

EPIDEMIOLOGICAL CHARACTERISTICS OF VIRAL HEPATITIS B IN THE REPUBLIC OF UZBEKISTAN

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Abstract

The article presents a retrospective epidemiological analysis of hepatitis B cases in the Republic of Uzbekistan. The study aims to identify the long-term dynamics of morbidity, trends in incidence, regional distribution, and gender-based differences. The findings can be applied to improve preventive measures and epidemiological control of the disease.

Keywords: Parenteral, HBV, liver cirrhosis, medical procedures, incidence rate, epidemiological analysis, incidence.

Introduction

Viral hepatitis B (VHB) is one of the most pressing infectious diseases for the global healthcare system. The disease is particularly dangerous due to its chronic course, severe impairment of liver function, and high risk of mortality. According to the report presented at the World Hepatitis Summit by the World Health Organization (WHO), deaths caused by viral hepatitis increased from 1.1 million in 2019 to 1.3 million in 2022, corresponding to approximately 3,500 deaths per day. Of these cases, 83% were attributable to hepatitis B and 17% to hepatitis C. Currently, about 254 million people worldwide are infected with hepatitis B and 50 million with hepatitis C. Approximately half of these cases occur among individuals aged 30–54 years, while children and adolescents under 18 years account for 12%. Nearly 58% of patients are male [1,2,6,7].

In Uzbekistan, viral hepatitis B has become a major public health concern. According to WHO data, in 2016 approximately 2.5 million people in the country were chronically infected with the hepatitis B virus (HBV), accounting for about 8.3% of the total population. This indicator reflects a high prevalence of chronic hepatitis B among the population [1,2,5].

According to the Global Burden of Disease (GBD) 2019 data, the HBsAg seroprevalence in Uzbekistan was estimated at 4.3% (95% confidence interval: 3.9–4.9%), while among children under five years of age this indicator was 0.4% [3,7,8].



Materials and methods

The study used official reports and morbidity data for 2015–2024 provided by the Committee for Sanitary and Epidemiological Well-Being and Public Health of the Republic of Uzbekistan.

A retrospective epidemiological method was used in the study to assess the long-term dynamics of disease incidence and to analyze incidence rates across different regions.

Results and Discussion

A long-term dynamic analysis of viral hepatitis B incidence in Uzbekistan was conducted. During the period from 2015 to 2024, morbidity indicators were unstable, with noticeable changes in the epidemiological situation observed in certain years (Figure 1). The national incidence rate was 1.1 in 2015. Between 2016 and 2019, the incidence decreased from 0.8 to 0.6. In 2020, the incidence rate declined nearly threefold, reaching 0.2. In 2021–2022, a moderate increase was observed, with rates rising from 0.3 to 0.4, followed by a subsequent decrease to 0.3 and 0.2 in 2023–2024. A retrospective epidemiological analysis of morbidity trends from 2015 to 2024 demonstrated an overall decline in incidence rates from 1.1 to 0.2. However, fluctuations were observed in certain years, indicating instability in morbidity dynamics.

