage of individuals with a score indicating severe depression of those who took a PHQ-9 depression screen in 2020. The percent of state population is the percentage of the overall state population that took a depression screen on MHA Screening in 2020 and scored with severe depression. West Virginia had the highest percentage of individuals score with symptoms of severe depression of those who took a depression screen (38%, N=618), followed by Arkansas (37%, N=985), Nevada (36%, N=1,126), Kentucky (36%, N=1,446) and Oklahoma (36%, N=1,206). Alaska had the highest percentage of individuals score at-risk for severe depression in comparison to the overall state population (0.078%, N=567), followed by Indiana (0.041%, N=2,763), Alabama (0.041%, N=2,002), Wyoming (0.040%, N=231), and Arizona (0.038%, N=2,790).

Severe Depression by State in Alphabetical Order

State	Count of Severe Depression	Count of Minimal to Moderately Severe Depression	Total Count PHQ-9 Screens	Percentage of Severe Depression	State Population Count	Percent of State Population Scoring with Severe Depression
Alabama	2,002	4,101	6,103	32.80%	4,903,185	0.041%
Alaska	567	1,214	1,781	31.84%	731,545	0.078%
Arizona	2,790	5,505	8,295	33.63%	7,278,717	0.038%
Arkansas	985	1,713	2,698	36.51%	3,017,804	0.033%
California	12,395	27,790	40,185	30.84%	39,512,223	0.031%
Colorado	1,963	4,211	6,174	31.79%	5,758,736	0.034%
Connecticut	982	2,315	3,297	29.78%	3,565,287	0.028%
Delaware	291	717	1,008	28.87%	973,764	0.030%
District of Columbia	183	649	832	22.00%	705,749	0.026%
Florida	5,769	11,701	17,470	33.02%	21,477,737	0.027%
Georgia	3,362	6,649	10,011	33.58%	10,617,423	0.032%
Hawaii	496	1032	1,528	32.46%	1,415,872	0.035%

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[8] U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (2019). *National Survey on Drug Use and Health, 2018-2019.* https://www.samhsa.gov/data/sites/default/files/reports/rpt29394/NSDUHDetailedTabs2019/NSDUHDetailedTabsTOC2019.htm

State	Count of Severe Depression	Count of Minimal to Moderately Severe Depression	Total Count PHQ-9 Screens	Percentage of Severe Depression	State Population Count	Percent of State Population Scoring with Severe Depression
Idaho	580	1,097	1,677	34.59%	1,787,065	0.032%
Illinois	3,822	7,998	11,820	32.34%	12,671,821	0.030%
Indiana	2,763	5,146	7,909	34.93%	6,732,219	0.041%
Iowa	1,006	1,907	2,913	34.53%	3,155,070	0.032%
Kansas	859	1,768	2,627	32.70%	2,913,314	0.029%
Kentucky	1,446	2,570	4,016	36.01%	4,467,673	0.032%
Louisiana	971	1,980	2,951	32.90%	4,648,794	0.021%
Maine	400	875	1,275	31.37%	1,344,212	0.030%
Maryland	1,779	4,071	5,850	30.41%	6,045,680	0.029%
Massachusetts	1,832	4,760	6,592	27.79%	6,892,503	0.027%
Michigan	3,070	6,200	9,270	33.12%	9,986,857	0.031%
Minnesota	1,700	4,006	5,706	29.79%	5,639,632	0.030%
Mississippi	690	1,230	1,920	35.94%	2,976,149	0.023%
Missouri	1,765	3,570	5,335	33.08%	6,137,428	0.029%
Montana	355	649	1,004	35.36%	1,068,778	0.033%
Nebraska	561	1,288	1,849	30.34%	1,934,408	0.029%
Nevada	1,126	1,964	3,090	36.44%	3,080,156	0.037%
New Hampshire	431	873	1,304	33.05%	1,359,711	0.032%
New Jersey	2,437	5,744	8,181	29.79%	8,882,190	0.027%
New Mexico	607	1,140	1,747	34.75%	2,096,829	0.029%
New York	5,212	12,053	17,265	30.19%	19,453,561	0.027%
North Carolina	2,831	5,847	8,678	32.62%	10,488,084	0.027%
North Dakota	247	490	737	33.51%	762,062	0.032%
Ohio	3,658	7,019	10,677	34.26%	11,689,100	0.031%
Oklahoma	1,206	2,146	3,352	35.98%	3,956,971	0.030%
Oregon	1,349	2,678	4,027	33.50%	4,217,737	0.032%
Pennsylvania	3,572	7,762	11,334	31.52%	12,801,989	0.028%
Rhode Island	274	605	879	31.17%	1,059,361	0.026%
South Carolina	1,413	2,632	4,045	34.93%	5,148,714	0.027%
South Dakota	245	500	745	32.89%	884,659	0.028%
Tennessee	2,183	4,292	6,475	33.71%	6,829,174	0.032%
Texas	8,779	17,227	26,006	33.76%	28,995,881	0.030%
Utah	1,213	2,910	4,123	29.42%	3,205,958	0.038%
Vermont	179	401	580	30.86%	623,989	0.029%
Virginia	2,722	5,669	8,391	32.44%	8,535,519	0.032%
Washington	2,662	5,486	8,148	32.67%	7,614,893	0.035%
West Virginia	618	997	1,615	38.27%	1,792,147	0.034%
Wisconsin	1,803	3,643	5,446	33.11%	5,822,434	0.031%
Wyoming	231	559	790	29.24%	578,759	0.040%

