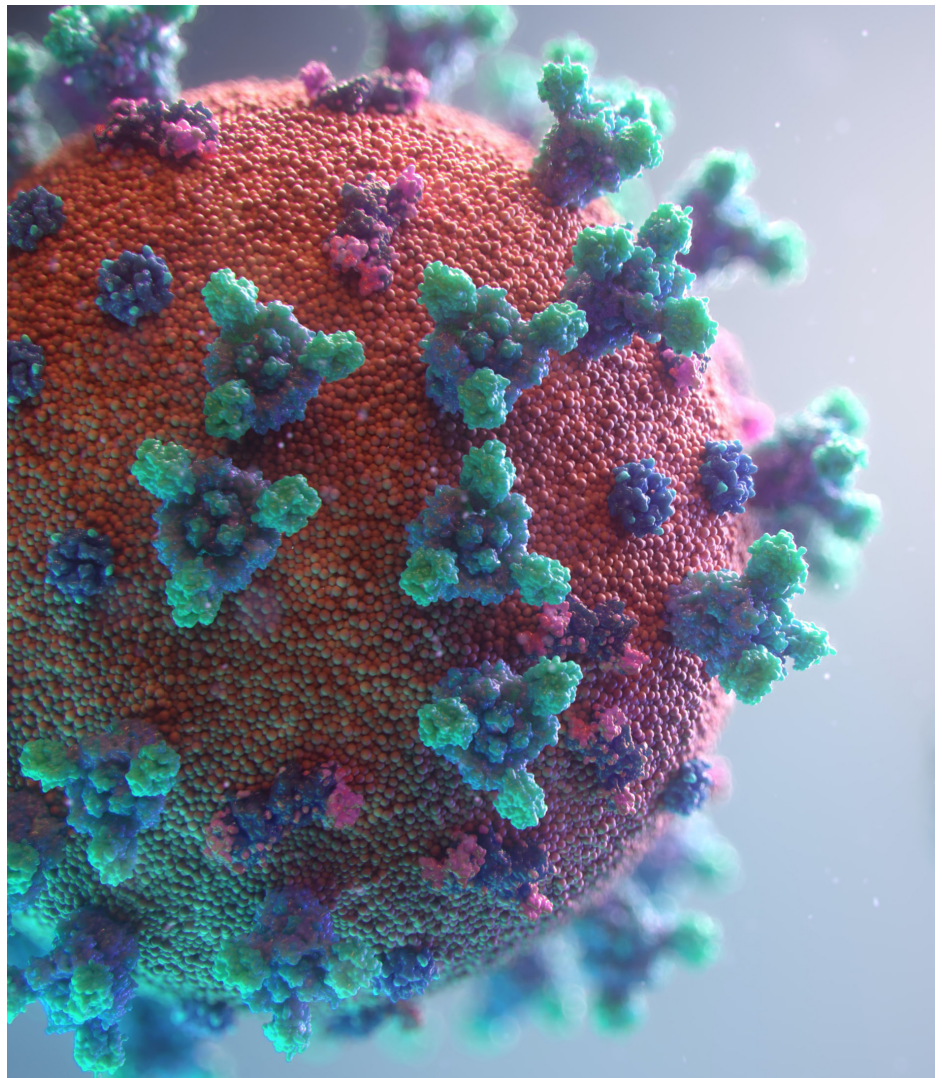




UHERO PUBLIC HEALTH REPORT

# HEALTH EFFECTS AND VIEWS OF COVID-19 IN HAWAII

JUNE 20, 2022





# UHERO

THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

**UHERO Public Health Report**  
**Health Effects and Views of COVID-19 in Hawai'i**

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## EXECUTIVE SUMMARY

The COVID-19 pandemic has had significant adverse impacts across multiple dimensions in the state of Hawai'i beyond the direct effects of COVID-19 itself, including effects on mental health, food security, job security, housing, poverty, etc. In order to address these adversities systematically, the University of Hawai'i Economic Research Organization (UHERO) is developing infrastructure to inform the design and execution of public health programs in the state for COVID-19 and other disasters while providing valuable data to our communities to make informed decisions. To this goal, we have created a cohort of over 2,000 individuals in the state of Hawai'i to collect rapid monthly surveys about individuals' health and social factors, attitudes, and behaviors. This cohort will be followed longitudinally.

As Hawai'i is experiencing yet another COVID-19 surge, we report the first results of the cohort collected in May 2022, obtained in partnership with the support of the team at the Pacific Alliance Against COVID-19.

For this report, we include responses from 2,030 Hawai'i adults aged 18 and above who were enrolled in the study during May 2022. On average, we sampled approximately 2 respondents for every 1,000 Hawai'i adult residents in each of the 4 Hawai'i counties.

The main survey findings include:

- Vaccination rate and booster shots among adults: Over **93.3%** of respondents were vaccinated, while **6.7%** remain unvaccinated. Among those vaccinated, **53.4%** received one booster shot, **31.6%** received two or more booster shots, and **15%** have not received a booster shot.
- COVID-19 positivity and estimated immunity: Approximately **24.8%** of our respondents reported a confirmed COVID-19 positive test result. The positivity rate of unvaccinated individuals and those vaccinated but not boosted was **39%**, which was significantly higher than the positivity rate for those with at least one booster (**21%**). Combined with the rate of positivity and vaccination, we estimate that over **95.9%** of adults have some degree of immunity to the virus due to infection or vaccination.
- Negative effects of COVID-19 have been very significant in Hawai'i's populations: Almost **2 in 3** individuals reported a negative effect of COVID-19. **22.9%** of respondents reported having their savings depleted, **17.8%** had trouble with the education of their children, **14.7%** were unable to pay bills, **12.5%** were furloughed or reduced their working hours, **12.4%** had a close friend who died, **11.8%** had family members who were furloughed or reduced their working hours, **9.2%** had family members who died, **9%** lost their job, **8.9%** were unable to pay rent, **8.7%** had trouble with childcare, **8.4%** had family members who lost their job, and **8%** did not have enough food in their household. Although COVID-19 had severe effects on everyone, individuals who tested positive for COVID-19 experienced larger negative effects than those who did not test positive.
- Suicidal ideation: About **4 individuals per 100** in our cohort had suicidal thoughts over the last year. Although likely confounded with other factors, unvaccinated individuals reported a higher rate of suicidal ideation, at **5 unvaccinated adults per 100 individuals**.
- Mental health & self-esteem: **11.1%** of Hawai'i adults reported having low self-esteem. Notably, unvaccinated individuals were more likely to have low self-esteem (**21.7%**) than vaccinated individuals (**10.4%**). **31.7%** of Hawai'i adults reported having depressive symptoms, and **4.9%** reported having highly depressive symptoms. Compared to vaccinated respondents, unvaccinated respondents were more likely to have depressive symptoms. **37.2%** of the unvaccinated had depressive symptoms, and **7.1%** were categorized as having highly depressive symptoms.
- Food insecurity: **8.9%** of our sample reported low food security and **11.4%** reported very low food security. Individuals who got infected with COVID-19 were more likely to experience food security issues, with **10.8%** experiencing low food security and **14.3%** having very low food security. In addition, unvaccinated individuals reported experiencing significantly higher levels of food insecurity than vaccinated individuals, with **18.1%** of the unvaccinated experiencing low food security and **20%** experiencing very low food security.

- Characteristics of the unvaccinated population: Unvaccinated individuals tend to be younger, with 30–49 year old individuals reporting an unvaccinated rate as high as **13%**, whereas individuals 50 years or older reported an unvaccinated rate under **4%**. The unvaccinated rate was under **10%** for Native Hawaiian, Filipino, and Caucasians, and as low as **3%** for non-Filipino Asians. On the other hand, Pacific Islanders and Others reported the highest unvaccinated rates, at **21%** and **11%**, respectively. Education also plays an important factor in vaccination. Unvaccinated individuals tended to have lower education levels than vaccinated individuals. Individuals with a bachelor's degree reported an unvaccinated rate under **4%**, in contrast with individuals who just completed high school and those who did not complete high school, who reported unvaccinated rates of **14%** and **41%**, respectively. Finally, unvaccinated adults are far less likely to trust medical providers and the federal government. They tend to consume more information from social media and their faith leaders.
- Long-COVID: Of the respondents who tested positive, **31.5%** reported having lingering long-term effects following acute infection. The most common lingering symptoms were cough and shortness of breath (**57.9%**), extreme fatigue (**49%**), and mental fog and headache (**47.1%**). The expected length of symptoms was **3.7 months** for the entire sample. This length is longer for unvaccinated respondents (**5.3 months**) than for vaccinated respondents (**3.5 months**).
- Perception of neighborhood/community safety against COVID-19: On average, **18.6%** of respondents reported feeling very safe in their neighborhood/community against COVID-19, **41.4%** feel safe, **31.2%** feel neither safe nor unsafe, **7.9%** feel unsafe, and less than **1%** feel very unsafe.
- Views of COVID-19 and precautions: If there is another large wave of COVID-19, **92%** of respondents said they would wear a mask in public spaces, **86.7%** would use hand sanitizer, **72.8%** would get a booster shot, and **72.4%** would wear a mask in outdoor public spaces. Currently, **57.7%** of respondents see the pandemic as a health concern, while **31.4%** see it as an inconvenience. **42.9%** believe the pandemic will be over when the risk is on par with seasonal flu, **27.2%** believe it will be over when global vaccination rates are high enough to prevent new variants, and **8.2%** believe that it is already over.

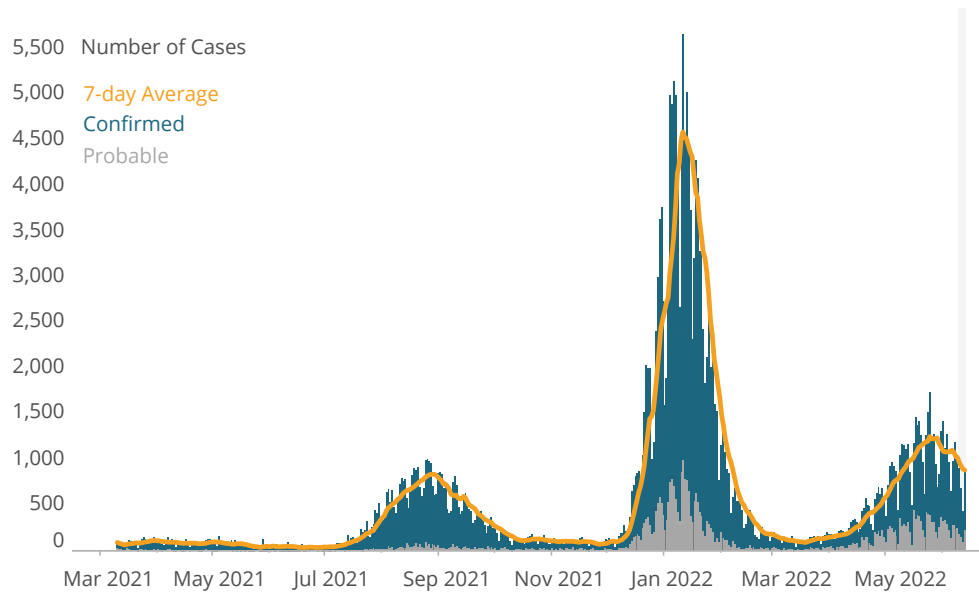
Overall, these results indicate some problems in Hawai'i's communities that need to be addressed. Over the coming months, our study will continue to better our understanding of the extent of these issues, document any changes in these issues over time, and report any new challenges that may arise.

## BACKGROUND

The State of Hawai'i is in the middle of its fourth wave of COVID-19 cases. Unlike during the first two waves caused by the alpha and delta variants, over 96% of adults have now been vaccinated, and more than half of adults in the state have received at least one booster shot, surpassing most other states in the U.S.

Despite high vaccination coverage, vaccine-hesitant pockets still remain in the state. Many of these vaccine-hesitant populations, already suffering from pre-existing health disparities before the pandemic, are at increased risk for severe complications of COVID-19 and mortality. As such, understanding factors associated with vaccine and booster hesitancy is of critical importance.

Previous state reports on COVID-19 have been focused on very specific topics, such as mandates, vaccine hesitation and uptake, and COVID-19 modeling. For this report, we provide a more comprehensive picture of how COVID-19 has affected populations and shed light on some pressing problems in the state that were exacerbated by the pandemic. We hope that the data presented in this report will provide a better understanding of where we are in the state today with respect to COVID-19, and illustrate some of the challenges that the state will be facing moving forward. In particular, our multi-dimensional focus of this report will cover aspects of mental health, food security, vaccination uptake, and long-COVID, among others.



Hawaii Department of Health Epidemic Curve for the State from March 2021-Today

As the COVID-19 pandemic continues progressing in Hawai'i, the cohort of over 2,000 recruited individuals is expected to provide valuable public health data to inform policy and the community on the impact of COVID-19 and other public health issues affecting Hawai'i's populations.