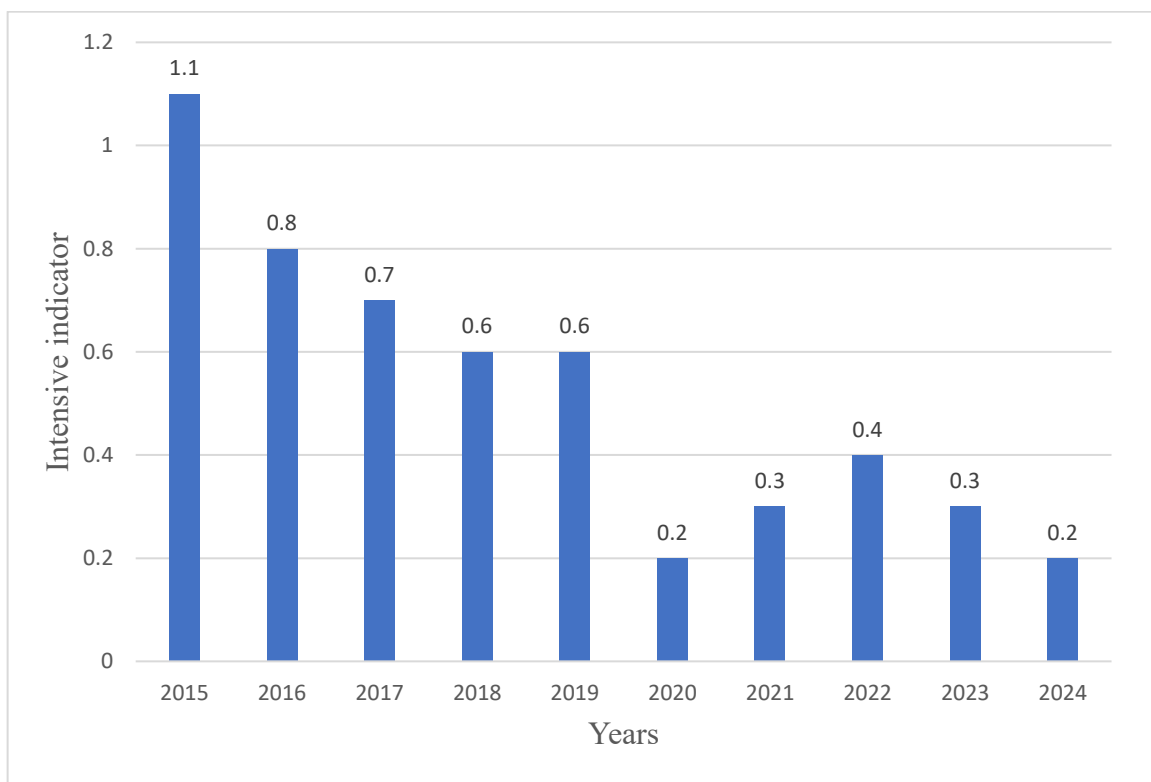


Figure 1. Incidence rates of viral hepatitis B among the population of the Republic of Uzbekistan during 2015–2024 (per 100,000 population)



The sharp decline recorded in 2020 should not be interpreted as a true reduction in incidence but rather as a consequence of the COVID-19 pandemic, which significantly disrupted epidemiological surveillance and healthcare services. In subsequent years, morbidity indicators showed relative stabilization.

An analysis of the distribution of viral hepatitis B incidence across cities, regions, and the Republic of Karakalpakstan of the Republic of Uzbekistan was conducted, and the following results were obtained (Figure 2).

From 2015 to 2024, a general downward trend in disease incidence was observed across the regions. In 2015, the highest incidence rates were recorded in the Republic of Karakalpakstan and Syrdarya region, while the lowest rates were observed in Fergana and Namangan regions. In subsequent years, particularly in 2016–2018, a marked decline in incidence was noted in most regions, with a reduction in both the number of cases and incidence rates. During 2019, incidence levels remained low, although relatively higher rates persisted in Tashkent city, the Republic of Karakalpakstan, and Bukhara region. In 2020, the COVID-19 pandemic significantly influenced the epidemiological situation, resulting in a substantial decline in reported incidence across all regions, likely due to quarantine measures and restricted access to healthcare services.