Top 10 States with Severe Depression and Suicidal Ideation

Comparing across [MHA's 2020 analysis of suicidality](), Alaska also had the highest percentage of individuals reporting frequent thoughts of suicide or self-harm in comparison to the overall state population (0.091%, N=666).[9] Many of the states with the highest percentage of individuals scoring at risk for severe depression were the same as those identified with the highest percentage of individuals reporting frequent suicidal ideation, except for Washington (0.035%, N=2,662) and West Virginia (0.034%, N=618). Colorado (0.0392%, N=2,256) and Montana (0.0379%, N=405) were among the states with the highest percentage of individuals reporting suicidal ideation but were not within the top 10 for severe depression.

Rank	State	Count of Severe Depression	Percent of State Population with Severe Depression	State	Count of Frequent Suicidal Ideation	Percent of State Population with Frequent Suicidal Ideation
1	Alaska	567	0.078%	Alaska	666	0.0910%
2	Indiana	2,763	0.041%	Alabama	2,205	0.0450%
3	Alabama	2,002	0.041%	Wyoming	258	0.0446%
4	Wyoming	231	0.040%	Indiana	2,976	0.0442%
5	Arizona	2,790	0.038%	Hawaii	622	0.0439%
6	Utah	1,213	0.038%	Arizona	3,037	0.0417%
7	Nevada	1,126	0.037%	Utah	1,296	0.0404%
8	Hawaii	496	0.035%	Nevada	1,227	0.0398%
9	Washington	2,662	0.035%	Colorado	2,256	0.0392%
10	West Virginia	618	0.034%	Montana	405	0.0379%

Severe Depression by State Weighted by Age and Gender in Ranked Order

MHA Screening population is more likely to be young (ages 11-17) and to identify as female than the general population. Post-stratification weights were calculated and applied to the dataset for both gender and age to normalize the data to match the demographics of each state population.[10]

The below tables on the next two pages show the states ranked by the percentage of the state population screening with symptoms of severe depression through the MHA Screening Program. Alaska had the highest percentage of the population screening with symptoms of severe depression (N=506*, 0.069%), followed by Wyoming (N=224*, 0.039%), Alabama (N=1,888*, 0.039%), Indiana (N=2,569*, 0.038%), and Utah (N=1,196*, 0.037%).

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[9] https://mhanational.org/sites/default/files/Suicide%20and%20COVID-19%20Report.pdf
[10] U.S. Census Bureau (2019). Population Estimates 2019. *U.S. Census Bureau QuickFacts,* https://www.census.gov/quickfacts/fact/table/US/PST045219
*Weights were determined for both gender and age using 2019 state population demographic data from the U.S. Census. One of the limitations of the U.S. Census demographic dataset is that it only provides "Male" and "Female" as options for individuals to identify their gender. Therefore, applying weights based on that data undercounts the percentage of the Screening population who identify with another gender. All individuals who identified as another gender in the MHA Screening data were assigned a weight of 1.

Rank	State	Weighted Count* of Severe Depression	Weighted Count* of Minimal to Moderately Severe Depression	Weighted Total* Count PHQ-9 Screens	State Population Count	Weighted Percent of State Population Scoring with Severe Depression
1	Alaska	506.29	1274.71	1781	731,545	0.069%
2	Wyoming	224.34	565.66	790	578,759	0.039%
3	Alabama	1887.76	4215.24	6103	6,732,219	0.039%
4	Indiana	2569.41	5339.59	7909	4,903,185	0.038%
5	Utah	1196.17	2926.83	4123	3,205,958	0.037%
6	Arizona	2587.87	5707.13	8295	1,415,872	0.036%
7	Nevada	1053.15	2036.85	3090	7,278,717	0.034%
8	West Virginia	598.94	1016.06	1615	3,080,156	0.033%
9	Washington	2443.78	5704.22	8148	5,758,736	0.032%
10	Colorado	1833.41	4340.59	6174	1,792,147	0.032%
11	Arkansas	939.20	1758.80	2698	762,062	0.031%
12	Kentucky	1387.67	2628.33	4016	1,068,778	0.031%
13	Tennessee	2119.19	4355.81	6475	7,614,893	0.031%
14	Hawaii	436.84	1091.16	1528	973,764	0.031%
15	Idaho	550.15	1126.85	1677	2,913,314	0.031%
16	Montana	324.03	679.97	1004	3,017,804	0.030%
17	Oregon	1268.27	2758.73	4027	10,617,423	0.030%
18	North Dakota	228.87	508.13	737	1,787,065	0.030%
19	New Hampshire	407.72	896.28	1304	4,467,673	0.030%
20	Georgia	3183.65	6827.35	10011	1,934,408	0.030%
21	Ohio	3502.08	7174.92	10677	11,689,100	0.030%
22	Virginia	2537.77	5853.23	8391	8,535,519	0.030%
23	Oklahoma	1156.43	2195.57	3352	3,155,070	0.029%
24	Iowa	911.42	2001.58	2913	39,512,223	0.029%
25	California	11219.74	28965.26	40185	5,639,632	0.028%
26	Wisconsin	1641.02	3804.98	5446	1,344,212	0.028%
27	Maine	378.52	896.48	1275	6,045,680	0.028%
28	Texas	8152.33	17853.67	26006	6,829,174	0.028%
29	Michigan	2799.29	6470.71	9270	28,995,881	0.028%
30	Illinois	3532.42	8287.58	11820	623,989	0.028%
31	Maryland	1678.23	4171.77	5850	5,822,434	0.028%
32	Minnesota	1553.06	4152.94	5706	4,217,737	0.028%
33	Missouri	1677.06	3657.94	5335	9,986,857	0.027%
34	Kansas	794.42	1832.58	2627	1,359,711	0.027%
35	Delaware	265.46	742.54	1008	2,096,829	0.027%
36	Nebraska	526.90	1322.10	1849	12,671,821	0.027%
37	South Dakota	236.56	508.44	745	3,956,971	0.027%
38	New Mexico	553.10	1193.90	1747	8,882,190	0.026%
39	Vermont	162.25	417.75	580	6,137,428	0.026%
40	South Carolina	1338.61	2706.39	4045	705,749	0.026%
41	Pennsylvania	3279.12	8054.88	11334	12,801,989	0.026%

