

Trends, Mortality and Socioeconomic Inequalities in Pediatric Non-alcoholic Fatty Liver Disease (NAFLD) in the United States, 1998–2020

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Introduction

Pediatric Non-Alcoholic Fatty Liver Disease (NAFLD) has emerged as one of the most common chronic liver diseases in children and adolescents in recent decades. NAFLD encompasses a spectrum of liver conditions ranging from simple steatosis (fatty liver) to non-alcoholic steatohepatitis (NASH), which can progress to cirrhosis and liver failure if left untreated. The growing prevalence of pediatric NAFLD mirrors the increasing rates of childhood obesity, sedentary lifestyles and poor dietary habits, all of which are recognized risk factors for this disease. Between 1998 and 2020, significant shifts in the trends of pediatric NAFLD have occurred in the United States, including changes in prevalence rates, the progression of the disease and the role of socioeconomic factors in disease burden. Additionally, the increasing awareness of NAFLD in the pediatric population has led to enhanced diagnostic approaches and a deeper understanding of its potential long-term impact on health [1,2].

Description

The epidemiology of pediatric NAFLD has evolved considerably over the past few decades. Studies conducted in the late 1990s and early 2000s highlighted the rising incidence of childhood obesity, which has been strongly linked to the growing burden of NAFLD. A number of large-scale, population-based studies during this period demonstrated a direct association between obesity and the development of NAFLD in children, with obesity rates in the United States continuing to increase in parallel with the emergence of this disease. By the late 2000s, several studies confirmed that NAFLD had become the most common liver disease in children, surpassing viral hepatitis as the leading cause of pediatric liver disease.

One of the significant challenges in addressing pediatric NAFLD is the lack of early symptoms, which often results in the disease being diagnosed at later stages when complications have already developed. As such, many children with NAFLD remain undiagnosed until they present with advanced liver disease or complications related to metabolic syndrome. Over the years, improvements in non-invasive diagnostic methods such as liver ultrasound, magnetic resonance elastography (MRE) and transient elastography have facilitated the earlier identification of pediatric NAFLD, leading to more proactive management. However, despite these advancements, a significant gap remains in early detection and prevention of the disease, particularly among high-risk groups.

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Conclusion

The burden of pediatric NAFLD in the United States has increased significantly from 1998 to 2020, driven largely by the rise in childhood obesity and associated metabolic conditions. The disease has become the most common cause of chronic liver disease in children and while the long-term mortality data remains limited, there are growing concerns about the potential for NAFLD to progress to more severe liver disease in adulthood. Socioeconomic factors, including income level, access to healthcare and racial and ethnic disparities, play a critical role in the incidence, diagnosis and progression of the disease, with disadvantaged children facing higher rates of obesity, later diagnoses and more advanced disease at the time of detection. Despite advances in diagnostic methods, there remains a critical need for effective prevention and treatment strategies for pediatric NAFLD, with lifestyle modification being the primary approach currently available. Moving forward, research into pharmacological treatments and public health initiatives aimed at reducing the underlying risk factors for pediatric NAFLD will be essential in reducing the burden of this increasingly prevalent disease.

References

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