## SURVEY RESULTS

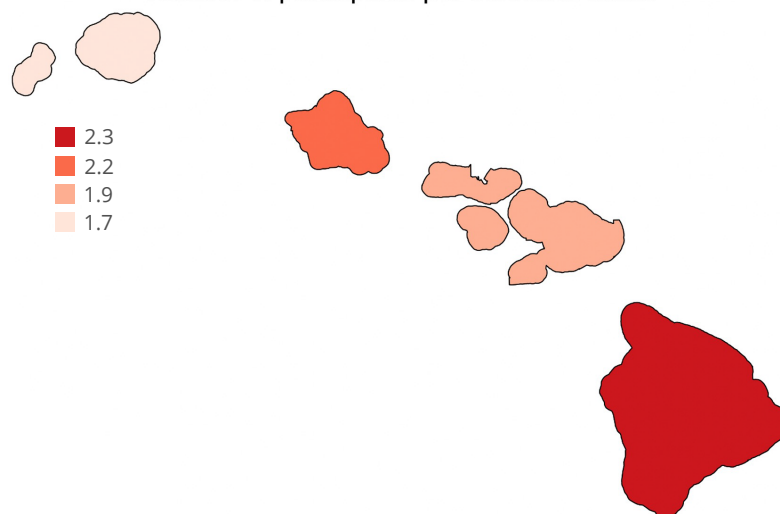
### DESCRIPTION OF SURVEY RESPONDENTS

We surveyed 2,030 adults across the state of Hawai'i. Of those surveyed, 62% (1,252 individuals) were female and 38% (766 individuals) were male. We provide basic descriptive information on this sample below.

#### Geographical distribution

The map below depicts the geographical reach of the survey. The map depicts the number of people that we were able to survey per 1,000 adults. As can be seen, we were able to survey people from throughout the State of Hawai'i. We obtained the highest coverage for Hawai'i County (2.3 per 1,000 adults) and the lowest for Kaua'i (1.7 per 1,000 adults).

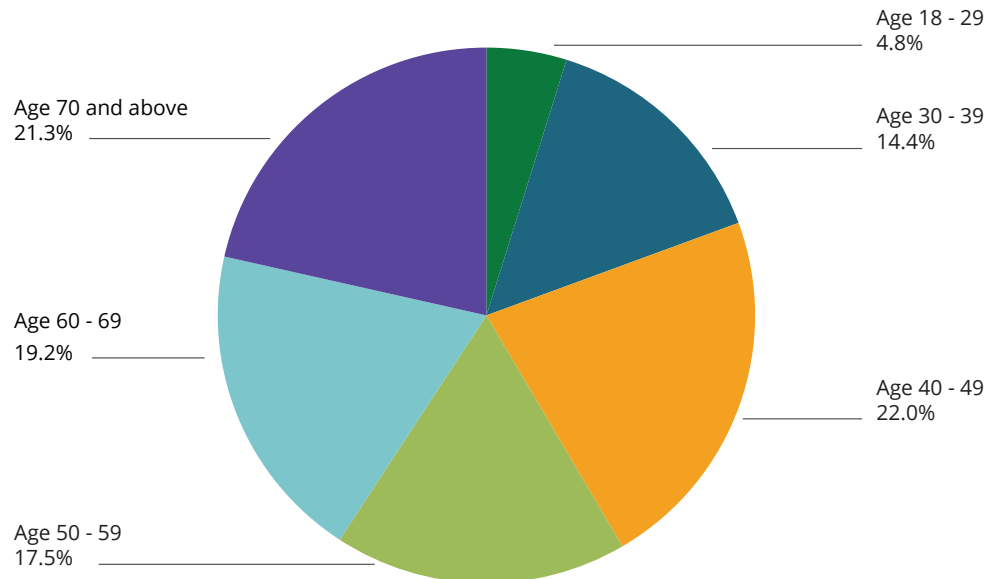
Number of participants per thousand adults



### Age distribution

We depict the age distribution of the sample below. Notably, older populations, who are often difficult to recruit, are well represented, with over 40% of adults in our sample being 60 years or older.

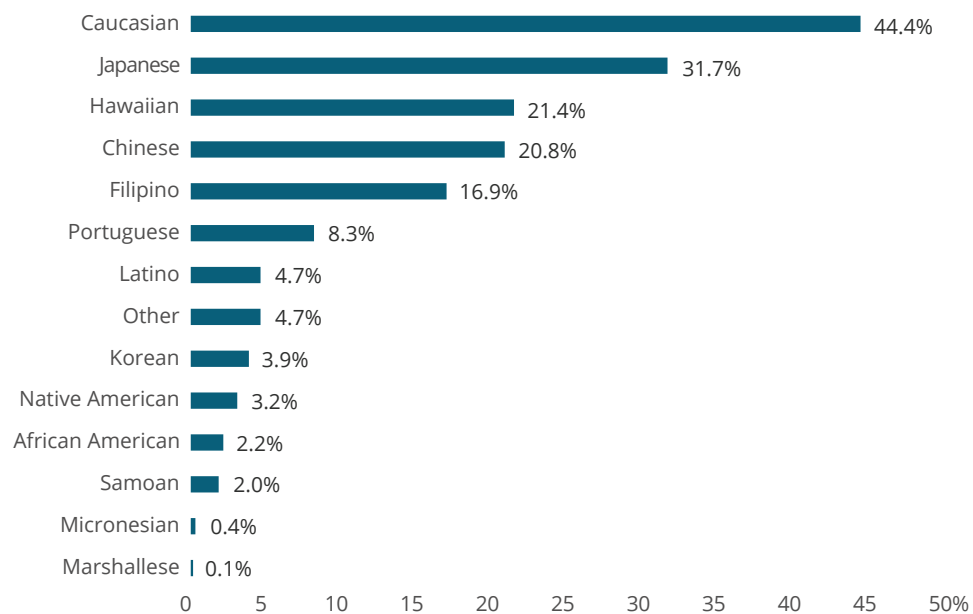
Age (N = 2,030)

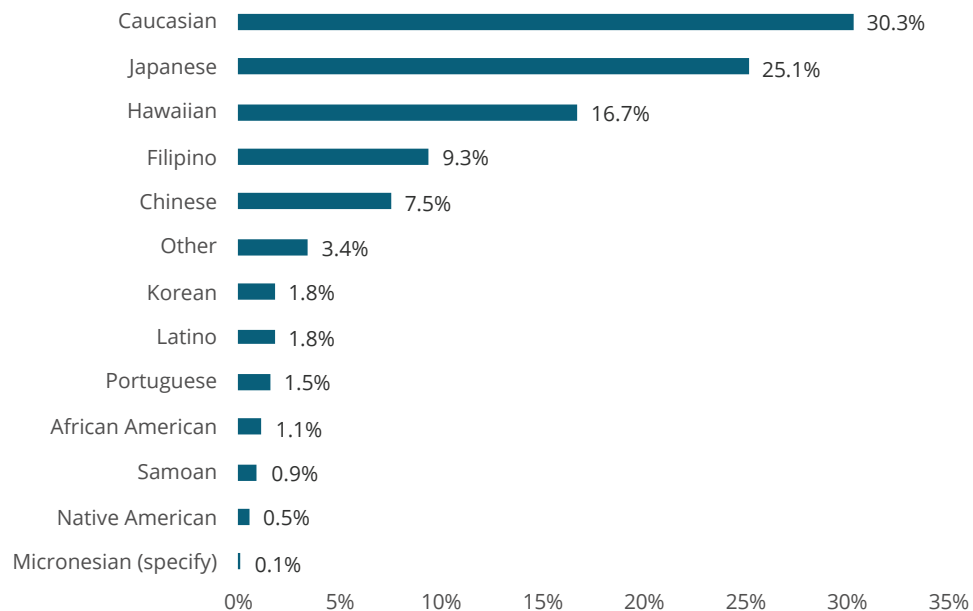


### Race/Ethnicity distribution

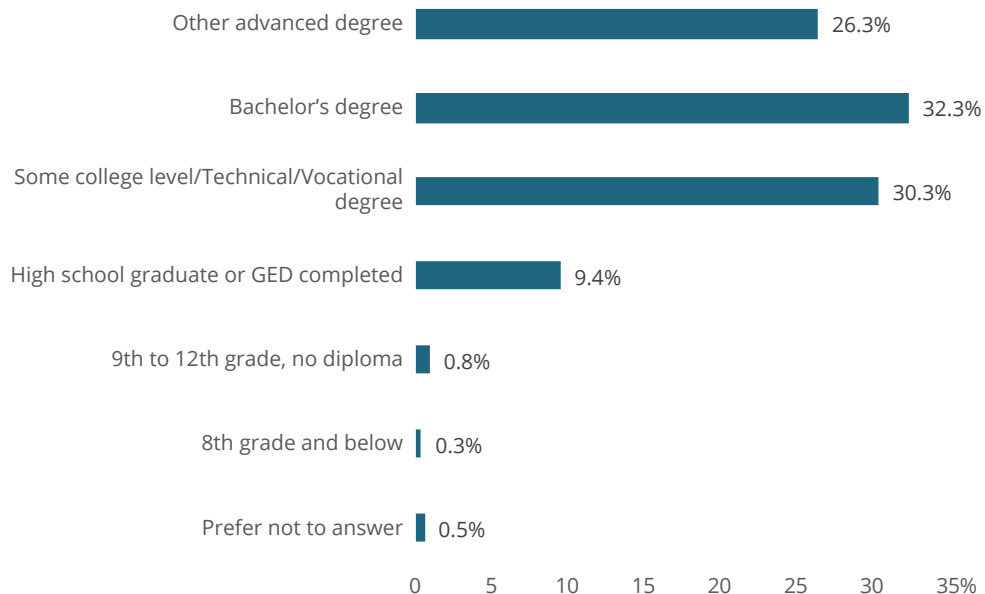
We report descriptive statistics on the race and/or ethnicity of the sample respondents below. Respondents were asked to self-report their race or ethnicity, and in the case of multiple races, they identified the one that they associated the most with. All told, the survey captured the ethnic composition of the state reasonably well.

What are the ethnic groups you identify with?



**Which race do you most identify with?****Education distribution**

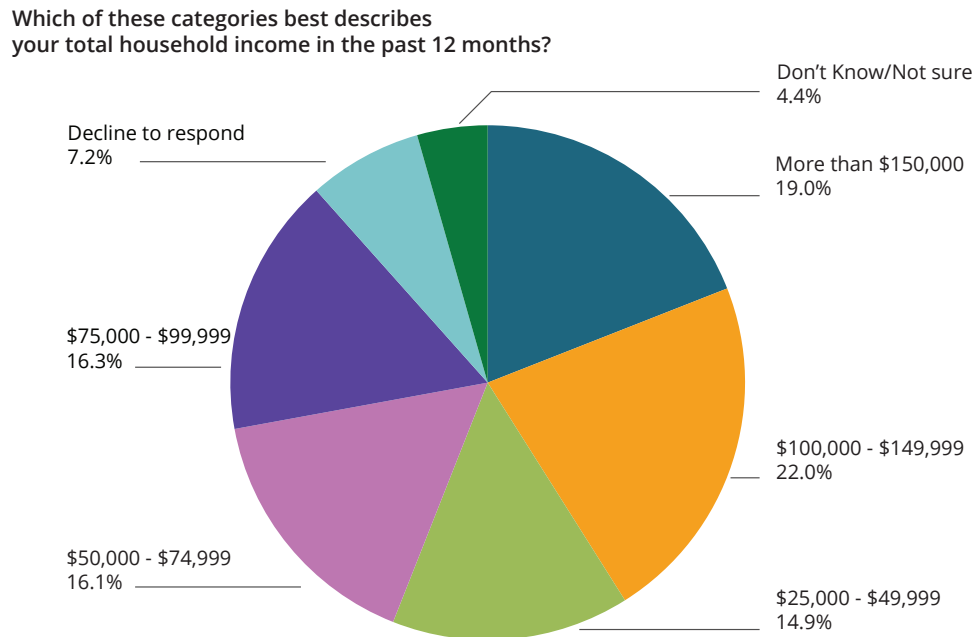
The figure below depicts the education profile of the survey respondents. Most respondents had a bachelor's degree (32.3%). This is followed by 30.3% of respondents who had some vocational education. About 26% of the respondents had an advanced degree.