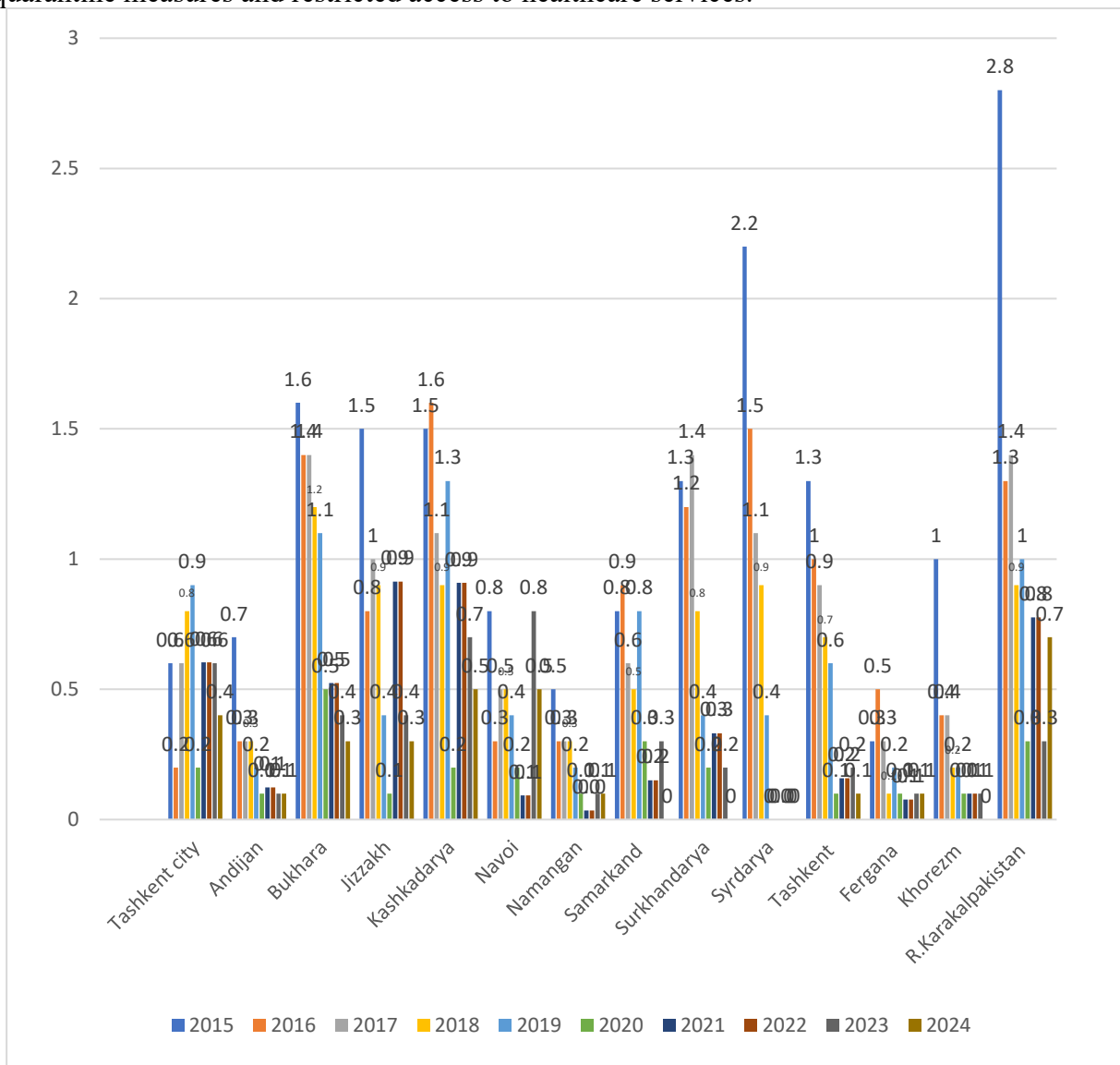


Figure 2. Regional distribution of hepatitis B incidence in the Republic of Uzbekistan (per 100,000 population)



In 2021–2022, a moderate increase in incidence was observed, which may be associated with the expansion of screening programs and enhanced preventive activities. Higher incidence rates during this period were consistently recorded in the Kashkadarya, Jizzakh, and Republic of Karakalpakstan regions. In 2023–2024, incidence rates declined again, reaching their lowest levels by 2024, although relatively higher rates continued to be observed in the Republic of Karakalpakstan, Kashkadarya, and Navoi regions. Overall, several regions, particularly Syrdarya, Namangan, and Surkhandarya, consistently demonstrated minimal case detection throughout the study period. The highest cumulative incidence rates during the study period were observed in the Republic of Karakalpakstan, Kashkadarya, and Bukhara regions, indicating a persistently higher disease burden and the need for strengthened epidemiological surveillance and targeted preventive measures. In contrast, the lowest cumulative incidence rates were recorded in Namangan, Fergana, and Andijan regions, where consistently low incidence levels may reflect effective healthcare services and successful implementation of preventive strategies.

The long-term dynamics of viral hepatitis B incidence among the population of the Republic of Uzbekistan by sex during 2015–2024 were also analyzed (Figure 3).

