

# A Critical Analysis of Socioeconomic Determinants Explaining Health Inequalities in Hepatitis B and C Among Male Prisoners in Nigeria: A Narrative Literature Review

Chidi Peter Onyemali\*

Department of Public Health, Sheffield Hallam University, United Kingdom

\*Corresponding author: Chidi Peter Onyemali, Department of Public Health, Sheffield Hallam University, United Kingdom

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## ABSTRACT

**Background:** The World Health Organization (WHO) has identified viral hepatitis, particularly caused by HBV and HCV, as a major global public health threat. These infections lead to significant morbidity and mortality worldwide, with the number of deaths rising markedly over recent decades. In Nigerian prisons, where male inmates are disproportionately affected, the prevalence of HBV and HCV is notably high. Socioeconomic determinants such as risky behaviors, overcrowding, inadequate healthcare access, and food insecurity play critical roles in exacerbating these infections. Understanding how these determinants intersect and affect health outcomes in this context is essential for developing targeted interventions and improving public health strategies.

**Aim:** The aim of this literature review is to critically examine the impact of socioeconomic determinants of health (SDoH) on the prevalence and outcomes of hepatitis B virus (HBV) and hepatitis C virus (HCV) infections among male prison inmates in Nigeria. By exploring the intersectionality of risky behaviors, overcrowding, inadequate healthcare access, and food insecurity, this review seeks to highlight key factors influencing viral hepatitis transmission and propose strategies for mitigating health disparities within Nigerian prisons.

**Keywords:** Viral Hepatitis; Hepatitis B Virus (HBV); Hepatitis C Virus (HCV); Socioeconomic Determinants of Health (SDoH); Risky Behaviors; Overcrowding; Unsanitary Conditions; Healthcare Access; Food Insecurity; Nigerian Prisons; Prison Health and Health Disparities

**Abbreviations:** WHO: World Health Organization; SDoH: Socioeconomic Determinants of Health; HBV: Hepatitis B Virus; HCV: Hepatitis C Virus; HCC: Hepatocellular Carcinoma

## Introduction

The World Health Organization (WHO) has identified viral hepatitis, caused by hepatitis B and hepatitis C viruses (HBV and HCV), as one of the most significant threats to global public health (WHO [1]). Viral hepatitis is an inflammation of the liver, predominantly triggered by viral infections, and is a leading cause of morbidity and mortality worldwide (Jefferies, et al. [2,3]). The burden of HBV and HCV is substantial, with the number of deaths rising from 0.89 million in 1990 to 1.45 million in 2013 (Stanaway, et al. [1,4]). This blood borne infections are transmitted through contact with infected blood

or body fluids and are major contributors to global mortality, causing 1.4 million deaths annually (WHO [1,5]). Both HBV and HCV can lead to acute and chronic infections, resulting in progressive liver damage, cirrhosis, hepatocellular carcinoma (HCC), and death (Berumen, et al. [6,7]). In 2016, WHO launched a strategy to eradicate viral hepatitis by 2030, emphasizing prevention, testing, and treatment (WHO [8]). This review explores the intersectionality of socioeconomic determinants of health (SDoH) such as risky behaviors, overcrowding, lack of access to quality healthcare, and food insecurity, and their impact on the health outcomes of male prison inmates in Nigeria, focusing on the prevalence of HBV and HCV infections.

## Global and Nigerian Prison Populations

Globally, over 10.74 million people are incarcerated, with Africa having some of the highest prison populations (World Prison Brief, 2024). Nigeria ranks fifth in Africa for prison population, with 78,621 inmates as of March 2024 (World Prison Brief, 2024). The Nigerian Correctional Service reported 80,507 inmates, 98.2% of whom are male (Nigerian Correctional Service [9]). Men are more likely than women to have higher rates of viral hepatitis and other risky behaviors such as drug injection (Navadeh, et al. [10]). Studies in various Nigerian prisons have shown high seroprevalence rates for HBV and HCV, with significant variation across different regions (Adoga, et al. [11-15]) Dan-Nwafor, 2021.

## Risky Behaviors

Risky behaviors, including sharing needles, injecting drugs, and non-professional tattooing, significantly contribute to the spread of HBV and HCV in Nigerian prisons (Mike-Ogburia, et al. [16]). Drug injection is particularly prevalent among prison populations globally, with an estimated 58% of people who inject drugs having a history of incarceration (Degenhardt, et al. [17]). Limited access to harm reduction services and needle exchange programs exacerbates the risk of HCV infection (Sander, et al. [18]).

## Overcrowding and Unsanitary Conditions

Overcrowding and unsanitary conditions are major SDoH that impact the health of Nigerian prison inmates. These conditions facilitate the spread of infectious diseases, including HBV and HCV (World Health Organization [1]). Overcrowded prisons increase the risk of transmission through contaminated razors, shared needles, and unprotected sexual activity (Khan, et al. [19,20]) (Aldridge et al., 2018). The African judicial system's inadequacies contribute to prison congestion, further exacerbating the spread of infections (WHO, [21-23]).

## Inadequate Healthcare Access

Inadequate access to quality healthcare significantly affects the ability to diagnose, treat, and monitor HBV and HCV infections in Nigerian prisons (Ahmed et al., 2019). Health facilities in prisons often suffer from inadequate staffing, poor equipment, and a lack of essential supplies (Durojaiye, et al. [24]). This results in many prisoners receiving subpar care or going undiagnosed, which worsens health disparities and disease progression (Christopher, et al. [25]). Despite international declarations advocating for prisoners' right to healthcare, access remains limited (United Nations, 2024) (Bretschneider, et al. [26-28]).

## Food and Nutrition Insecurity

Food and nutrition insecurity are critical SDoH contributing to health inequalities among Nigerian prisoners. Inadequate access to nutritionally sufficient and safe foods can lead to chronic diseases and exacerbate infectious diseases like HBV and HCV (Harding, et al.

[29-33]) (Apel & Powell, 2019). Dietary imbalances are common in prisons, especially in developing countries, and significantly impact inmates' health (Mattei, et al. [34-40]). Addressing food insecurity is crucial for promoting health and rehabilitation among prisoners (United Nations, [41]).

## Addressing Health Disparities

A settings approach is advocated to address the health challenges faced by the prison population, promoting inclusion, and tackling inequities (Dooris, et al. [42-45]). The ecological model, derived from Whitehead and Dahlgren's social model of health, emphasizes the importance of the environment in determining health outcomes (Barton, et al. [46]). Implementing health promotion programs and enhancing access to high-quality healthcare in correctional settings are essential for improving the health and well-being of inmates (Baybutt, et al. [47-77]).

## Conclusion

This review highlights the significant impact of SDoH on the health outcomes of male prison inmates in Nigeria, particularly concerning the prevalence of HBV and HCV infections. Addressing these issues requires a multifaceted approach involving policy formulation, research, surveillance, and collaboration among stakeholders. Implementing WHO recommendations and CDC strategies can significantly reduce the transmission and spread of viral hepatitis within Nigerian prisons. Ensuring health equity, preventing disease transmission, and improving the overall health and well-being of prison populations are critical steps toward achieving sustainable public health goals.

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Chidi Peter Onyemali. Biomed J Sci &amp; Tech Res



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