Rank	State	Weighted Count* of Severe Depression	Weighted Count* of Minimal to Moderately Severe Depression	Weighted Total* Count PHQ-9 Screens	State Population Count	Weighted Percent of State Population Scoring with Severe Depression
42	Connecticut	905.66	2391.34	3297	884,659	0.025%
43	North Carolina	2653.87	6024.13	8678	6,892,503	0.025%
44	New Jersey	2240.62	5940.38	8181	19,453,561	0.025%
45	Florida	5306.12	12163.88	17470	5,148,714	0.025%
46	New York	4776.72	12488.28	17265	3,565,287	0.025%
47	Massachusetts	1684.76	4907.24	6592	10,488,084	0.024%
48	Rhode Island	256.12	622.88	879	1,059,361	0.024%
49	District of Columbia	165.63	666.37	832	21,477,737	0.023%
50	Mississippi	683.58	1236.42	1920	2,976,149	0.023%
51	Louisiana	921.18	2029.82	2951	4,648,794	0.020%

*Weighted counts based on 2019 U.S. Census Gender and Age Demographics for each state.

Top 10 States with Severe Depression and Suicidal Ideation Weighted Tables

Comparing across MHA's 2020 analysis of suicidality, Alaska and Wyoming also had the highest weighted percentages of individuals reporting frequent thoughts of suicide or self-harm in comparison to the overall state population.[11] Nearly all of the states with the highest weighted percentage of individuals scoring at risk for severe depression were the same as those identified with the highest weighted percentage of individuals reporting frequent suicidal ideation, with the exception of Washington (0.032%, N=2,443.78).

Rank	State	Weighted Count* of Severe Depression	Weighted Percent* of State Population with Severe Depression	State	Weighted Count* of Frequent Suicidal Ideation	Weighted Percent* of State Population with Frequent Suicidal Ideation
1	Alaska	506.29	0.069%	Alaska	529.43	0.072%
2	Wyoming	224.34	0.039%	Wyoming	229.50	0.040%
3	Alabama	1887.76	0.039%	Indiana	2640.55	0.039%
4	Indiana	2569.41	0.038%	Alabama	1899.13	0.039%
5	Utah	1196.17	0.037%	Utah	1239.18	0.039%
6	Arizona	2587.87	0.036%	Hawaii	520.76	0.037%
7	Nevada	1053.15	0.034%	Arizona	2636.83	0.036%
8	West Virginia	598.94	0.033%	Nevada	1082.34	0.035%
9	Washington	2443.78	0.032%	Colorado	1990.72	0.035%
10	Colorado	1833.41	0.032%	West Virginia	595.24	0.033%

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[11] https://mhanational.org/sites/default/files/Suicide%20and%20COVID-19%20Report.pdf

County - Level Severe Depression

The three counties in the United States with the highest number of individuals scoring with symptoms of severe depression on the PHQ-9 in 2020 were Los Angeles County, California (N=2,249), Maricopa County, Arizona (N=1,294), and Cook County, Illinois (N=1,175).

Counties were sorted based on the number of individuals scoring with severe depression, and the top 20 counties in the United States were identified. Most of these top 20 counties matched the 20 largest counties in the United States based on population size. New York County, New York, and Sacramento County, California are the only two counties identified that are not part of the 20 most populous counties in the U.S.

Among this list of large counties, we calculated population percentage as the percentage of individuals who scored at-risk for severe depression on MHA Screening in 2020 of the overall county population. Bexar County, Texas had the highest percentage of the population of the most populous counties (0.0304%, N=610), followed by Clark County, Nevada (0.0294%, N=666), Maricopa County, Arizona (0.0288%, N=1,294), San Bernardino County, California (0.0280%, N=611), and Riverside County, California (0.0266%, N=658).