**What is your highest level of education?**



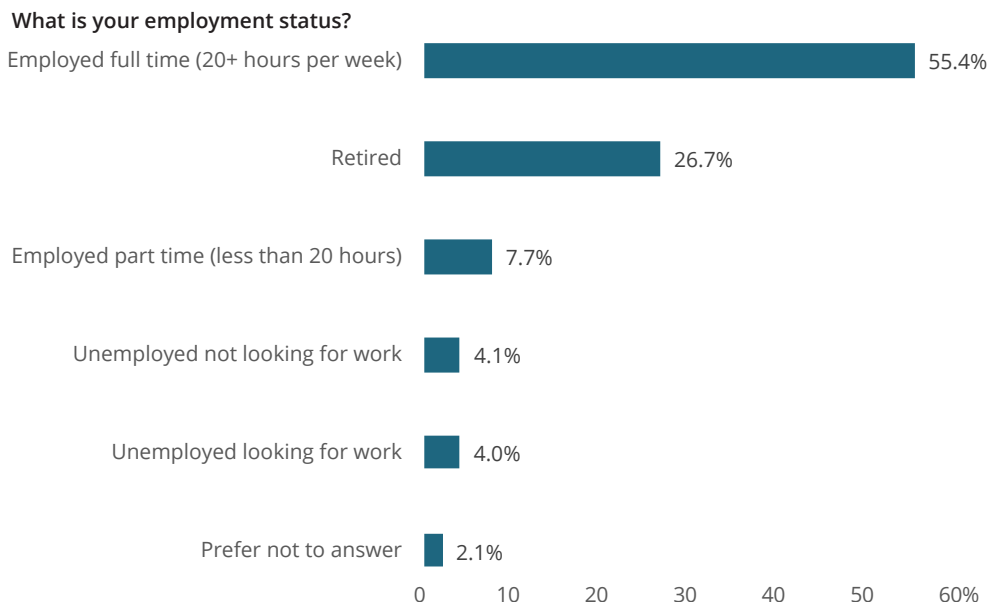
### Household income distribution

The figure below shows the distribution of household income for respondents. We see that various earnings brackets were represented in the sample.



### Employment status

We depict the distribution of employment status in the figure below. Over 55% of the sample was employed full-time, while 27% were retired. The remainder were either employed part-time or unemployed.

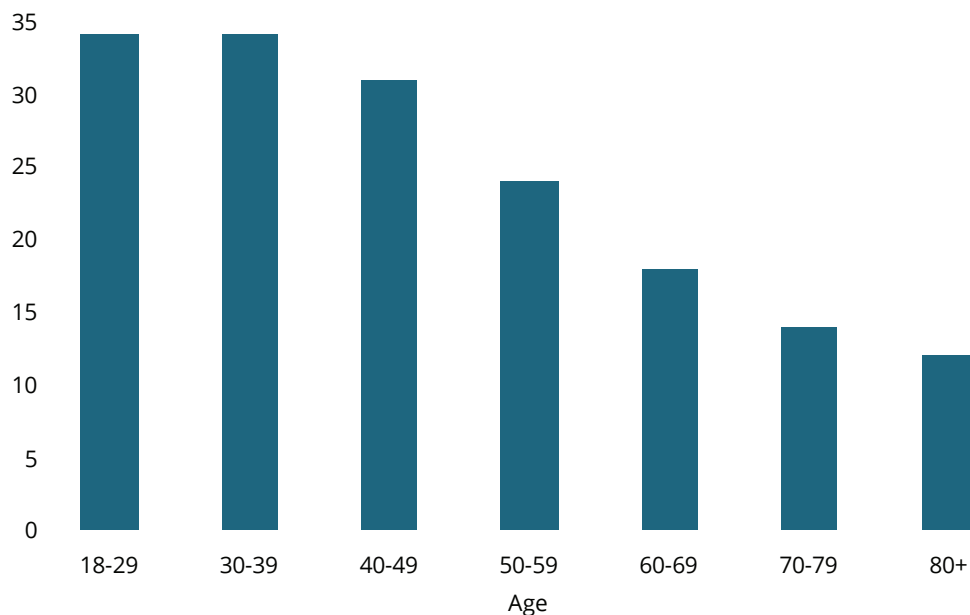


## COVID-19 POSITIVITY STATUS

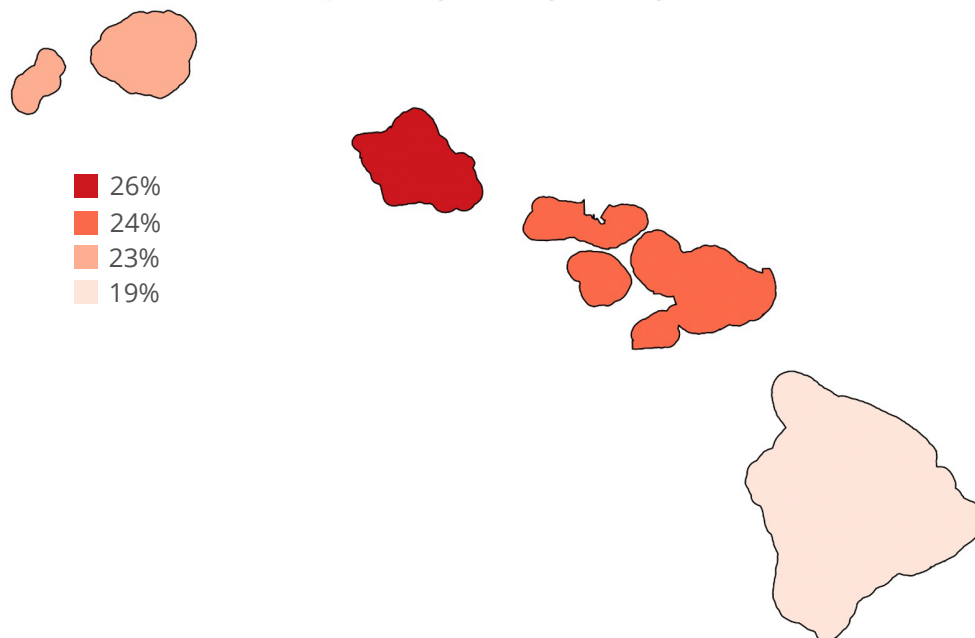
We report basic information on COVID positivity status in the tables below by age, location, race, and vaccination status. In our sample, 24.8% of adults received a positive COVID-19 test. However, the actual number of individuals who have been infected by the virus is likely significantly higher. The following graphs describe the positivity rate based on age, county of residency, race, and vaccination status. Importantly, younger individuals, Native Hawaiians, Pacific Islanders, Filipinos, and the unvaccinated or unboosted have higher positivity rates than others.

Positivity Rate by Age Group

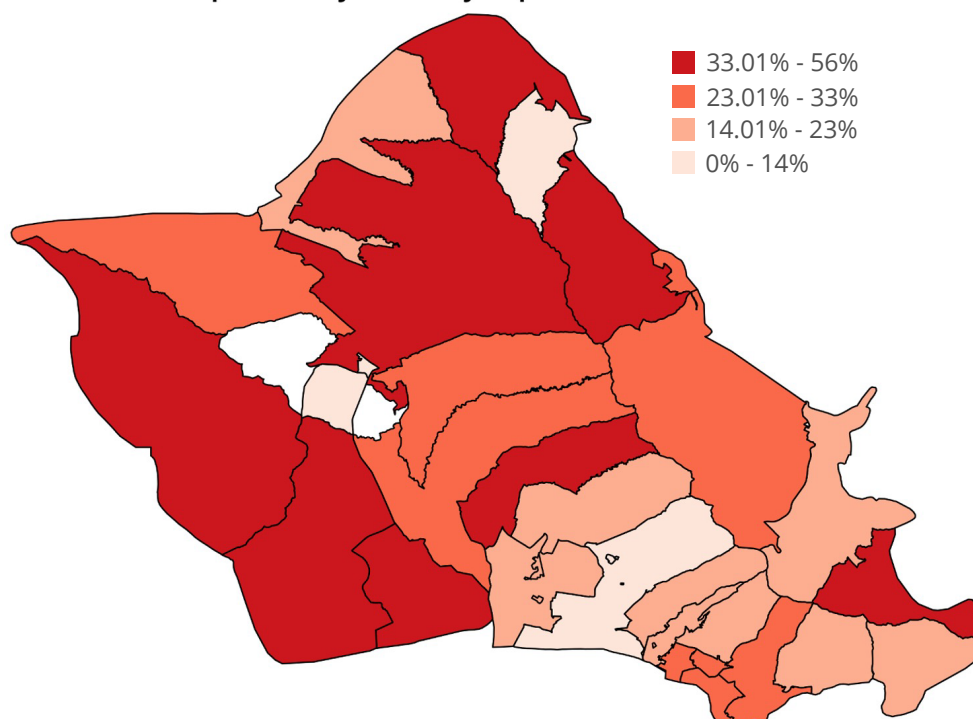
40% Positivity Rate



positivity rate by county

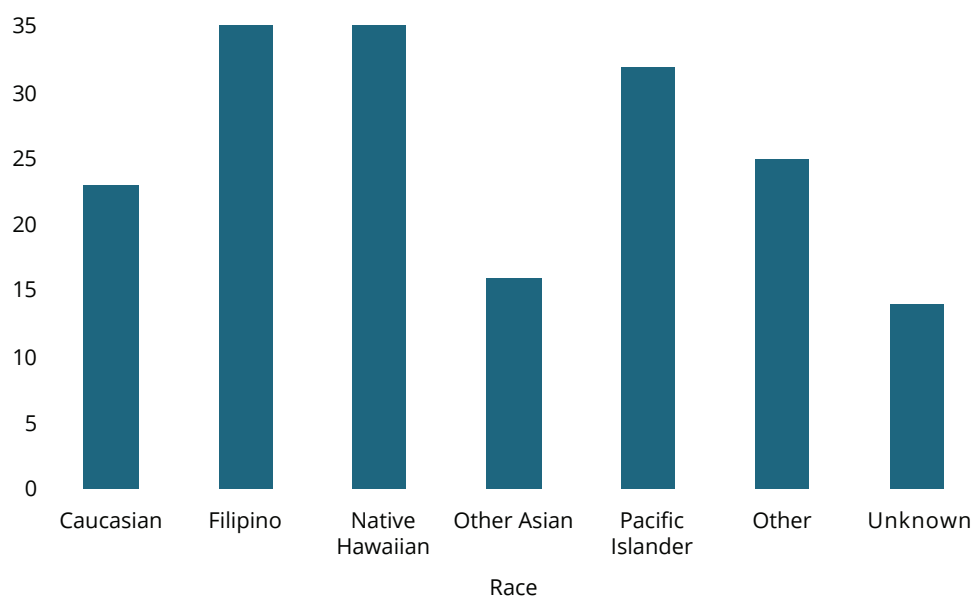


positivity rate by zip codes - O'ahu



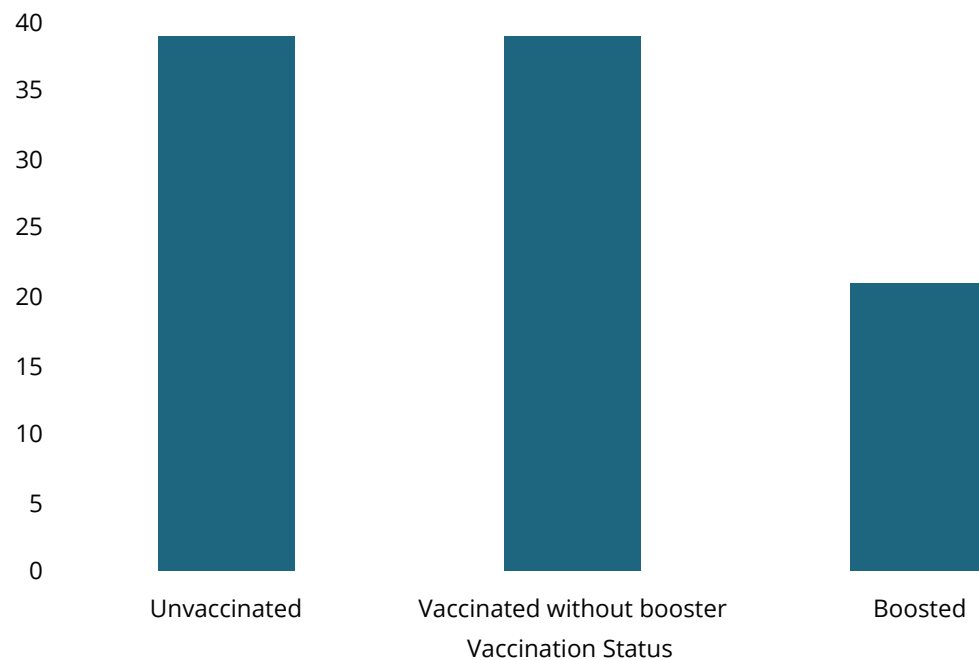
Positivity Rate by Race

40% Positivity Rate



### Positivity Rate by Vaccination Status

45% Positivity Rate

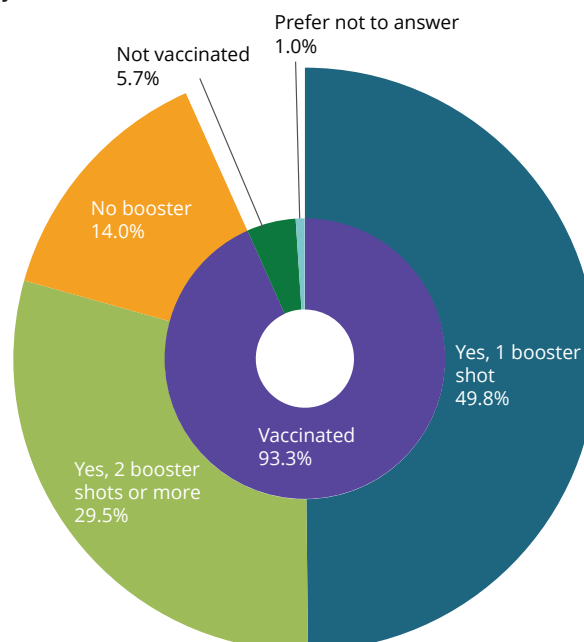


### VACCINATION AND BOOSTER SHOT UPTAKE

The State of Hawai'i has one of the highest adult vaccination rates in the country and this is borne out in the sample. We show that 93.3% of respondents received at least one COVID-19 vaccine shot. Of the vaccinated, 53.4% (or 49.8% of total respondents) received one booster shot, whereas 31.6% (or 29.5% of total respondents) received two or more booster shots.

