A new study examines how Americans acquired food at various points during the COVID-19 pandemic, and how those activities changed over time as case numbers fluctuated and vaccines became available.

"In addition to food acquisition and the restaurant and grocery industry, this also tells us how people behave in a time of crisis. It helps us prepare for the next crisis," said Melissa Ocepek, a professor of information sciences at the University of Illinois Urbana-Champaign whose work looks at the intersection of information and culture with a strong emphasis on food.

Ocepek worked with Brenna Ellison, a former Illinois professor of agricultural and consumer economics who is now at Purdue University, and Illinois doctoral student in agricultural and consumer economics Maria Kalaitzandonakes. The researchers reported their findings in the journal *PLOS ONE*.

They analyzed eight food-acquisition activities—in-person grocery shopping, online grocery shopping, ordering from a meal kit service, indoor restaurant dining, outdoor restaurant dining, ordering takeout from a restaurant, visiting a food bank and visiting a farmer's market.

They used data from survey responses in September 2020, December 2020 and March 2021—points after the initial panic buying and stockpiling early in the pandemic. In September 2020, new COVID-19 case rates were relatively low, but there were concerns about cases rising in the winter and uncertainty about the timing of vaccines. In December 2020, the country was experiencing its first large surge in cases and the first vaccines were becoming available to certain people. In March 2021, cases were falling, with the expectation that widespread vaccine deployment would continue the downward trend.

"We wanted to understand what happened when people were on the other side of the panic mindset and see how people were behaving. Once people started to become familiar with the new normal, how was food buying changing?" Ellison said.

One of the most surprising findings was that in-person grocery shopping remained extremely common throughout the pandemic, even as online grocery shopping increased. According to survey data, more than 90% of people reported shopping in person across the three time periods.

"This finding suggests that brick-and-mortar grocery shopping is not going away in the near future, as has often been predicted, even before the COVID-19 pandemic," the researchers wrote.

Ocepek, who has studied online grocery shopping in the past, said there is something unique about shopping for food in person.

"People like looking at the meat, they like looking at the produce, they like seeing what's in season. Those are things we aren't very good at replicating.
Activities requiring less in-person contact—online grocery shopping, ordering takeout and using a meal kit service—peaked in December 2020, likely due to the surge in cases then, the researchers reported. Visiting a food bank or farmers’ market also peaked at that time. The increased use of online grocery shopping and shopping at food banks continued through March 2021.

The survey results indicate a rising class of hybrid shoppers who buy food both in person and online, with online shopping a complement rather than a substitute for in-person shopping, Ellison said. Grocers will need to examine their marketing strategies and engage with consumers in a way that gets them to shop with the company for both experiences, she said.

Before the pandemic, Americans spent more than half of their food dollars on food consumed away from home, the researchers wrote. As states restricted access to restaurants, they shifted to increased takeout, and about 80% of full-service restaurants added curbside pickup options.

Takeout ordering peaked in December 2020, but it was a common activity for all three periods, the survey results showed.

Just under a third of the survey participants reported eating indoors and outdoors at restaurants in September 2020. The rate of indoor dining increased across the time periods, with a noticeable increase in March 2021, while outdoor dining experienced a consistent decline across those times.

The youngest survey participants, ages 18-34, were significantly more likely to eat at a restaurant, both indoors and outdoors, than the oldest individuals, ages 55 and older. The rates of indoor dining decreased in December 2020 for those 55 and older. It also declined significantly in the Midwest in December 2020, compared with other regions of the country.

Restaurants were more vulnerable to surges in COVID-19, with rates of on-site dining more variable. They need to find ways to get people comfortable coming back to restaurants, the researchers said, as well as find options for when people don’t feel safe eating inside—for example, encouraging outdoor dining by closing streets, as some cities did. They also need to market themselves to those most willing to dine out.

Ocepek and Ellison plan to use the survey data to answer other questions about food acquisition, including more specific ways in which shopping behavior has changed. They want to know if shoppers are making fewer trips per week to the grocery store than before the pandemic, if they are comparison shopping at multiple stores or just visiting one store, and what items they are buying in person and online. They also are interested in consumers’ emotional responses to shopping.

"Everybody has feelings about grocery shopping. It creates a really great environment to understand so much else about our culture and society," Ocepek said.