Top 20 Large Counties with Severe Depression

County Name	State Name	Count of Severe Depression	County Population Count	Percent of County Population Scoring for Severe Depression
Bexar	Texas	610	2,003,554	0.0304%
Clark	Nevada	666	2,266,715	0.0294%
Maricopa	Arizona	1294	4,485,414	0.0288%
San Bernardino	California	611	2,180,085	0.0280%
Riverside	California	658	2,470,546	0.0266%
New York	New York	429	1,628,706	0.0263%
Tarrant	Texas	549	2,102,515	0.0261%
Sacramento	California	402	1,552,058	0.0259%
King	Washington	558	2,252,782	0.0248%
Dallas	Texas	631	2,635,516	0.0239%
Harris	Texas	1126	4,713,325	0.0239%
Wayne	Michigan	416	1,749,343	0.0238%
Cook	Illinois	1,175	5,150,233	0.0228%
Los Angeles	California	2,249	10,039,107	0.0224%
Orange	California	699	3,175,692	0.0220%
San Diego	California	726	3,338,330	0.0217%
Queens	New York	479	2,253,858	0.0213%
Kings	New York	510	2,559,903	0.0199%
Santa Clara	California	371	1,927,852	0.0192%
Miami-Dade	Florida	446	2,716,940	0.0164%

Top 10 Large Counties with Severe Depression and Suicidal Ideation

Comparing across [MHA's 2020 analysis of suicidality](#), Bexar County, Texas also had the highest percentage of the population report frequent thoughts of suicide or self-harm of the most populous counties (0.0309%, N=619), followed by Clark County, Nevada (0.0306%, N=694).[12] Similar to the state findings above, many of the most populous counties with the highest percentage of the county population scoring with severe depression were the same as those with the highest percentage reporting frequent thoughts of suicide or self-harm.

Rank	County Name, State Name	Count of Severe Depression	Percent of County Population with Severe Depression	County Name, State Name	Count of Frequent Suicidal Ideation	Percent of County Population with Frequent Suicidal Ideation
1	Bexar County, Texas	610	0.0304%	Bexar County, Texas	619	0.0309%
2	Clark County, Nevada	666	0.0294%	Clark County, Nevada	694	0.0306%
3	Maricopa County, Arizona	1,294	0.0288%	Riverside County, California	710	0.0287%
4	San Bernardino County, California	611	0.0280%	Maricopa County, Arizona	1,289	0.0287%
5	Riverside County, California	658	0.0266%	San Bernardino County, California	608	0.0279%
6	New York County, New York	429	0.0263%	Dallas County, Texas	716	0.0272%
7	Tarrant County, Texas	549	0.0261%	Sacramento County, California	415	0.0267%
8	Sacramento County, California	402	0.0259%	New York County, New York	434	0.0266%
9	King County, Washington	558	0.0248%	King County, Washington	594	0.0264%
10	Dallas County, Texas	631	0.0239%	Wayne County, Michigan	460	0.0263%

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[12] https://mhanational.org/sites/default/files/Suicide%20and%20COVID-19%20Report.pdf

Top 20 Small and Mid-Size Counties with Severe Depression

In addition to evaluating rates of severe depression among more populous counties in the U.S., MHA identified areas with the highest need for depression and crisis care within small and mid-sized counties. The 20 counties with the highest percentages of their populations scoring with symptoms of severe depression on the PHQ-9 through MHA Screening in 2020 are identified below. To ensure that the analyses were not biased toward the smallest counties, we excluded all counties with a sample of individuals scoring for severe depression lower than the median.[*]

Carroll County, Kentucky had the highest percentage of the population score with symptoms of severe depression (0.0753%, N=8), followed by Baraga County, Michigan (0.0731%, N=6), Unicoi County, Tennessee (0.0727%, N=13), Dearborn County, Indiana (0.0687%, N=34), and Richland County, Montana (0.0648%, N=7).

County Name	State Name	Count of Severe Depression	Count of Minimal to Moderately Severe Depression	Total Count PHQ-9 Screens	Percentage of Severe Depression	County Population Count	Percent of County Population Scoring for Severe Depression
Carroll	Kentucky	8	10	18	44.44%	10,631	0.0753%
Baraga	Michigan	6	2	8	75.00%	8,209	0.0731%
Unicoi	Tennessee	13	17	30	43.33%	17,883	0.0727%
Dearborn	Indiana	34	51	85	40.00%	49,458	0.0687%
Richland	Montana	7	3	10	70.00%	10,803	0.0648%
Ripley	Indiana	18	31	49	36.73%	28,324	0.0636%
Sullivan	Tennessee	99	125	224	44.20%	158,348	0.0625%
Poquoson City*	Virginia	7	10	17	41.18%	12,066	0.0580%
Whitley	Kentucky	21	28	49	42.86%	36,264	0.0579%
Pulaski	Indiana	7	6	13	53.85%	12,353	0.0567%
Pennington	Minnesota	8	3	11	72.73%	14,119	0.0567%
Martin	Kentucky	6	3	9	66.67%	11,195	0.0536%
Isabella	Michigan	37	50	87	42.53%	69,872	0.0530%
Big Horn	Wyoming	6	6	12	50.00%	11,790	0.0509%
Wise	Virginia	19	20	39	48.72%	37,383	0.0508%
Dawson	Georgia	15	16	31	48.39%	29,530	0.0508%
Washington	Tennessee	65	111	176	36.93%	129,375	0.0502%
Lee	Georgia	15	10	25	60.00%	29,992	0.0500%
Tazewell	Virginia	20	14	34	58.82%	40,595	0.0493%
Decatur	Georgia	13	9	22	59.09%	26,404	0.0492%

*Poquoson City, Virginia is included in county-level analyses because it is an independent city.