Have you received a COVID-19 vaccine?

Have you received your COVID-19 booster shot?



## WHO HAS YET TO BE VACCINATED?

With one of the highest vaccination rates in the nation, the state of Hawai'i has been doing well and this is reflected in our sample, with only about 6.7% of adult participants remaining unvaccinated. Despite this, significant pockets of unvaccinated remain, and we seek to understand the demographic characteristics of these individuals.

Unvaccinated individuals tend to be younger. Indeed, individuals older than 50 years reported an unvaccinated rate of under 5%. In contrast, 9% of individuals aged 40-49 are unvaccinated, whereas 15% of individuals aged 30-39 are unvaccinated.

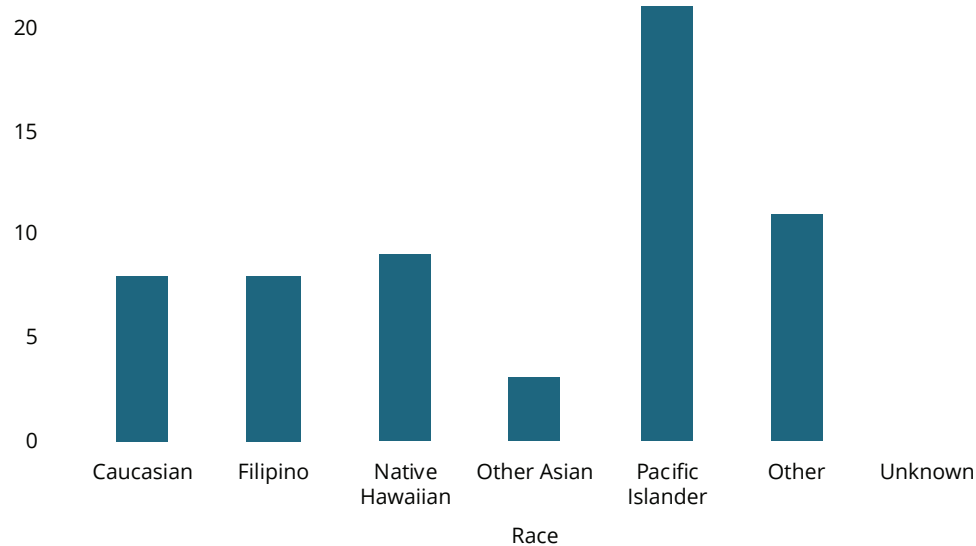
Despite significant efforts to reach people from all racial groups with vaccination campaigns, there are large disparities in vaccination rates across racial and ethnic groups. Under 10% of Native Hawaiian, Filipino, and Caucasians are not vaccinated. Among non-Filipino Asians, only 3% are not vaccinated. Pacific Islanders have the most unvaccinated people with 21% of this population lacking any shots.

Education is an important correlate of vaccination status with the unvaccinated tending to be less educated. Indeed, individuals with an advanced degree or bachelor's degree report very low rates of being unvaccinated - 3% and 4% respectively. On the other hand, individuals with some college but no degree, high school graduates, and those who do not have a high school diploma report a 9%, 14%, and 41% of likelihood of being unvaccinated, respectively.

Finally, we study how trust in different sources of information is related to vaccination uptake. For different sources of information, we asked individuals to rate their level of trust and indexed their responses on a scale of 0 to 1, with 0 corresponding to not trusting at all, and 1 corresponding to trusting all the time. Consistent with previous results by the team of investigators<sup>1</sup>, we found that unvaccinated individuals are far less likely to trust medical providers and the federal government. They tend to consume more information from social media and their faith leaders.

Unvaccinated Rate by Race

25% Unvaccinated Rate



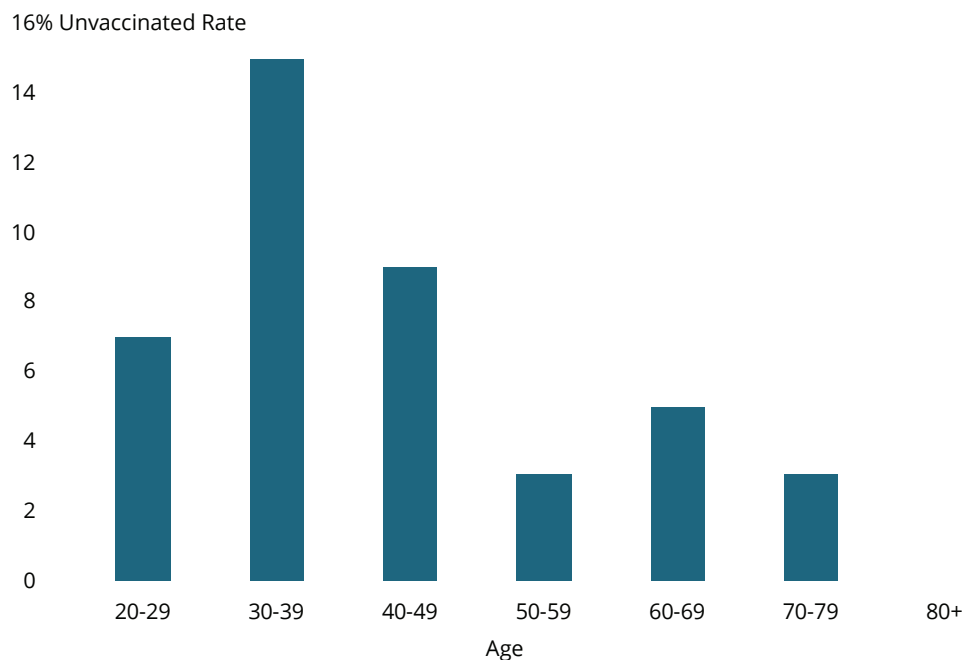
1 Juarez, R.; Phankitnirundorn, K.; Okihiro, M.; Maunakea, A.K.. [Opposing Role of Trust as a Modifier of COVID-19 Vaccine Uptake in an Indigenous Population](#). Vaccines.

Juarez, R.; Phankitnirundorn, K.; Ramirez, A.; Peres, R.; Maunakea, A.K.; Okihiro, M., Vaccine Associated Shifts in SARS-CoV-2 Infectivity among the Native Hawaiian and Other Pacific Islander Population in Hawaii. Am. J. Public Health (Forthcoming, 2022)

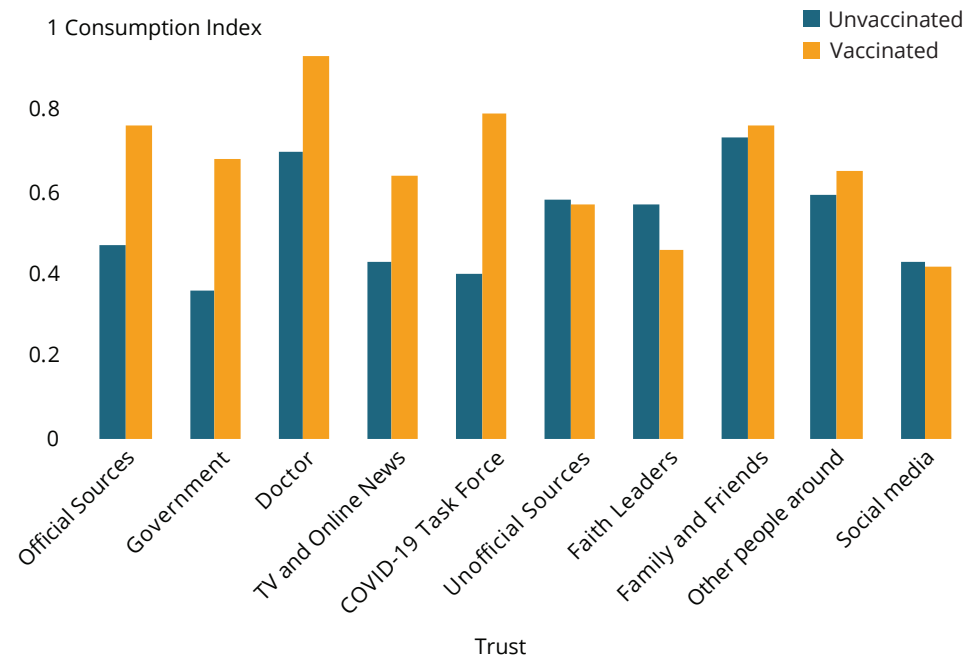


In addition to trust, we studied self-esteem and food security for unvaccinated and vaccinated individuals. We note that 9% of the unvaccinated experienced low self-esteem. Unvaccinated people are also more likely to face food shortages with 18% experiencing low food security and 20% experiencing very low food security, as discussed in detail below.