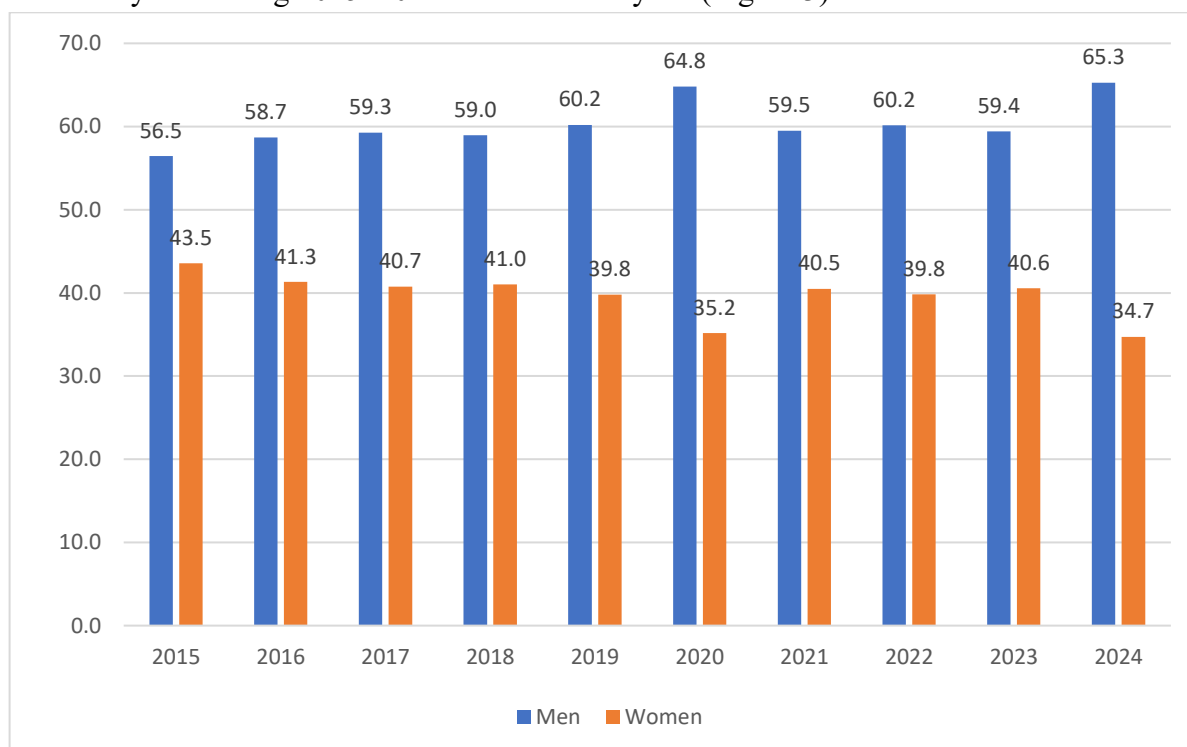


Figure 3. Gender distribution of viral hepatitis B incidence among the population of Uzbekistan during 2015–2024 (percentage)

The study results demonstrated that, over the period from 2015 to 2024, the overall proportion of viral hepatitis B cases was higher among males, accounting for 59.2% of all registered cases. Among females, 40.8% of cases were recorded. The higher incidence among males may be associated with risk factors such as injection drug use, labor migration abroad, unprotected and irregular sexual



contacts, and non-compliance with personal hygiene practices. In contrast, hepatitis B transmission among females may be related to various medical and non-medical procedures.

Conclusion

In the Republic of Uzbekistan, the incidence of viral hepatitis B decreased sixfold between 2015 and 2024. Persistently high incidence rates were identified in the Republic of Karakalpakstan, as well as in the Kashkadarya and Bukhara regions. Overall, viral hepatitis B cases were more frequently observed among males.

Reducing the burden of viral hepatitis B in the country requires targeted elimination of risk factors, improvement of public health awareness and medical culture, and strengthening of disease surveillance, prevention, and control measures. The implementation and further enhancement of these strategies will contribute to a sustained reduction in hepatitis B incidence.

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