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[*] The median count of individuals scoring with severe depression at the county level was 6.

Top 20 Small and Mid-Size Counties with Severe Depression and Suicidal Ideation

Comparing across [MHA's 2020 analysis of suicidality](#), Carroll County, Kentucky also had the highest percentage of the population report frequent thoughts of suicide or self-harm of the small and mid-size counties (0.0659%, N=7).[13] Dearborn County, Indiana; Ripley County, Indiana; Whitley County, Kentucky; Pennington County, Minnesota; Big Horn County, Wyoming; Lee County, Georgia; and Tazewell County, Virginia were all within the top 20 counties with the highest percentages of the county population reporting frequent thoughts of suicide or self-harm and scoring with symptoms of severe depression.

Rank	County Name, State Name	Count of Severe Depression	Percent of County Population with Severe Depression	County Name, State Name	Count of Frequent Suicidal Ideation	Percent of County Population with Frequent Suicidal Ideation
1	Carroll County, Kentucky	8	0.0753%	Carroll County, Kentucky	7	0.0659%
2	Baraga County, Michigan	6	0.0731%	Switzerland County, Indiana	7	0.0651%
3	Unicoi County, Tennessee	13	0.0727%	Whitley County, Kentucky	23	0.0634%
4	Dearborn County, Indiana	34	0.0687%	Greensville County, Virginia	7	0.0618%
5	Richland County, Montana	7	0.0648%	Ripley County, Indiana	17	0.0600%
6	Ripley County, Indiana	18	0.0636%	Big Horn County, Wyoming	7	0.0594%
7	Sullivan County, Tennessee	99	0.0625%	Ashland County, Wisconsin	9	0.0578%
8	Poquoson City*, Virginia	7	0.0580%	Klickitat County, Washington	12	0.0535%
9	Whitley County, Kentucky	21	0.0579%	Lee County, Georgia	16	0.0534%
10	Pulaski County, Indiana	7	0.0567%	Anderson County, Kentucky	12	0.0528%
11	Pennington County, Minnesota	8	0.0567%	Moffat County, Colorado	7	0.0527%
12	Martin County, Kentucky	6	0.0536%	Dearborn County, Indiana	26	0.0526%
13	Isabella County, Michigan	37	0.0530%	Hughes County, South Dakota	9	0.0514%
14	Big Horn County, Wyoming	6	0.0509%	City of Colonial Heights*, Virginia	13	0.0508%
15	Wise County, Virginia	19	0.0508%	Haralson County, Georgia	15	0.0504%
16	Dawson County, Georgia	15	0.0508%	Pennington County, Minnesota	7	0.0496%
17	Washington County, Tennessee	65	0.0502%	Oglala Lakota, South Dakota	7	0.0494%
18	Lee County, Georgia	15	0.0500%	Jackson County, Illinois	28	0.0493%
19	Tazewell County, Virginia	20	0.0493%	Tazewell County, Virginia	20	0.0493%
20	Decatur County, Georgia	13	0.0492%	Saline County, Nebraska	7	0.0492%

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[13] https://mhanational.org/sites/default/files/Suicide%20and%20COVID-19%20Report.pdf

The Cost of Depression

The severe depression data from MHA Screening represents the minimum number of individuals who are struggling with severe depression for the first time. Individuals who are screening with severe depression who go untreated are likely to face challenges in life, including lost time at work, reduced attendance at school, difficulty with relationships, higher risk for suicide attempts, and long-term poor health care outcomes. Furthermore, severe depression can cause people to lose pleasure in daily life while also complicating other medical conditions. Depression can occur for anyone, regardless of age, race, ethnicity, gender, and sexuality.

COVID-19 has had a profound negative effect on the mental health of the nation. Throughout the COVID-19 pandemic, MHA has witnessed an increasing number of people experiencing anxiety, depression, psychosis, loneliness, and other mental health concerns.[14] The percentage of people screening at-risk for moderate-to-severe depression was highest during the last quarter of 2020. November and December 2020 were the two months with the highest percentages of people with moderate-to-severe depression during the 24-month period from January 2019 through December 2020. In November 2020, 87% (N=127,191) of depression screeners scored for moderate-to-severe depression, and 35% (N=50,495) scored for severe depression. In December, 86% (N=89,419) of people who took a depression screen scored for moderate-to-severe depression, and 35% (N=35,755) scored for severe depression.

Depression is one of America's most costly illnesses. If left untreated, depression is as costly as heart disease or AIDS to the U.S. economy, costing $210.5 billion in the United States, including $102 billion in workplace costs such as absenteeism and lost productivity, and $98.9 billion in direct treatment costs.[15] It is important to note that depression tends to impact people in their prime working years and has the potential to last a lifetime if ignored and left untreated. More than 80% of people with clinical depression can be successfully treated with intervention, support, and early recognition.[16] With support, people can learn about their depression, identify which treatment options work best for them, and reduce the negative impact depression can have on their lives.