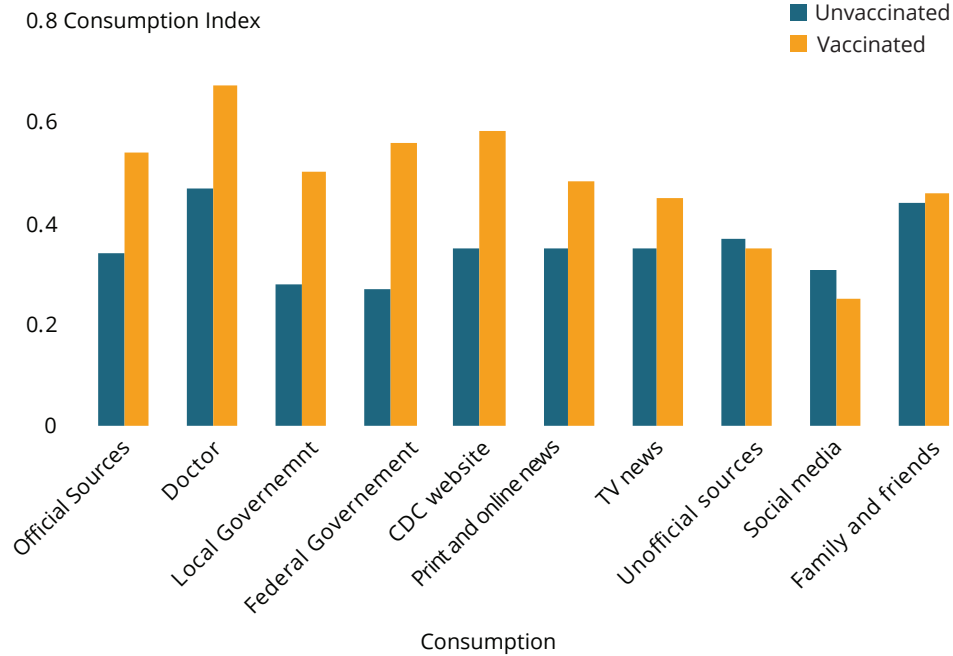
Unvaccinated Rate by Age



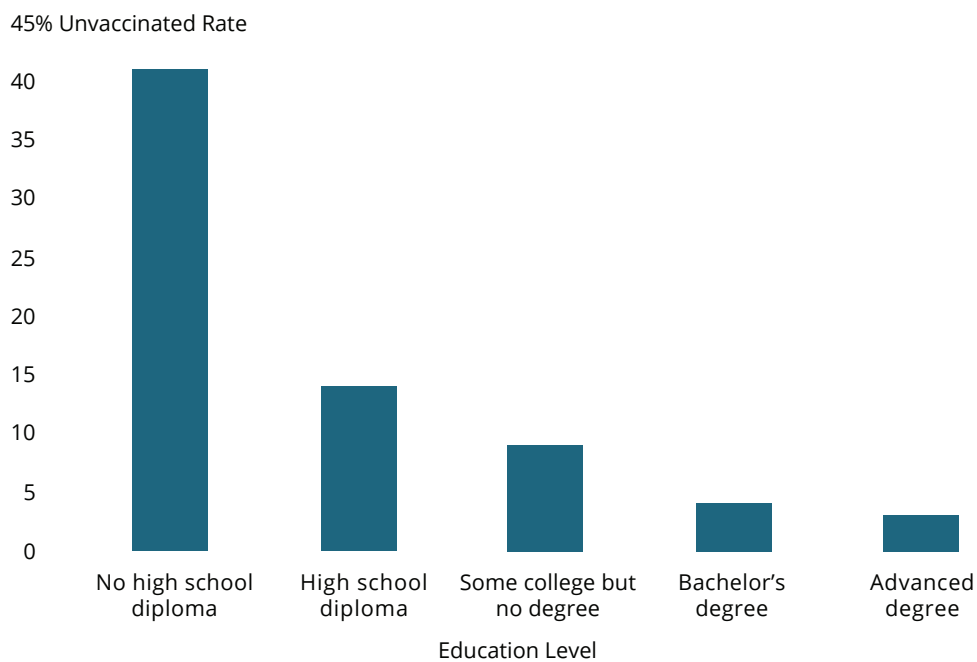
Average Trust by Vaccination Status



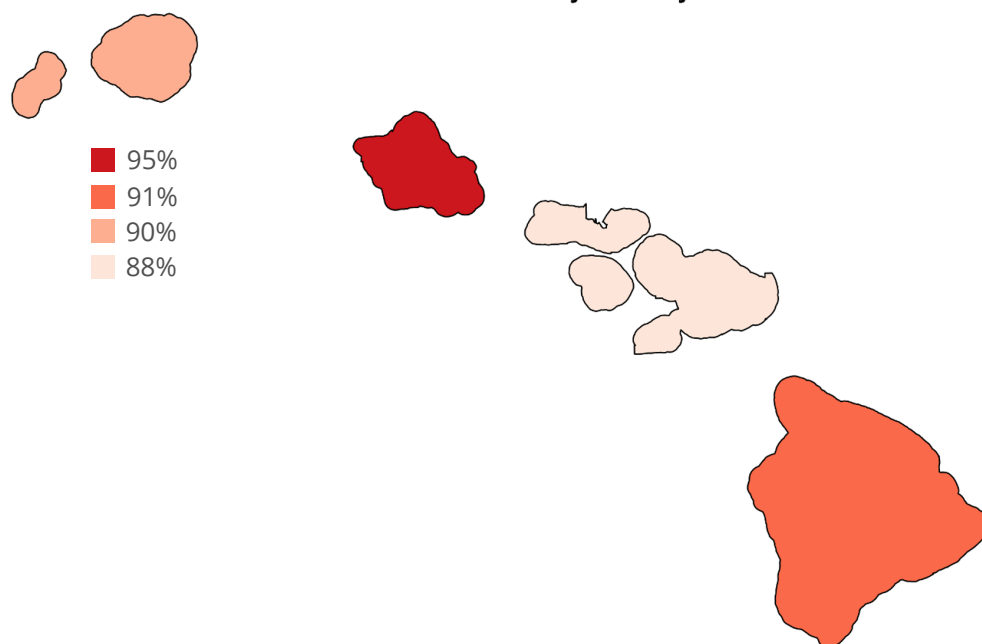
Average Consumption by Vaccination Status



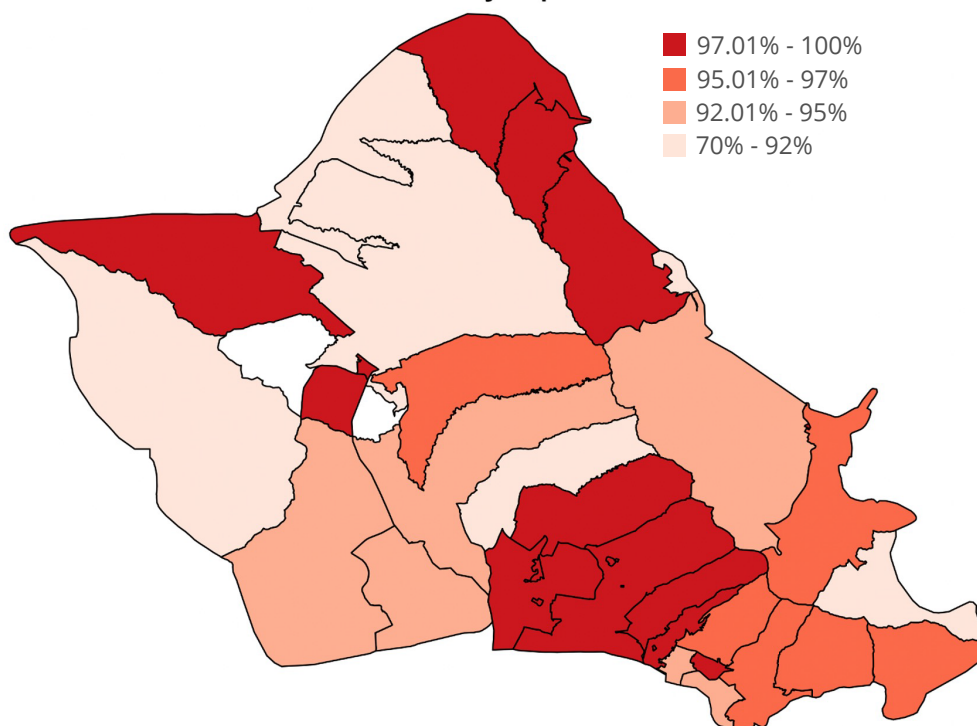
Unvaccinated Rate by Education Level



vaccination rate by county



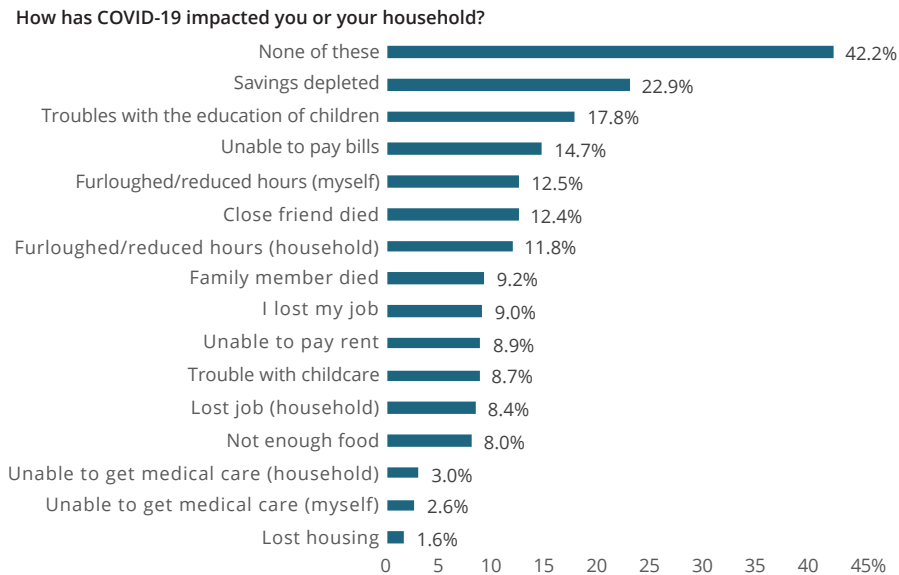
vaccination rate by zip codes - O'ahu



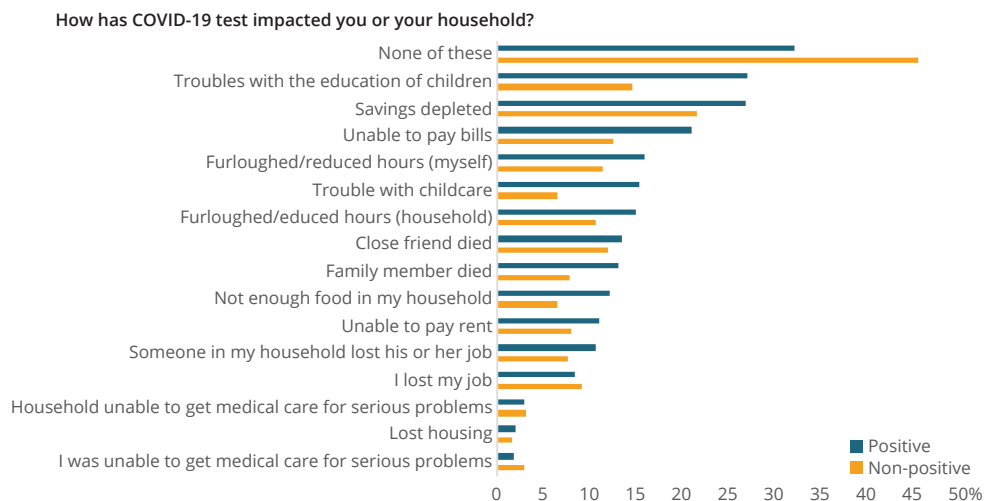
## COVID-19 IMPACT BY POSITIVE TEST AND VACCINATED STATUS

The COVID-19 pandemic has had a large impact on populations throughout the state. We asked individuals to report whether they had experienced any of 15 potential outcomes including depleting their savings, experiencing trouble educating their children, and losing their job or being furloughed. Almost 60% of individuals experienced at least one of these outcomes.

We report descriptive information on these outcomes in the figure below. We see that 22.9% depleted their savings and 14.7% of adults were unable to pay their bills. Among parents, 17.8% reported trouble educating their children and 8.7% had difficulties with childcare. Work and work-related issues also created challenges. About 12.5% of respondents indicated that they were furloughed or had their working hours reduced, 11.8% indicated that someone in their household was furloughed or had their hours reduced, and 9% of individuals lost their job. We also show that 12.4% of respondents had a close friend who died and 9.2% had a family member who died. Housing was also an important issue with 8.9% of individuals unable to pay rent and 1.6% of the respondents losing housing as a consequence of COVID. On the other hand, accessing medical care was not a major concern. Only 3% of respondents were unable to get medical care for serious problems for their family members, and 2.6% of the respondents were unable to get medical care for serious problems themselves.



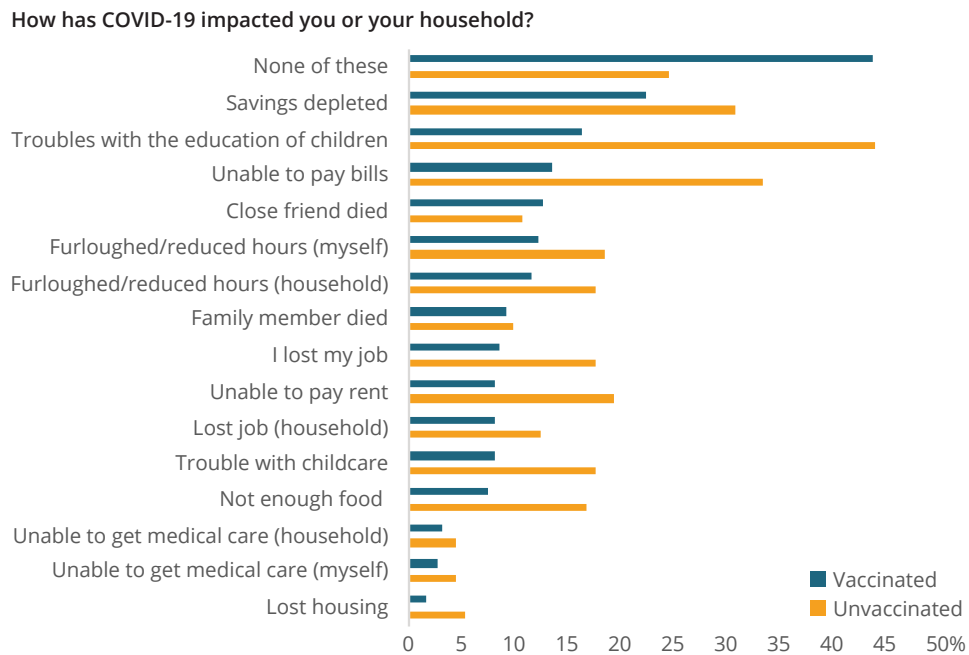
## COVID-19 Impact by Positivity



Not surprisingly, people who tested positive were more likely to be impacted by the pandemic. We see that 45.6% of the non-positive respondents reported none of the listed impacts compared to only 32.2% of respondents who tested positive. An important caveat is that COVID positivity could simply be a proxy for a host of other factors that are associated with the challenges listed above. In other words, the result could be driven by selection and not a causal result.

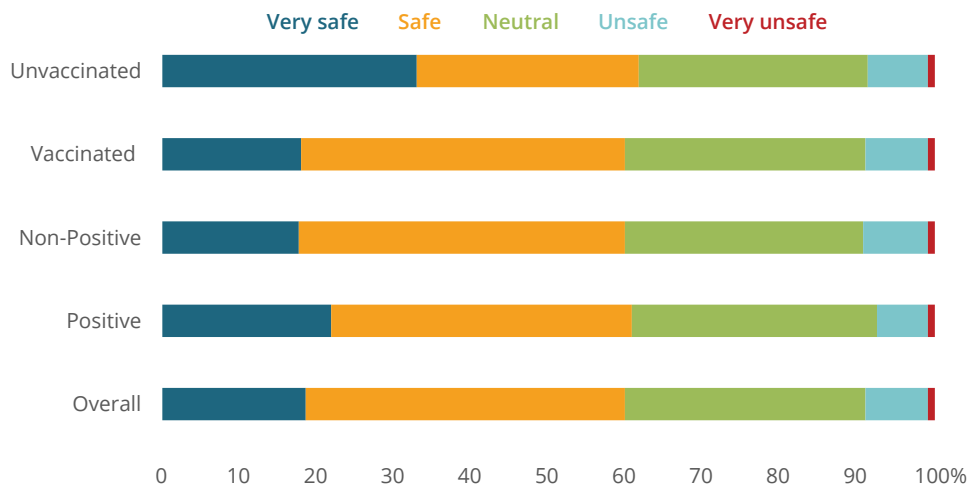
### COVID-19 Impact by Vaccination Status

The figure below depicts differences in the same outcomes for vaccinated and unvaccinated people. It shows similar differences as the figure above with the unvaccinated experiencing greater hardship. However, as before, we offer the same caveat that these results do not necessarily reflect causal effects.



