

Alcohol Use Tied to Higher Fatty Liver Disease Risk

Alcohol use was a stronger predictor of liver complications and death than metabolic factors alone.

August 25, 2025 By [Sukanya Charuchandra](#)

Researchers analyzing data from more than 340,000 U.S. veterans found that those with alcohol-associated fatty liver disease or a mixed form involving both alcohol use and metabolic factors faced significantly higher risk of serious liver complications and death than those with [metabolic dysfunction-associated steatotic liver disease \(MASLD\)](#) alone, according to study findings published in [JAMA Internal Medicine](#).

“Modest but clinically meaningful differences in long-term adverse outcomes across steatotic liver disease subtypes highlight the importance of alcohol use and fibrosis assessments in identifying individuals at high risk,” wrote the study authors.

In 2023, experts [adopted a new naming system](#) for steatotic liver disease (SLD), characterized by steatosis, or accumulation of fat in the liver. Over time, the buildup of liver fat can lead to fibrosis (scarring), [cirrhosis](#) and hepatocellular carcinoma, the most common type of [liver cancer](#).

The presence of liver fat and at least one cardiometabolic risk factor is considered MASLD or its more severe form, metabolic dysfunction-associated steatohepatitis (MASH). When heavy alcohol consumption is an additional factor, the condition is called metabolic dysfunction and alcohol-associated liver disease (MetALD). When alcohol leads to steatosis in the absence of metabolic features, the condition is termed alcohol-related liver disease (ALD).

Since this nomenclature update, there has been a need for data on clinical outcomes across these subtypes in large population groups. Pedro Ochoa-Allemant, MD, of the University of Pennsylvania, and colleagues assessed differences in major adverse liver and cardiovascular events, as well as all-cause mortality, for different subtypes of SLD.

The researchers conducted a retrospective cohort study of 341,601 adults diagnosed with fatty liver disease who received care through the Veterans Health Administration between 2010 and 2021. More than 90% were men, 67% were white and the average age was 60 years. Most had MASLD (77%), 20% had MetALD and 4.8% had ALD.

The study authors looked at several primary outcomes. Adverse liver outcomes included cirrhosis, decompensation, hepatocellular carcinoma, liver transplantation and liver-related death. Major adverse cardiovascular events included myocardial infarction (heart attack), stroke, heart failure and cardiovascular death.

Over a median follow-up period of 5.5 years, adverse liver outcomes and all-cause mortality were significantly higher among people with MetALD or ALD compared to those with MASLD. Moreover, the incidence of adverse liver outcomes increased 10-fold across all three subtypes as the degree of liver fibrosis rose, being highest among those with cirrhosis (fibrosis Stage F4).

Unlike adverse liver outcomes, however, the incidence of major adverse cardiovascular events was similar across all three SLD subtypes. Looking at specific risk factors, heavy alcohol consumption, alcohol use disorder and diabetes were most strongly linked to adverse liver outcomes, while hypertension and diabetes were strongly associated with adverse cardiovascular outcomes.

“This cohort study found that patients with MetALD and ALD had modestly higher risks of adverse liver outcomes and all-cause mortality than those with MASLD, with similar risks of major adverse cardiovascular events,” the researchers concluded. “Alcohol and fibrosis assessments may help identify patients at increased risk for long-term adverse outcomes.”

“Our findings of a progressively higher incidence of adverse liver outcomes with increasing alcohol use, measured by a validated instrument, underscore the need for clinicians to assess alcohol use in patients with hepatic steatosis routinely,” they wrote. “Distinguishing between steatotic liver disease subtypes is relevant for prognosis and informing treatment strategies.”

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