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[14] https://mhanational.org/mental-health-and-covid-19-what-mha-screening-data-tells-us-about-impact-pandemic
[15] Greenberg PE, Fournier A, Sisitsky T, Pike CT, Kessler RC. The economic burden of adults with major depressive disorder in the United States (2005 and 2010). Journal of Clinical Psychiatry. February 2015; 76(2):155-162.
[16] https://www.mhanational.org/depression-older-adults-more-facts

Opportunities for Policy, Programs and Research

Releasing this report and the publicly available dashboard (at the end of 2021) will help communities attend to mental health as a regular and important part of a state or local public health strategy.

The research, policy, and program opportunities outlined in this brief were developed from a meeting with key stakeholders, including federal partners, researchers, providers and industry partners, mental health advocacy organizations, and school advocates.

The sections below explore how our data can be used to make the following meaningful and systemic changes for individuals living with depression:

- Identify where individuals are currently in need of mental health supports and target interventions within communities;
- Coordinate data and generate a better understanding of mental health needs;
- Identify and provide support to programs and resources that already exist in communities;
- Generate new resources to address unmet need;
- Create systemic policy change to prevent future mental health concerns; and
- Move beyond an issues-based approach to create an environment that promotes mental wellness at the population level.

Publicly Available Data for Earlier Intervention

Past research on the onset and treatment of major depression reveals that most mental illnesses present much earlier in life, and individuals often experience a long period of untreated mental illness.[17] Most national-level data that are available generally have a two-year delay for release[18] or are only available from health care systems when an individual initiates care. At the county level, many counties lack access to consistently and regularly collected data on the prevalence of mental health conditions. Most counties do not have access to data before individuals enter treatment. This lack of data makes comparison across counties in the country nearly impossible, resulting in a substantial barrier to investing in meaningful prevention and early intervention response.

The data available through MHA Screening provides insight in real-time and covers the periods of life before individuals enter health care systems. Our data offers opportunities to research motivation and engagement challenges for initiating care among subpopulations. Along with the 10 questions collected through the PHQ-9, MHA collects voluntary data from individuals about age, race/ethnicity, gender, household income, state/country, zip code data, treatment history, identification as a special population (student, LGBTQ+, trauma survivor, caregiver, veteran or active-duty military, new or expecting mothers, or health care worker), and comorbid health conditions. Analysis of subpopulation data can support targeted intervention for undertreated communities. Location-based data provides an opportunity to explore needs in local communities as well as to implement and test local-level interventions to reduce the impact of depression. As this data continues to be collected and released, local leaders, policymakers, public health officials, and other stakeholders can have greater real-time information on imminent need within their communities that improves targeted treatment, support, and coordinated efforts across communities with diverse needs. Making the data publicly available allows local health providers and advocates to work with health administrators and government agencies to interpret and inform more effective and targeted interventions, programming, and policy change.

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[17] Insel TR, Fenton WS. Psychiatric epidemiology: it's not just about counting anymore. *Arch Gen Psychiatry*. 2005 Jun;62(6):590-2. doi: 10.1001/archpsyc.62.6.590. PMID: 15939836; PMCID: PMC1586102
[18] Choi, D. Sumner, S.A., Holland K.M. et al. (2020). Development of a machine learning model using multiple, heterogeneous data sources to estimate weekly U.S. suicide fatalities. JAMA Network Open, 3(12): e2030932. doi:10.1001/jamanetworkopen.2020.30932

Understanding Development of Mental Illness Among Youth

Roughly 21% of people struggle with depression in their lifetime.[19] Half of individuals who will have diagnosable mental illness in their lifetime will start experiencing symptoms during puberty, but the time between the onset of depression and other mood disorders and the initiation of adequate treatment is on average 8-10 years.[20] Several factors contribute to the challenges of diagnosing youth. Because brains experience rapid change and growth during puberty, called pruning,[21] young brains experience a collection of symptoms that change rapidly over time, making diagnosis of any mental health condition difficult. It is not uncommon for youth to have changes associated with learning disabilities like ADHD, mood disorders like depression and bipolar disorder, and perceptual changes like those seen in psychosis. The lack of clarity on symptom development and the multiple labels given to youth and families during childhood and adolescence is confusing for youth and families who are seeking support.

Comparing symptoms across multiple mental health screening tools among youth can provide insight into the development of mental illnesses during childhood and adolescence. Evaluating results from individuals who took the PHQ-9 depression screen and one or more other screening tools, such as the youth, psychosis, PTSD, bipolar, or anxiety screen, is essential. This research can help us understand how clusters of symptoms occur across an entire spectrum of experiences, as opposed to within diagnoses. Evaluation of symptom clusters across diagnoses is more in line with the future of brain research like the National Institute of Mental Health's Research Domain Criteria (RDoC). Further, evaluating symptoms across age can help integrate a life span development understanding of mental illnesses among youth.

Understanding the Impact of Community Trauma

When a traumatic event occurs in a community, the mental health consequences are hard to quantify, resulting in challenges in developing appropriate responses for care. Having timely data available can allow local communities the ability to evaluate baseline rates of various mental health conditions before and after traumatic events. The changes in rates of number and severity of various mental health challenges provide insight into the kinds of resources that need to be developed for each community. Looking at geographical areas surrounding communities can allow policymakers, health officials, and community leaders to better evaluate how far the impact of an event affects people's mental health over time.