### SAFETY PERCEPTION

**Do you feel safe in your neighborhood/community against COVID-19?**





The respondents were asked about how safe they felt in their community/neighborhood from COVID-19. In general, almost 60% of the respondents felt safe or very safe in their community. Less than 1% of the respondents felt very unsafe in their community. Interestingly, respondents who had COVID felt safer in their neighborhood than respondents who did not (21.8% vs. 17.6%, respectively). Similarly, unvaccinated people reported that their community is very safe (33%) – almost double the percentage of vaccinated people (17.8%).

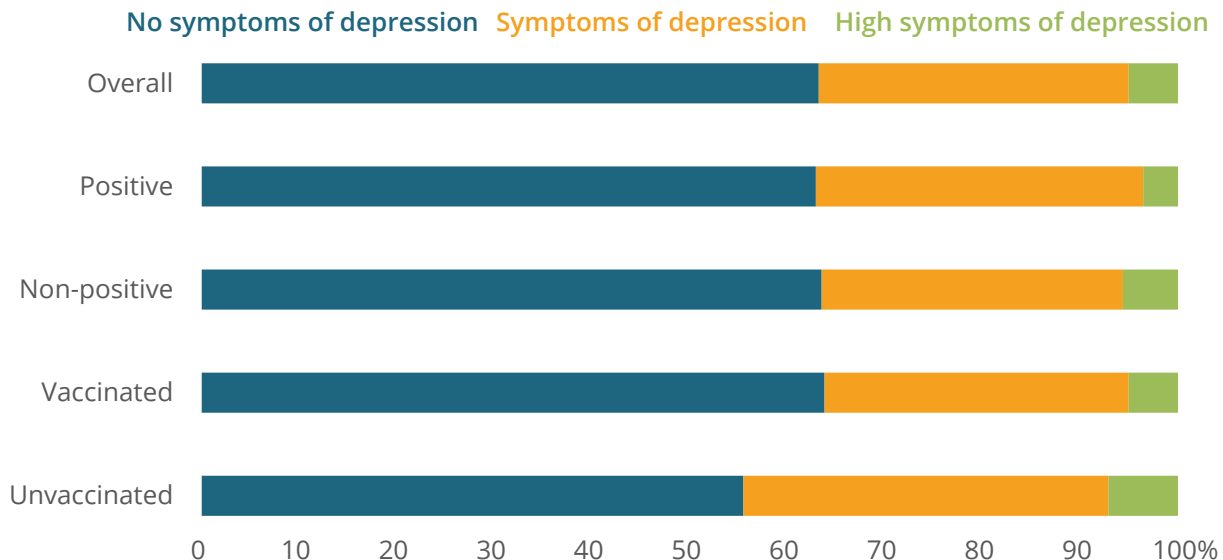
## DEPRESSION AND SELF-ESTEEM

### Symptoms of Depression

We monitor depression in the state using the 10-item Center for Epidemiological Studies-Depression (CES-D) scale. Respondents were asked to rate how often over the past week they experienced symptoms associated with depression including restless sleep, poor appetite, and feeling lonely. The CES-D has a maximum total score of 30. A total score below 10 corresponds to normal; scores between 10 and 20 suggest that the individual is experiencing symptoms of depression, and scores above 20 correspond to highly depressive symptoms.

We report the descriptive information on depression in the State below. About one out of three residents report some symptoms of depression. We do not see any differences between people who did and did not test positive for COVID. However, we do see that the unvaccinated are more likely to experience some symptoms of depression than the vaccinated; rates of symptoms of depression are 44.3% for the unvaccinated and 35.9% for the vaccinated. Once again, the usual caveat applies; these results are not necessarily causal.

#### Symptoms of depression (Overall, positivity, vaccinated status)

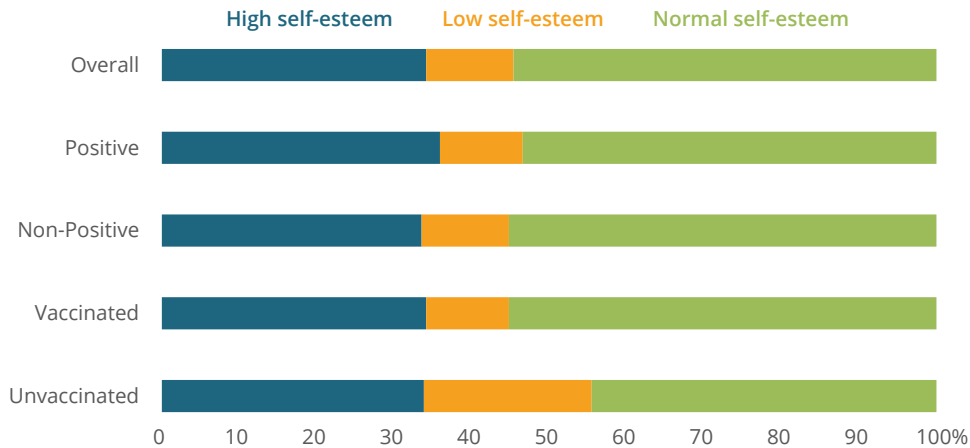


### Self-esteem

We measured self-esteem using the Rosenberg Self-Esteem Scale, which is a 10-item scale used to evaluate both positive and negative feelings about oneself. We report basic descriptive statistics in the figure below.

The results mimic those for depression in many ways. We see that about 11% of the state has low self-esteem and that there are no differences between those who tested positive and those who did not. We do see that the unvaccinated have lower self-esteem than the vaccinated, with the rate being 19.1% and 10.5%, respectively.

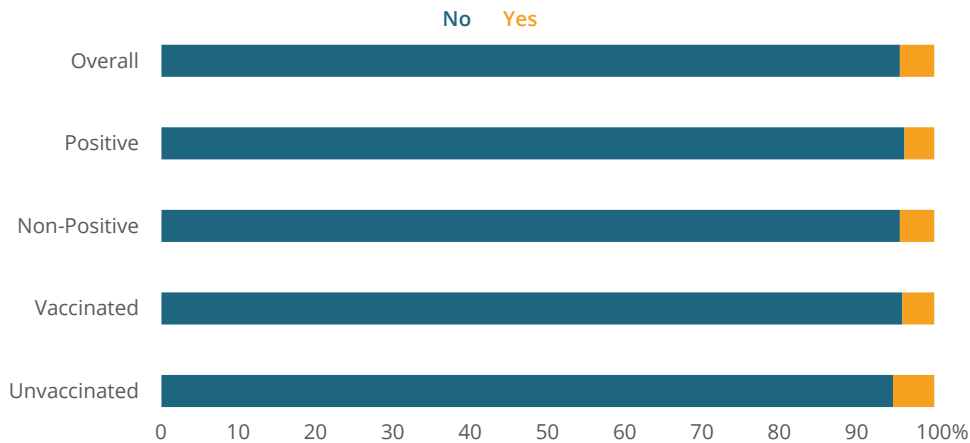
#### Self-esteem (Overall, positivity, and vaccinated status)



### Suicidal Ideation

We also surveyed respondents about whether they experienced suicidal ideation during the past year. We report these results in the figure below. Overall, 4.2% of survey respondents contemplated suicide during the past year, with slightly more unvaccinated people (5.2%) reporting suicidal ideation than vaccinated people (4.2%).

#### During the past year, did you ever seriously consider attempting suicide?

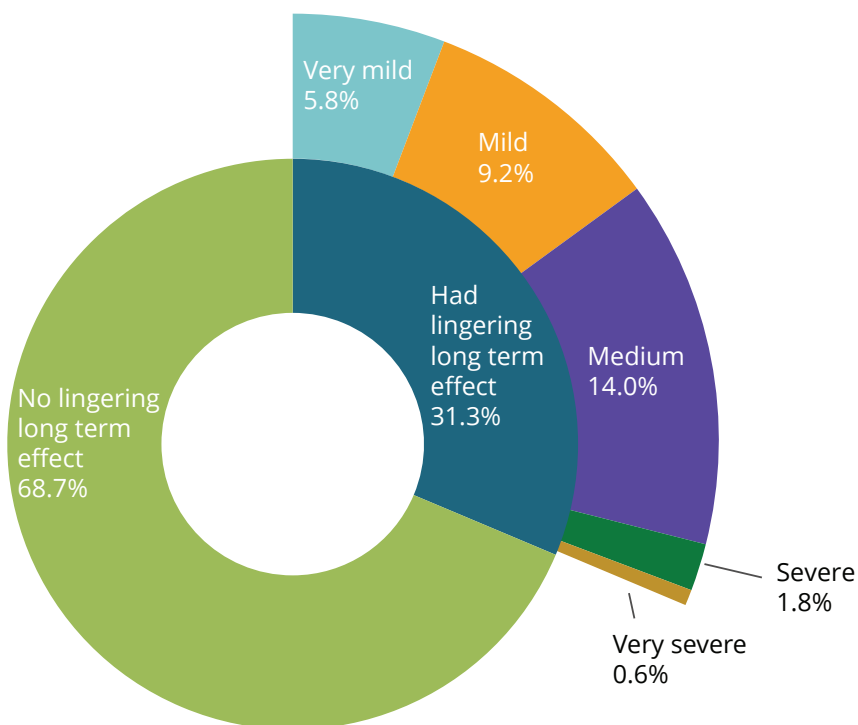


### LINGERING LONG TERM EFFECTS OF COVID-19

According to the CDC, some people who have been infected with the virus that causes COVID-19 can experience long-term effects from their infection, known as post-COVID conditions (PCC) or “long COVID”. Other terms used for “long COVID” include long-haul COVID, post-acute COVID-19, post-acute sequelae of SARS CoV-2 infection (PASC), long-term effects of COVID, and chronic COVID.

We asked respondents if they had any lingering long-term effects of COVID-19. Of those who tested positive, 31.3% reported lingering effects of the disease. About half of these people reported that these symptoms were mild, but the remaining half reported symptoms that were medium to severe.

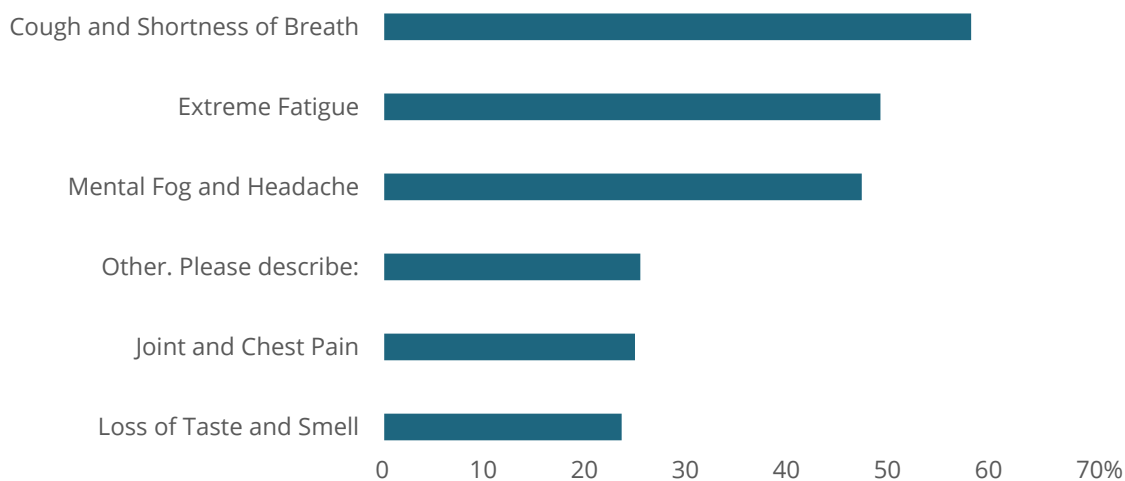
## Have you had any lingering long term effects of COVID-19? How severe are the lingering effects of COVID-19?



