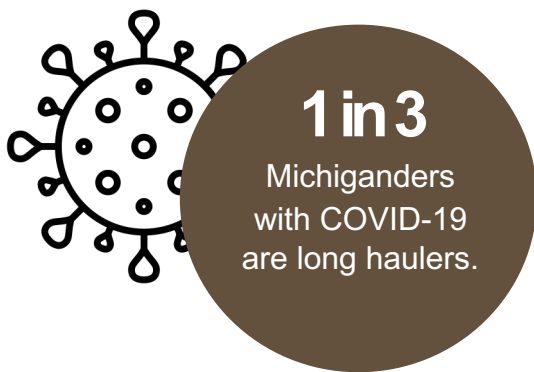


LONG COVID'S IMPACT ON MICHIGAN RESIDENTS



Who are COVID long haulers? And how prevalent is long COVID?



Individuals suffering from long COVID, termed “long haulers,” are those who have had COVID-19 symptoms continue for weeks, even months, after their initial infection. Using this definition, CHRT’s *Cover Michigan Survey* found that 34.5% (48 out of 138) of the Michiganders who reported a COVID-19 diagnosis identified themselves as COVID long haulers.

Who is at greatest risk for long COVID?

Women are nearly four times more likely to report long COVID.

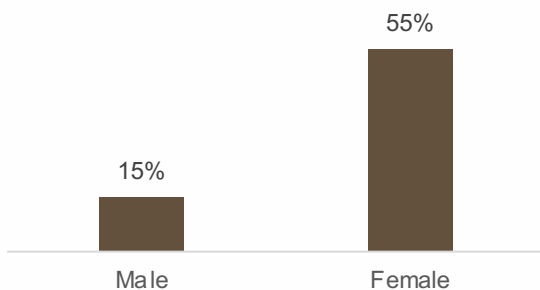


Figure 1: Percentage of COVID-diagnosed individuals in each gender who report being long haulers. (Male: 9 out of 61, 15%; Female: 39 out of 71, 55%; Chi-Square p-value < .001).

People with diabetes are nearly two times as likely to report long COVID.

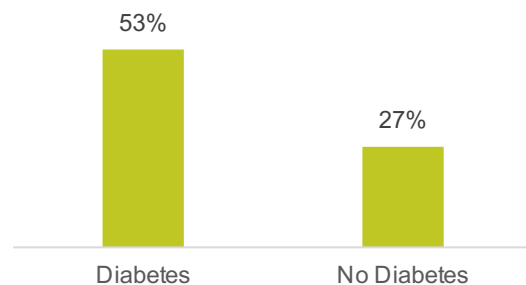


Figure 2: Percentage of COVID-diagnosed individuals who are long haulers (Diabetic Individuals: 8 out of 15, 53%; Non-diabetic Individuals: 30 out of 80, 27%; Likelihood Ratio p-value = .048)

Our survey findings regarding the overall frequency of long COVID and its significant gender disparity echo findings from a 2021 study published in the [CDC’s Morbidity and Mortality Weekly Report](#).

Individuals with diabetes are also at greater risk for long COVID, possibly due to the fact that diabetes impairs the immune system, damages organs, and co-occurs with other health conditions ([Raveendran & Misra](#)).

Michigan's long COVID respondents most frequently report:

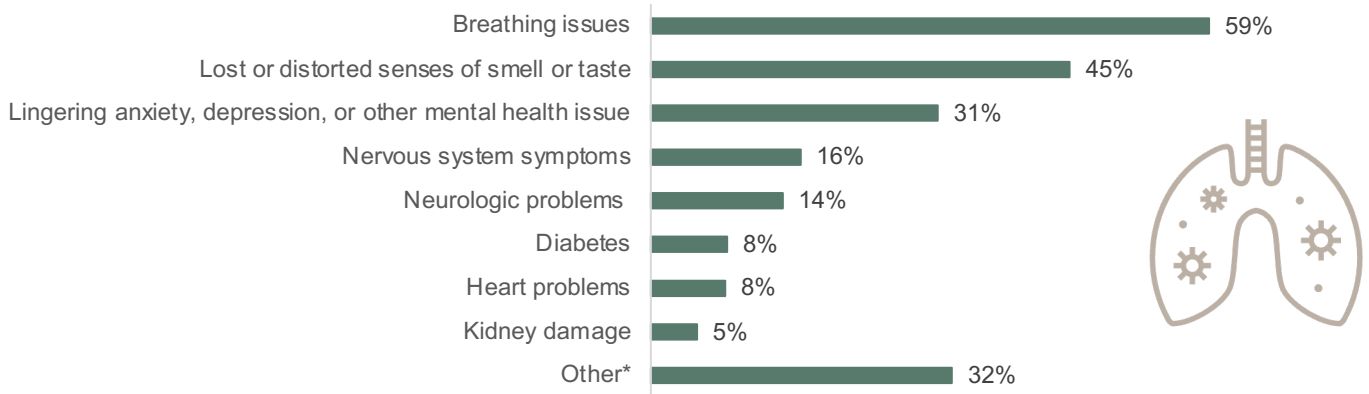


Figure 3: Horizontal bar graph depicts percentage of Michigan long haulers who've reported each symptom; *Among 15 total individuals choosing 'Other', 9 self-reported "fatigue/tiredness" (19% of all long haulers).

Michigan's long haulers report more days of:

How many days during the past 30 days:

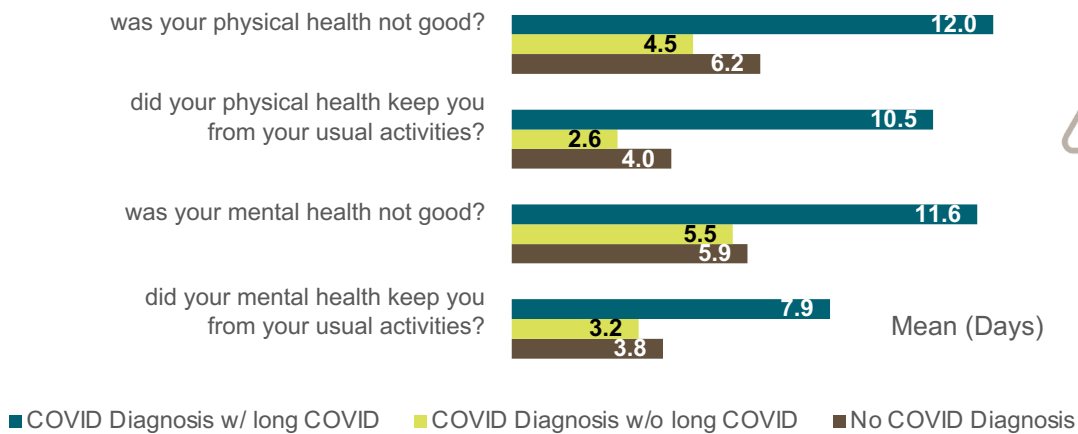


Figure 4: There is a significant difference (ANOVA + Tukey HSD, $p < .001$) in self-health assessment between COVID long haulers and two groups of COVID non-haulers (1. Diagnosed with COVID without long COVID, and 2. No COVID diagnosis). The association remains for each question when controlled for gender.

Self-health assessment data show prolonged debilitation on the physical and mental well-being of long haulers compared to both respondents who have recovered from COVID without long symptoms and respondents who were never diagnosed with COVID.

Long haulers are more likely to experience financial hardship.