Coordinated Intervention and Learning

Aligning the MHA Screening dataset with existing national surveys or health care data can also create opportunities for data coordination to generate deeper and more responsive learning and collaboration to respond to severe depression throughout the country. Data from MHA Screening can be included as an additional measure within models using multiple sources to predict true rates of severe depression in the community so that health officials, policymakers, and other stakeholders are able to make decisions to provide comprehensive care, which includes timely responses to risks of suicide in their communities.

Several national surveys, such as SAMHSA's National Survey on Drug Use and Health (NSDUH) and the CDC's Youth Risk Behavior Surveillance System (YRBSS), collect data on rates of depression among different samples. The Healthcare Cost and Utilization Project (HCUP) includes longitudinal hospital care data in the United States. Combining the location-based data from MHA Screening with these other existing national datasets can both deepen understanding of depression risk among different populations, for example, between individuals who are searching for mental health resources and supports online and those who are surveyed through a general population sample, and understanding of how individuals are seeking and utilizing mental health-related treatment. Using this data, researchers can better understand the factors that may lead individuals at highest risk for severe depression and suicide to seek help and how they compare to the general population.

[19] Hasin, D., Sarvet, A., Meyers, J. et al. (2018). Epidemiology of adult DSM-5 major depressive disorder and its specifiers in the United States. *JAMA Psychiatry,* 75(4): 336-346. doi:10.1001/jamapsychiatry.2017.4602
[20] Wang, P. S., Berglund, P., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Failure And Delay In Initial Treatment Contact After First Onset Of Mental Disorders In The National Comorbidity Survey Replication. *Archives Of General Psychiatry,* 62(6), 603-613. DOI: 10.1001/archpsyc.62.6.603
[21] Spear, L.P. (2013). Adolescent Neurodevelopment. *Journal of Adolescent Health,* 52(2 0 2): S7-13. doi: 10.1016/j.jadohealth.2012.05.006

The MHA dataset can also provide information on the gap between individuals seeking information and resources online and the connection to services and supports. MHA Screening data can be combined with datasets from providers like those in the Mental Health Research Network[22] to better understand who is being served, what the gaps are between help-seeking and connection to services, and where we are missing individuals searching for help with initial mental health concerns who may later reach levels of severe depression that need immediate support.

Addressing Unmet Need for Mental Health Supports

Data on communities with higher numbers of individuals at risk of experiencing severe depression can also be used to identify hotspots in the U.S with the greatest unmet need, for example, where mental health infrastructure does not currently exist or is not sufficient. The data presented in this brief represent individuals with the highest need who were actively seeking help for depression in 2020, and therefore indicates the minimum risk at any given time. By combining this data on imminent need with information on the availability of mental health providers within communities, we can identify areas in the country with the greatest need and lowest access to mental health care. For example, this data can be combined with the Substance Use and Mental Health Services Administration (SAMHSA) Treatment Locator or provider data through the Health Resources and Services Administration (HRSA) to uncover areas with the largest gaps in care. Although the presence of mental health providers and facilities are not entirely indicative of access to care, overlaying mental health infrastructure with data on individuals in need can give a baseline view of which areas of the country are in the greatest need of immediate resources and investment. Even where some mental health infrastructure exists, these data can be used to understand where greater investment is needed or where opportunities exist for greater collaboration at the federal, state, and local levels to fill gaps in programming or mental health supports.

Although not presented in this brief, population-level demographic information collected through the MHA Screening Program can also be used to identify disparities in access to mental health care across communities in the U.S., especially among traditionally underserved populations, including LGBTQ+ individuals and Black, Indigenous, and People of Color (BIPOC). In 2019, the Congressional Black Caucus released a report to Congress noting that the suicide death rate for Black youth is rising faster than in any other racial group, and Black adolescents are significantly less likely to receive care for depression. Data on race and ethnicity from MHA Screening can be used to identify areas in the country with greater numbers of Black youth scoring with symptoms of severe depression. This information can then be combined with data on service utilization to both explore systemic barriers to care and direct federal, state, and local investments toward more culturally appropriate, representative, and responsive care and support. Understanding where the greatest needs are in a community, or who is currently being served and who is not, can help community leaders identify where more resources need to be generated or where resources need to be allocated more equitably. It can also help leaders identify informal or previously underfunded providers, organizations, or other assets that already exist in their communities and scale them to serve the need that exists.

Responsibility for Systemic Policy Change

The mental health care infrastructure has been chronically underfunded for centuries. Lack of funding and lack of coordinated responses results in a system that does not meet the needs of individuals and families who have mental illnesses. Families in our system are left without supports for severe depression that result in the increased use of crisis services, interaction with the criminal legal system, homelessness, disruptions or termination in education, loss of employment, and in the case of suicide, loss of lives.

Although one in five individuals struggles with a diagnosable mental health condition, mental health impacts all individuals in their personal lives and in their communities. Data has the power to support early intervention, increase learning in research and practice, and coordinate care in communities and schools. But we cannot accomplish these aims without systemic and material policy change. **For our data to be meaningful, it must result in legislation, regulation, and policy implementation that funnels federal, state, and local funding and guidance to increase quality and responsive mental health care for youth, adults, and families.**

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[22] http://www.hcsrn.org/en/Collaboration/Consortia/mhrn.html

This policy agenda can be accomplished by arming researchers, advocates, providers, administrators, and policymakers with data for meaningful, targeted policy. Furthermore, additional data on demographics and location provides the opportunity and responsibility to explore the intersectional impact of mental health and poverty, trauma, environmental inequities, community development and connectedness, discrimination, racism, and other social determinants of health. With this greater understanding, stakeholders can better invest in working with communities to eliminate harm, promote wellness, and create environments that allow people to thrive.