### Lingering Effects Experience

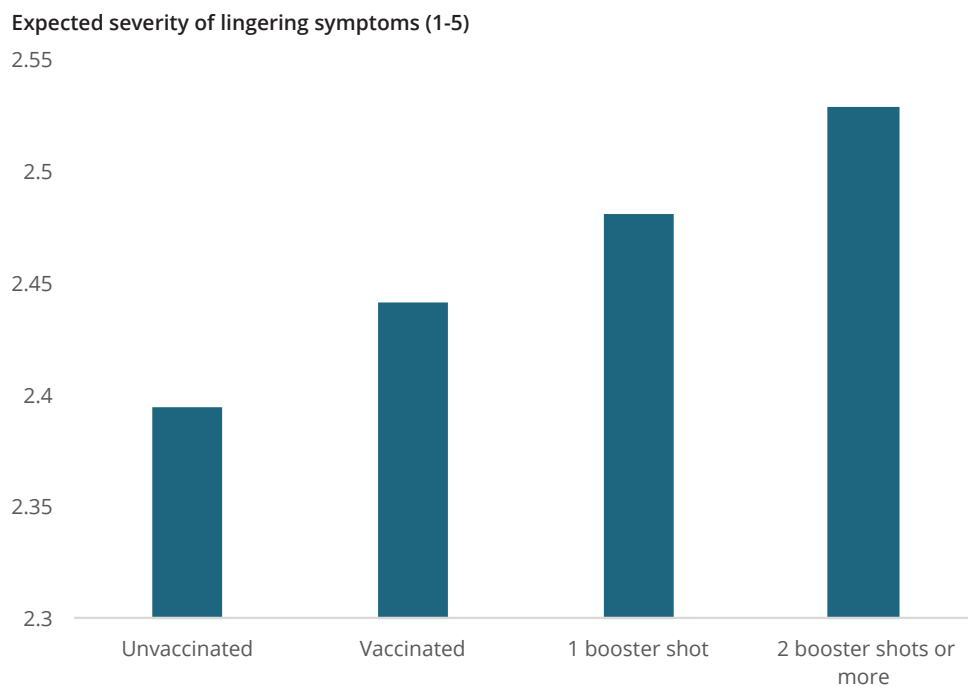
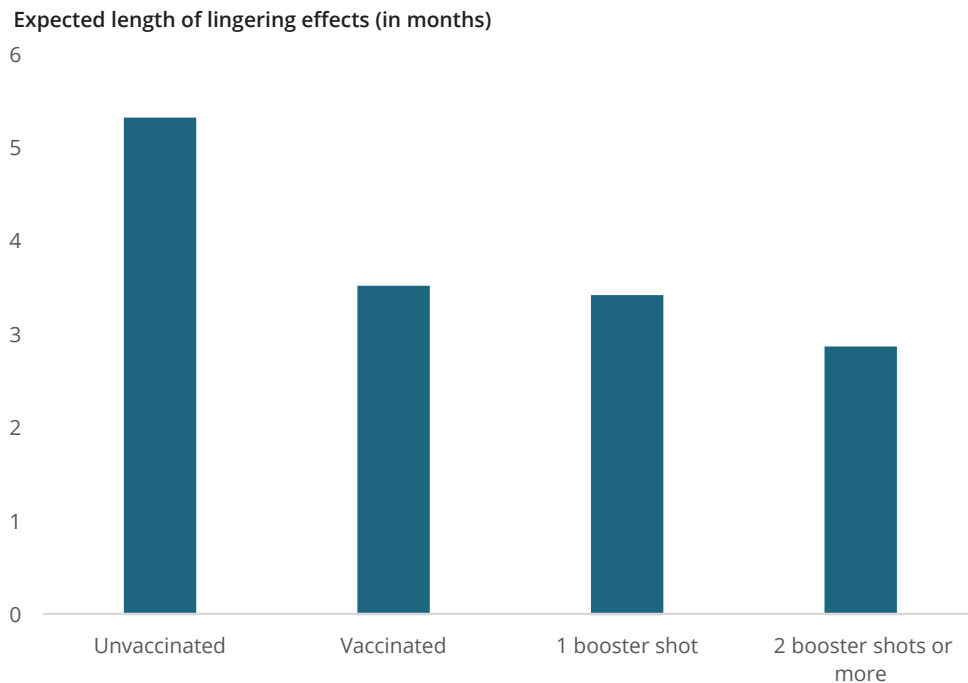
We report the most common symptoms of long COVID below. Cough and shortness of breath were the most common symptoms with 57.9% reporting them. The next two most common symptoms were fatigue (49%) and mental fog/headache (47.1%).

People who contracted COVID-19 often experience lingering effects from COVID-19.  
Have you had any lingering long term effects of COVID-19?



## Length and Severity of Lingering Effects

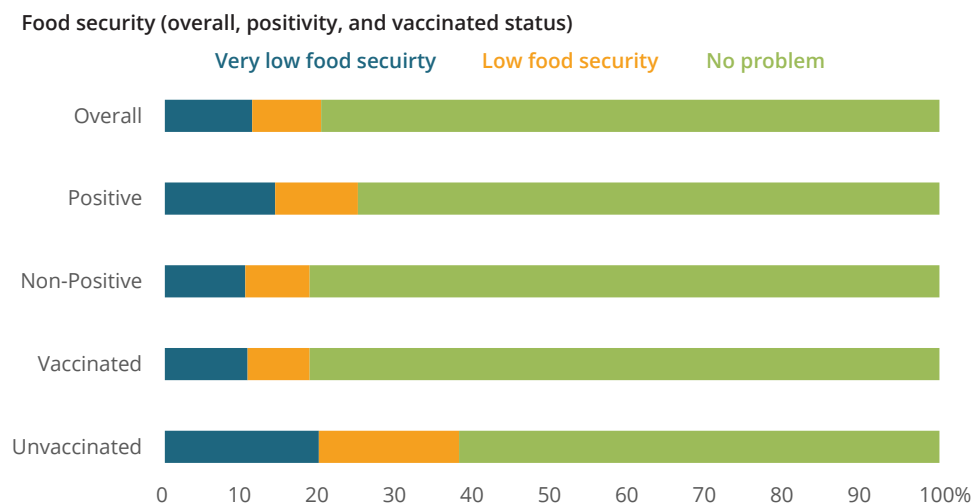
The two figures below describe the expected length and severity of COVID symptoms. The unvaccinated expected symptoms for just over five months. On the other hand, the vaccinated and the boosted expected symptoms for about 3.5 months. Interestingly, there is no meaningful variation in the expected severity of COVID symptoms by vaccination status.



## FOOD SECURITY

To measure food insecurity, we included the Six-item Food Security Scale developed by the National Center for Health Statistics. The index ranges from zero to six. Scores between zero and one are categorized as No problem; scores between two to four are categorized as Low food security; scores between five and six are categorized as Very low food security.

Descriptive statistics for food insecurity are reported below. We found that almost 80% of the respondents had no issue with food security. In contrast, 8.9% of respondents had low food security and 11.4% of adult respondents had very low food security. Respondents who got infected by COVID-19 had more food insecurity than those who never tested positive for COVID-19. Presumably, this reflects the possibility that COVID was more likely to impact people with low socioeconomic status. We see a similar pattern by vaccination status; the unvaccinated were more likely to be food insecure.



## TRUST, CONSUMPTION OF INFORMATION, CONFIDENCE

Trust and consumption of information has been associated with the vaccine and booster uptake in a variety of studies by the investigators on this team. In particular, trust in and consumption of information from official sources such as medical providers, the CDC, and the government, is associated with increased vaccine uptake. In contrast, trust in and consumption of information from unofficial sources, including social media contacts and faith leaders, is associated with decreased vaccine uptake. For this report, we focus on differences in trust and information consumption by individuals who have and have not been infected by COVID-19.

### Information Consumption by COVID-19 Infection Status

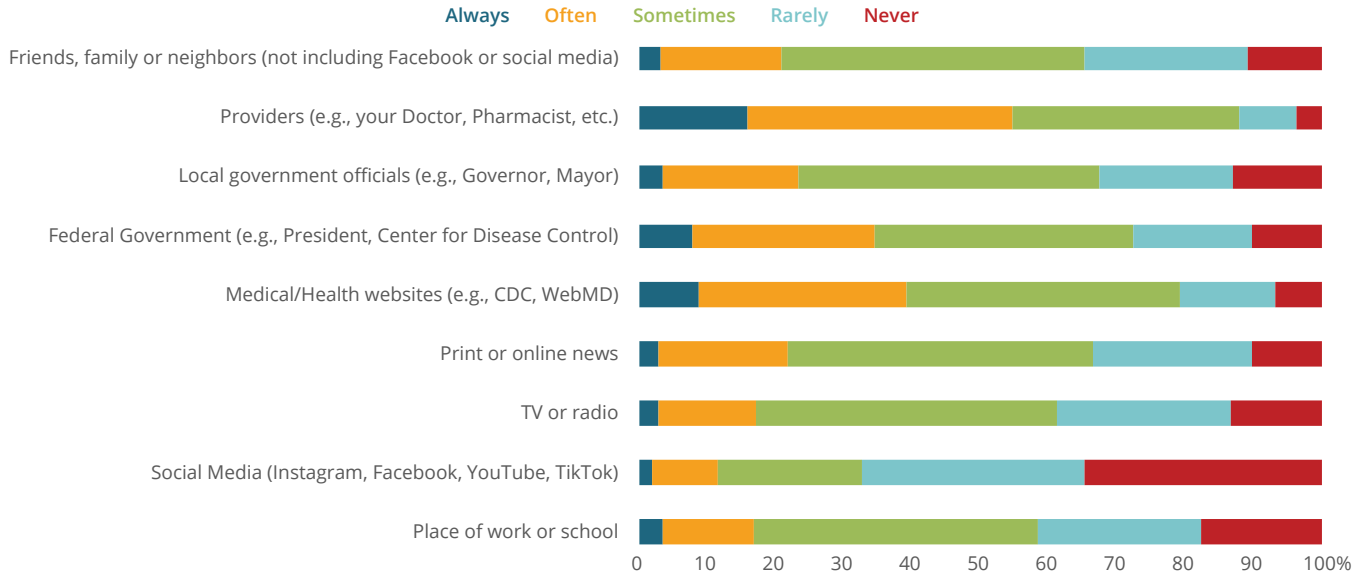
We found differences in information consumption between individuals infected by the virus (positive) and those not infected (non-positive). We note that non-positive respondents tend to consume more information from official sources. In particular, 58.8% of these respondents always or often used information from healthcare providers. While 30.9% of these individuals sometimes used this information source, 10.2% of these people said they rarely or never used information from healthcare providers. This was slightly lower for the positive individuals; 54.9% of positive respondents always or often used information from healthcare providers. 33.2% of the individuals sometimes used information from healthcare providers, whereas 11.9% rarely or never used information from their doctor or pharmacist. Social media (Instagram, Facebook, Youtube, and Tiktok) was more commonly used as a source of information by positive individuals. 39.5% of the non-positive respondents never used information from social media compared to 34.6% of positive respondents.

The positive and non-positive respondents were significantly different in their use of information from medical/health websites and the Federal Government. Only 11.6% of the non-positive respondents rarely used information from medical/health websites while 14.2% of positive respondents rarely used this information. 17.33% of positive respondents

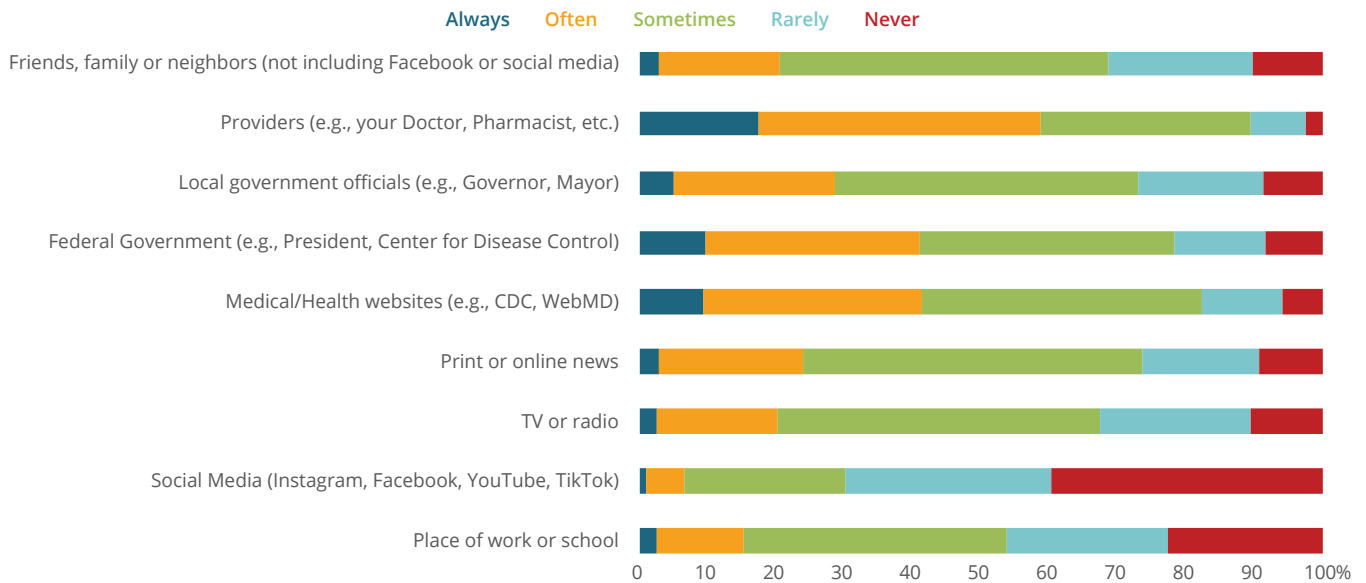


rarely used information from the Federal Government, whereas 10.2% of these people never used this information. Only 8.2% of non-positive respondents never used information from the Federal Government.

