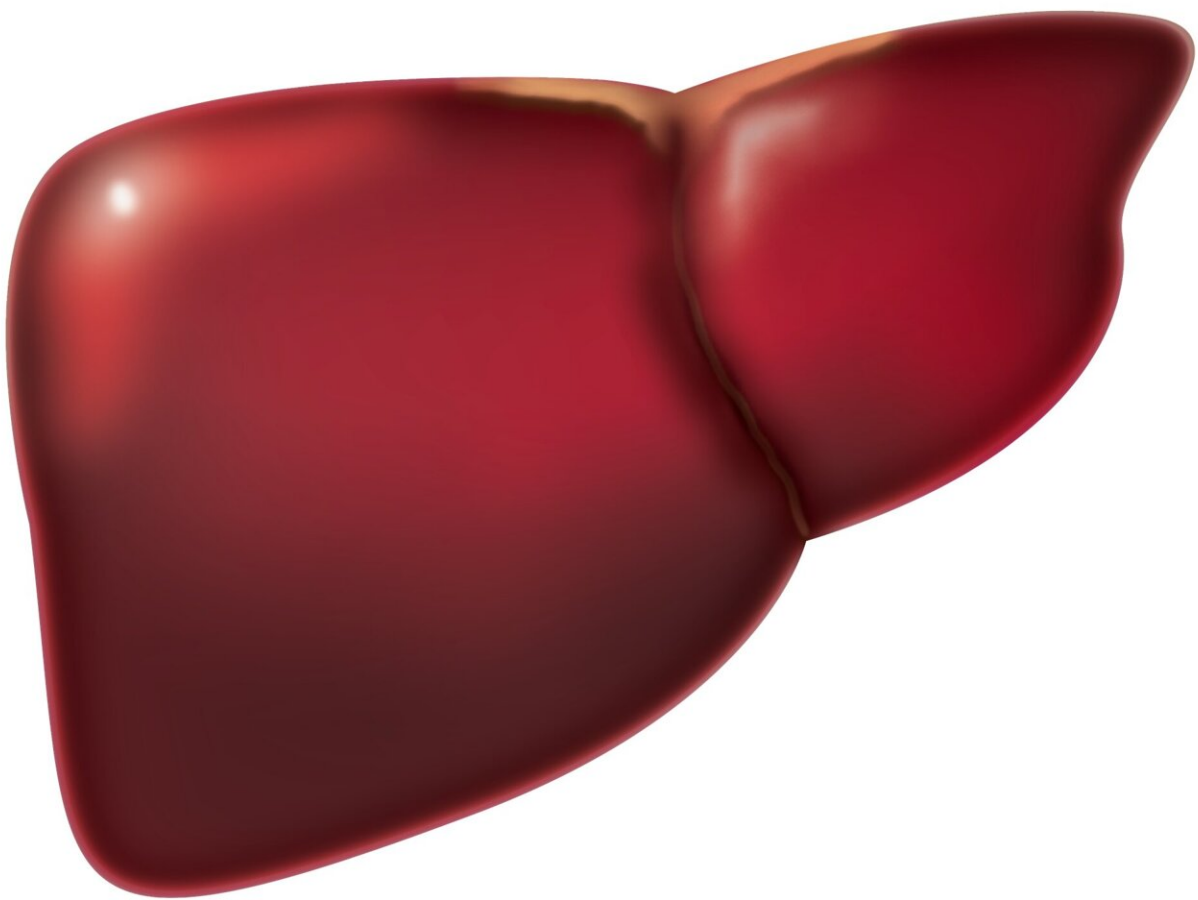


Lack of access to affordable, nutritious food puts those with chronic liver disease at a higher risk of death

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Food insecurity, the limited availability of nutritionally adequate food, is a growing public health concern in the United States. Over 35 million Americans experience food insecurity annually, according to the U.S. Department of Agriculture (USDA). These numbers are estimated to have risen dramatically during the COVID-19 pandemic as economic hardship has caused more Americans to lose access to an affordable, nutritious diet.

A new study by Keck Medicine of USC found that [food insecurity](#) can be deadly for patients with either nonalcoholic fatty [liver disease](#), a buildup of extra fat in the liver that is the most common cause of [chronic liver disease](#) in the U.S., or advanced liver disease, a condition characterized by inflammation and scarring of the liver.

The results showed that people living with nonalcoholic fatty liver disease who are food insecure have a 46% higher risk of death compared to individuals with nonalcoholic fatty liver disease who are food secure.

For those with advanced liver disease who are food insecure, the risk of dying is 37% higher when compared to food-secure advanced liver disease patients.

Additionally, researchers estimated that 3% of nonalcoholic fatty liver disease deaths and 7% of advanced liver disease deaths could be eliminated if food insecurity was eradicated.

"These findings are very significant because while food insecurity has

previously been linked to chronic liver disease, this is the first study to examine its long-term effect on individuals," said Ani Kardashian, MD, a hepatologist with Keck Medicine and lead author of the study. "The study clearly indicates that lack of access to [healthy food](#) is a major health problem for this patient population."

Kardashian, who is also an assistant professor of clinical medicine at the Keck School of Medicine of USC, and her colleagues gathered data from the National Health and Nutrition Examination Survey, a large, nationally representative health and diet survey.

They examined survey results of more than 34,000 individuals 20 years or older from the years 1999-2014. Approximately 5,000 individuals had nonalcoholic fatty liver disease and 1,650 had advanced liver disease.

Researchers next measured food insecurity of these two groups using a food security survey developed by the USDA. After adjusting for gender, age, poverty and education level, race/ethnicity and insurance status, they found that food insecurity is associated with a higher risk of death among adults with nonalcoholic fatty liver disease or advanced liver disease.

Researchers also discovered that those who were food insecure in these two groups were less likely to be non-Hispanic white, and more likely to be foreign-born, suffer from poverty, be publicly insured, have no insurance or have less than a high school education. They were also more likely to be obese and diabetic.

Additionally, they found that the prevalence of food insecurity is high in people with nonalcoholic fatty liver disease and significantly higher compared to the general population.

Finally, the study showed that having nonalcoholic fatty liver disease and

being food insecure was associated with more visits to outpatient clinics.

The researchers hypothesize that several factors may lead to the association between lack of healthy food choices and a greater risk of death for liver disease patients.

"Cheaper, nutrient-poor foods tend to be laden with fat and carbohydrates, which can lead to obesity, diabetes and in turn, to fatty liver and advanced liver disease," Kardashian said. "Individuals with food insecurity also may experience competing demands between food and medical care, and this may be particularly harmful in liver disease patients who require more specialized care."

Kardashian hopes to see more research done to better understand the role diet plays in chronic liver disease. She also recommends that gastroenterologists and hepatologists consider screening chronic liver disease patients for food insecurity, and if found, refer patients to food assistance programs or other community resources.

"This study has shined light on a previously unrecognized problem, and is a crucial jumping off point for more research and interventions to address [food insecurity](#) that may dramatically improve patient outcomes in underserved populations with [liver disease](#)," Kardashian said.

The research was published in *Clinical Gastroenterology and Hepatology*.

More information: Ani Kardashian et al, Food Insecurity is Associated with Mortality Among U.S. Adults with Nonalcoholic Fatty Liver Disease and Advanced Fibrosis, *Clinical Gastroenterology and Hepatology* (2021). [DOI: 10.1016/j.cgh.2021.11.029](https://doi.org/10.1016/j.cgh.2021.11.029)

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