

Amish found to be under-vaccinated for COVID-19 but not unvaccinated

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This summer, viral misinformation claimed that the Amish did not vaccinate against COVID-19 and, as a result, had a death rate 90 times lower than the rest of the United States. Now, a Penn State study is the first to provide geographically broad and population-wide evidence that while the Amish-populated counties across the nation tend to have lower vaccination rates than other populations, they are not entirely unvaccinated.

The research was published recently in the journal [*Population Research and Policy Review*](#).

The Amish are a distinctive Christian subculture that traces its roots to the 16th century Protestant Reformation. According to Cory Anderson, author on the study and postdoctoral fellow in Penn State's Population Research Institute, part of the Social Science Research Institute, medical documents typically don't include patients' religious beliefs, making it difficult to study the Amish and other religious groups from medical records.

Additionally, the researchers said, a low number of COVID-19 tests were taken in the Amish community during the pandemic, so assessing data on COVID-19 cases or deaths among this population is difficult.

"While there is relatively little quantitative data analysis on Amish vaccination, some local studies have suggested that Amish were [vaccine](#) hesitant before COVID-19," Anderson said. "With new population data on COVID-19 now available, we wanted to determine vaccination rates in counties with high Amish populations."

The researchers conducted an analysis of county-level data in Amish-prevalent counties. As the counties only showed the vaccination rates of the entire population, analyzing Amish-prevalent counties gave the researchers an estimation of Amish vaccination rates.

"We examined over 350 counties spanning 10 Amish-populated states from February 2021—when the vaccines became available—through October 2022 to determine COVID-19 vaccination rates and other social demographic data from a variety of sources including the Centers for Disease Control and Prevention, U.S. Religion Census, U.S. Census, American Community Survey, and the Massachusetts Institute of Technology Election Lab," said Shuai Zhou, postdoctoral associate in the

Department of Global Development at Cornell University and former graduate student under co-author Guangqing Chi, professor of rural sociology and demography at Penn State.

They found that Amish populated counties had an approximately 1.6% lower COVID-19 vaccination rate than counties without significant Amish populations. Given that only three counties had an Amish population of more than 20%, this rate is notable, the researchers said.

The results suggest that higher percentages of Amish in a county significantly decrease the county-level vaccination rate while controlling for other covariates expected to also predict lower vaccination rates, such as political ideology, rural/non-rural status, household income and evangelical Protestant affiliation.

Specifically, on average, while holding all other variables constant in the model, the researchers found that 10% more Amish population corresponded to 16% less in the monthly county-level COVID-19 vaccination rate. All though not explicitly noted in the paper, the researchers' calculations suggested that in October 2022, Amish-populated counties exhibited an average daily vaccination rate of .06%, compared to the national average rate of .08%.

"The results support our hypothesis that Amish affiliation independently predicts vaccine hesitancy," Anderson said. "This finding supports our hypothesis that Amish are under-vaccinated for COVID-19, although not at the rate some recent commentators have suggested."

Anderson, who is part of the Amish community, said he saw at the beginning of the pandemic the Amish were side-stepping many preventative measures and hypothesized COVID-19 vaccination rates would be lower than the rest of the population. However, widely circulated commentary that no Amish were vaccinated were

unsubstantiated.

The findings underscore the failure of public health outreach efforts to convince the Amish to accept COVID-19 [preventative measures](#) and vaccines, according to Chi.

"Health service providers working with the Amish need to realize that it takes time to build a collaborative and trustful relationship with them, and humility goes a long way," Chi said.

According to Anderson, the Amish community is unrepresented in higher education, therefore [scientific knowledge](#) about these communities is coming out of institutions they are not a part of.

"This has repercussions on their response when scientific knowledge is translated into public health policy," Anderson said. "Academia should continue to invest in resources to collaborate with this population."

Learning more about this community is important, Anderson said, because the Amish population is growing, and as it grows, the Amish will migrate to new places throughout North America.

"Their impact will be felt on rural communities, where [population density](#) is low and public resources are slim," Anderson said.

With this study complete, Anderson and his team will continue to analyze data to discover deeper cultural changes during the pandemic.

"Challenging times have a way of bringing to the forefront cultural patterns that are buried deeply when life is routine," Anderson said.

"Challenging times reveal what a community is made of and can shape the culture moving forward."

More information: Cory Anderson et al, Population-Wide Vaccination Hesitancy among the Amish: A County-Level Study of COVID-19 Vaccine Adoption and Implications for Public Health Policy and Practice, *Population Research and Policy Review* (2023). [DOI: 10.1007/s11113-023-09816-9](https://doi.org/10.1007/s11113-023-09816-9)

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