#### How often each information source is used among positive individuals



#### How often each information source is used among non-positive individuals



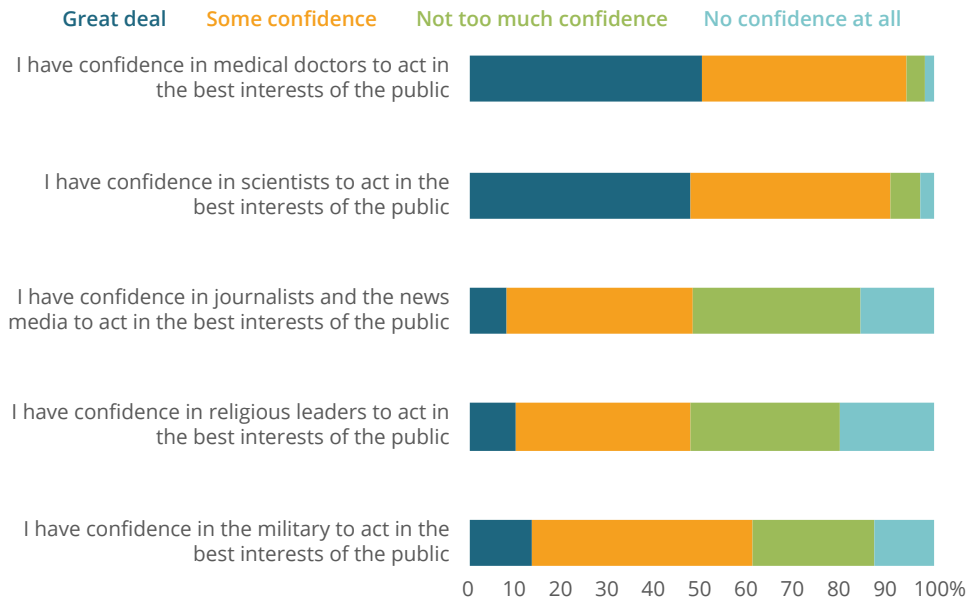
## Confidence in Information

Confidence in information sources is critical for vaccine uptake. We asked individuals to rank their level of confidence in five information source categories: medical doctors, scientists, journalists, religious leaders, and the military. The level of confidence varied across the different categories among individuals who tested positive and those who have not tested positive.

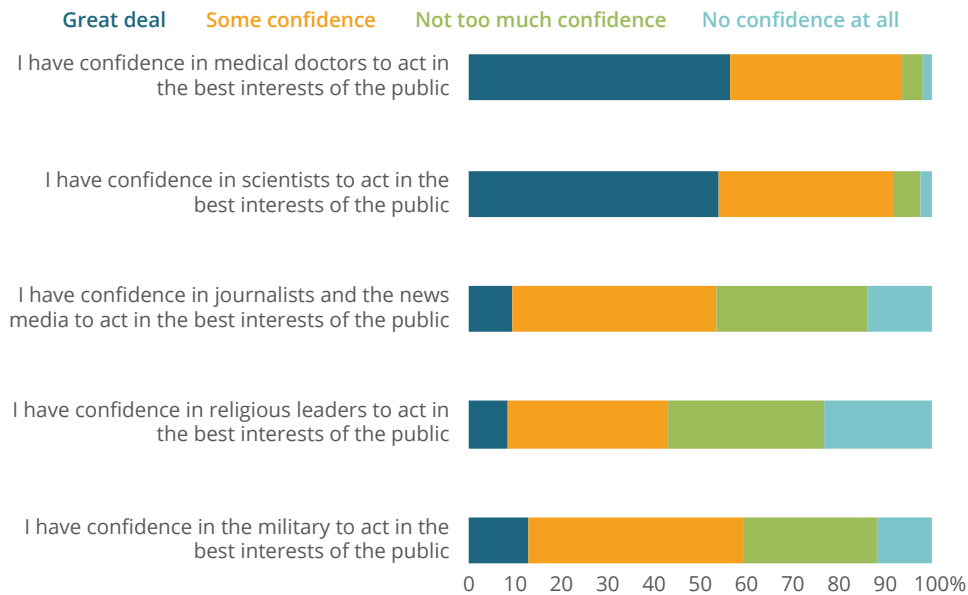
Only 50.2% of positive individuals had a great deal of confidence in medical doctors, whereas 56.8% of non-positive individuals had a great deal of confidence in doctors. 47.5% of positive individuals had a great deal of confidence in

scientists, whereas 53.9% of non-positive individuals had a great deal of confidence in scientists. Despite the low confidence in journalists, there was no statistically significant difference between positive and non-positive individuals. In contrast, no confidence at all in religious leaders was higher in non-positive individuals (23.3%) than in positive individuals (20.3%). No significant differences were observed for the military between positive and non-positive individuals.

#### Confidence among individuals who tested positive



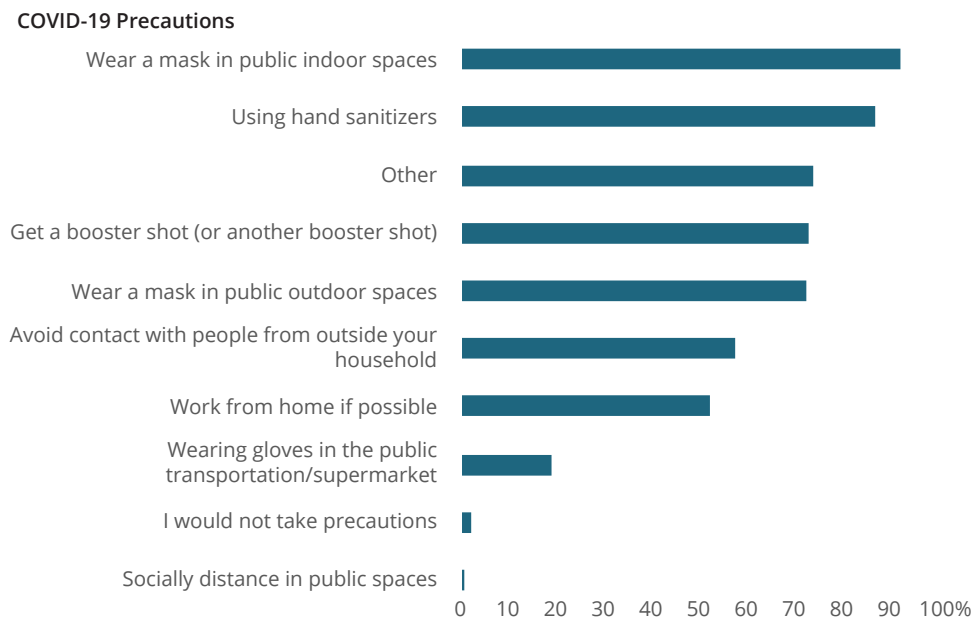
#### Confidence among individuals who did not test positive



## PERCEPTIONS OF THE FUTURE OF THE PANDEMIC

### Future Precautions

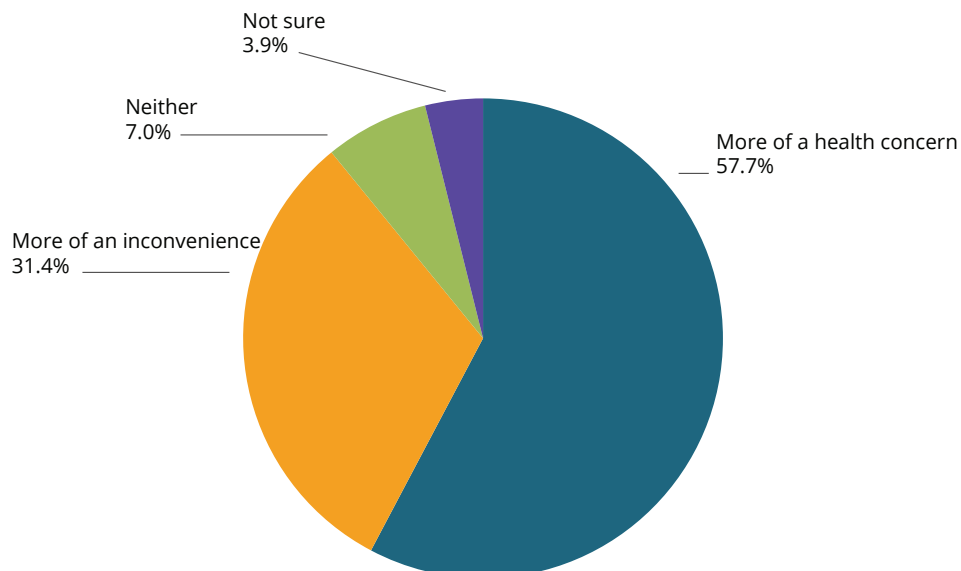
Respondents were asked what precautions they plan to take if there is another large wave of COVID-19. The most prevalent precautions were willingness to wear a mask in public indoor spaces (92%), using hand sanitizer (86.8%), getting a booster or another booster shot (72.8%), and wearing a mask in public outdoor spaces (72.4%). 73.8% reported taking other precautions, which primarily consisted of washing hands frequently and limiting errands and contact with others outside of their households.



### Personal Views of Current COVID-19 Impacts

Most respondents felt that the current impact of COVID-19 on their life was primarily a health concern (57.7%), followed by those who found it to primarily be an inconvenience (31.4%). Only 7% of respondents felt that it was neither a health concern nor an inconvenience.

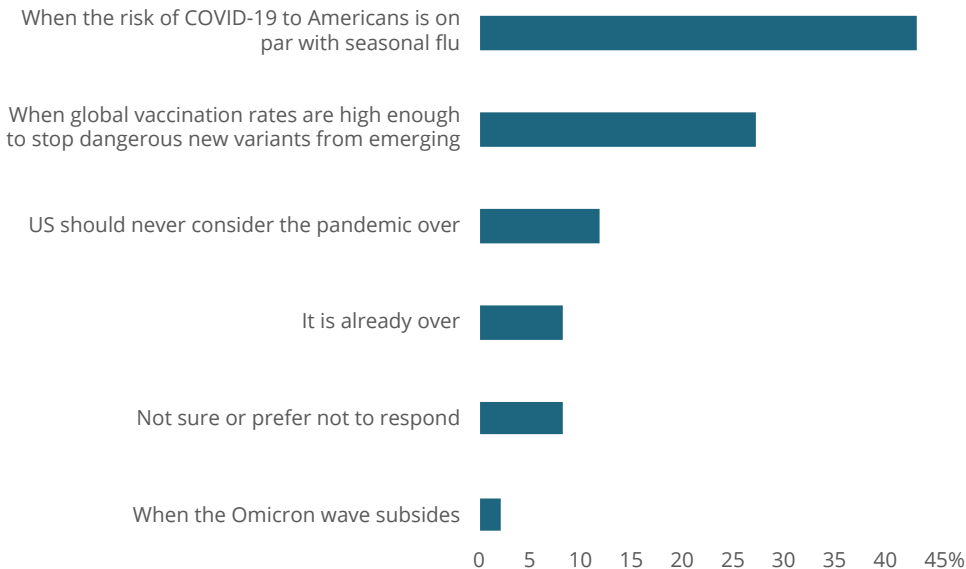
As it affects me, COVID-19 is now...



## Perception of When the Pandemic Will be Over

The largest share of respondents believe the pandemic will be over when the risk of COVID-19 is on par with the seasonal flu (42.9%), followed by those who believe it will be over when global vaccination rates are high enough to stop dangerous new variants (27.2%). 11.7% believe the pandemic should never be considered over in the US. Lastly, 8.2% believe it is already over.

### COVID-19 is over?



## LIMITATIONS

Data from this survey was collected from a cohort of over 2,000 individuals. No source of data and instrument is perfect, so we note the following points of caution in this report. First, as with any survey data, answers to questions are self-reported from the pool of participants that could include people providing more socially desirable answers. Second, although the sample provided seems to have good coverage across all islands, age groups, and most races in the state, the sample cohort tends to be more educated than the state population as a whole, potentially biasing the estimates. Third, the data only provide a snapshot in time, from May 2022, and include a limited number of metrics. In reality, these limited metrics are not comprehensive of all the problems in the state and their values can change over time. We hope that as we sample and expand this cohort further, data gathered will be more representative of the population. Finally, this report should be seen as providing estimates, not absolutes, and some estimates may be more reliable than others. Despite these limitations, we believe that this is some of the best current data available to date about individual effects of COVID-19 in Hawai'i, that it sheds light on some of the pressing problems in the state, and that it can provide guidance for policymakers and the community.

## ACKNOWLEDGMENTS

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THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

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