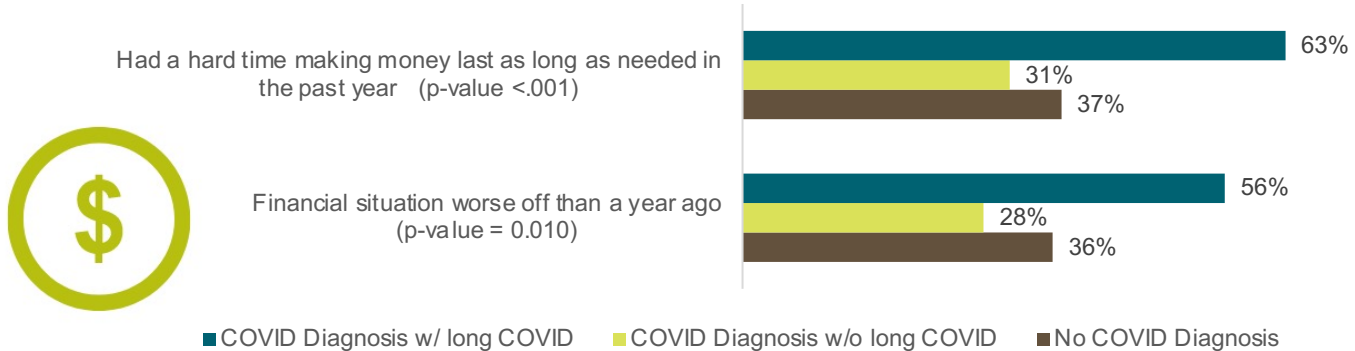


Figure 5: Horizontal bar graph depicting percentage per group of affirming each statement. A Chi-square test shows a significant difference between long haulers and the other two groups for each question.

Unstable employment, along with additional health care costs, make long haulers more susceptible to financial hardship.

Our survey data revealed that long haulers are more likely to be in a worse financial situation than a year ago compared to those who recovered from COVID and those who never got COVID.

Because some long haulers are unable to function at pre-COVID capacity, they are more likely to take longer medical leave, work reduced hours, have their salary reduced, or quit their jobs altogether ([Power, 2022](#)).

Long COVID's impact on health and workforce.

At the time of this publication in May 2022, Michigan has had just over 2 million confirmed COVID cases, excluding deaths. At the percentages indicated in our study and in the literature, 700,000 of these Michiganders could have or may experience long COVID.

While symptoms range from mild to severe, long COVID can have a major economic burden due to its impact on both health care costs and the workforce. In fact, as much as 30% of

COVID-19's health burden could be due to COVID-induced disability ([Briggs & Vassall, 2021](#)). In a national survey, long haulers reported a 13% reduction in work hours and 70% reported applying for disability protections and benefits ([Power, 2022](#)).

Several state-wide efforts have been underway to help long haulers manage their symptoms and well-being, including the provision of post COVID-19 clinics in multiple health care systems. Our findings, along with other studies, highlight the need to further study the impact of these supports as well as additional mitigation strategies.

Recommendations for state legislators and funders.



Prioritize research investments designed to understand and mitigate the health and economic impact of long COVID in the state of Michigan.



Develop funding programs, policies, and approaches to bolster existing clinical care resources to address the health and well-being of long haulers in Michigan.



Organize cross-sector partnerships to strategically coordinate and address the impact of long COVID on multiple domains across the state.

Methodology and additional data notes

These results are based on analyses performed on *Cover Michigan Survey* data. For more information on survey methodology, please visit: <https://chrt.org/surveys/cover-michigan-survey>

The definition of a “long hauler” varies from different sources in the timeframe of how long after initial infection would the experienced symptoms be considered long COVID; it is subject to change as more is learned about the condition. Our definition provides an open-ended timeframe, and aligns with that of Harvard Health ([Harvard Health, 2022](#)).

In Figure 3, “Fatigue/Tiredness” was the most common write-in response for “Other” symptoms. We suspect the response rate would have been higher had it been listed as its own option. It is a commonly mentioned long COVID symptom in existing literature ([Wanga, et al., 2021](#)).

Aside from diabetes, other pre-existing health conditions were not considered for analysis. This is due to the inability to prove causation since the survey did not capture whether health conditions were pre-existing prior to being diagnosed with COVID.

When analyzing diabetes as a risk factor, we excluded respondents who had listed diabetes as a long COVID symptom (4 total) to ensure it was pre-existing for all diabetic cases.

No significant association was found between race and risk of long COVID for white and black populations, as well as for ethnicity (Hispanic vs. Non-Hispanic). There is not enough data to analyze long COVID risk in other race groups. Despite age being identified as a risk factor in existing literature, no significant association was found between age and risk of long COVID.

In Figure 4, the COVID group without long symptoms reported slightly better (albeit non-significant) self-assessment outcomes across all 4 questions compared to the group never diagnosed with COVID. This could be attributed to respondents in the former group who’ve recovered from COVID and are comparing their recent health to when they were still experiencing symptoms, an event which is absent in the latter group.