SCHOOLS IN CRISIS

Forty-one percent of individuals who took the PHQ-9 depression screen in 2020 were youth ages 11-17, and youth were more likely to score with symptoms of severe depression than any other age group. The data findings are consistent with research on the onset of mental health conditions. Fifty percent of individuals will develop a diagnosable mental health condition in their lifetime. Fifty percent of those with a diagnosable mental health condition will develop symptoms during puberty.[2] Increasing school mental health funding and programs is the best way to catch children where they are and ensure families have the support they need to address mental health concerns before problems worsen.

The COVID-19 pandemic is exacerbating the need to respond to student mental health. The amount of stress students face, the reduced face-to-face contact in schools, and risk factors associated with home conflict (especially for LGBTQ+ youth or youth in poverty), are examples of compounding problems that may result in mental health problems for students due to COVID-19 alone.

School districts throughout the U.S. are severely underfunded and lack the resources and capacity to screen their students for mental health conditions or track mental health data over time. The available data from MHA Screening will help identify hotspots of minimum risk in school districts throughout the country and disseminate targeted interventions to promote student mental health. There is not sufficient federal funding for local education agencies to meet the mental health needs of students. Stakeholders can use these data to triage care to the communities with the most severe risk. Triaging care in this way is only a first step. To create healthier communities, schools need long-term financial support to build up sustained and sufficient school infrastructure. This infrastructure should include, at minimum, implementing comprehensive mental health education, increasing the number of mental health providers in schools, identifying processes and supports for screening and treating students, and reducing the gap in care when students transition from school to college and college to the workforce.

MHA Screening data serves to support more robust targeted funding to implement mental health supports within schools, create and maintain additional partnerships between schools and community organizations, and tailor programming and support based on the needs indicated by the data. MHA provides additional support for schools to increase mental health screening and education as a holistic approach to improving youth mental health.

Appendix

Methodology

MHA did not ask for any identifiable personal information as part of MHA Screening in 2020. All identifiable information provided by screeners in question responses, including email addresses, phone numbers, home addresses, and names were immediately removed from the dataset. To ensure that duplicate users were not included in the analyses, only the first recorded depression screening result from each user IP address was included in the dataset, and all additional results were removed. As a result, each count in these analyses represents one individual person who took the depression screen in 2020. While most individuals access MHA Screening organically, MHA has 200 affiliate organizations and multiple partner organizations who often refer users to the MHA Screening Program. To reduce oversampling in areas where these organizations are located, data referred from affiliates and partners were removed from the dataset. Data was only included in the final set if it was referred from search engines (including Google, Bing, and Yahoo, among others), from the MHA National main website, or from national social media platforms (including Instagram, Twitter, Reddit, and YouTube). The final dataset after cleaning contained PHQ-9 depression screening results from 725,949 individuals.

We conducted state-level analyses using results from the state demographic question, in which users select the state they live in, "I live outside the United States," or "I live in a U.S. territory." U.S. Census 2019 state resident population totals[23] were used to calculate the percentage of each state's population screening with severe depression. We conducted county-level analyses using results from the zip code demographic question, in which users can type in their zip code. Zip codes were then consolidated into counties on Tableau, using an online U.S. zip code database.[24] For county-level analyses, additional data cleaning was performed to ensure accurate counts. Where a user's response for state did not match the zip code they provided in the demographic questions, we verified the user's location at the time of taking a screen with their IP address. U.S. Census 2019 county resident population totals[25] were used to calculate the percentage of each county's population screening with severe depression. If data for a county only covered one zip code, we used the 2019 American Community Survey population total[26] for that zip code in place of the county population total.

Post-stratification weights

At the state level, we calculated post-stratification weights to normalize the gender and age demographics based on 2019 state population demographics. Weights were applied to the data using a manual iterative process, beginning with age. Due to limited sample sizes at the county level, we did not apply post-stratification weights to the county-level data.

User Privacy

MHA works to ensure that no one individual is identifiable from information within this dataset. These analyses did not include any demographic or other potentially identifiable information. As noted above, the final dataset only included counties if there were more than six individuals (the median count of the sample) in the county scoring with symptoms of severe depression on the PHQ-9.

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[23] U.S. Census Bureau (2019). Annual estimates of the resident population for the United States, regions, states, and Puerto Rico: April 1, 2010, to July 1, 2019. *U.S. Census Bureau.* Retrieved from https://www.census.gov/data/tables/time-series/demo/popest/2010s-state-total.html
*The median count of individuals reporting frequent thoughts of suicide and self-harm of all counties within the U.S. was seven.
[24] SimpleMaps (2021). U.S. zip codes database. Retrieved from https://simplemaps.com/data/us-zips
[25] U.S. Census Bureau (2019). Annual estimates of the resident population for counties: April 1, 2010 to July 1, 2019. *U.S. Census Bureau.* Retrieved from https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html#par_textimage_70769902
[26] U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates Detailed Tables, Table B01003. Retrieved from www.data.census.gov.