Chapter 9
Intersections of Population Health Management, Pharmacogenomics, and Patient-Centered Care in Hypertension

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ABSTRACT

Hypertension is a common condition characterized by elevated blood pressure levels, and is a major risk factor for cardiovascular disease and other health complications. Blood pressure can be affected by various factors throughout the life course, including nutritional, environmental, and behavioral factors such as fetal and early childhood nutrition and growth, adiposity, diet (particularly sodium and potassium), alcohol use, smoking, physical activity, air pollution, noise, psychosocial stress.

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INTRODUCTION

Hypertension or high blood pressure is a common and chronic medical condition that poses a significant risk factor for various cardiovascular, cerebrovascular, and peripheral vascular diseases. It is a considerable risk factor for these diseases, which can lead to severe consequences such as strokes, heart attacks, coronary disease, heart failure, renal disease, and peripheral artery disease (Alefan et al., 2009; Goenka et al., 2022). The 2019 National Family Health Survey (NFHS-5) showed that the prevalence of hypertension in men aged 15 years and above is about 27%, and in women is about 24% in India. The prevalence of hypertension increases sharply with age in both genders. Hypertension was more prevalent in males than females in subjects aged 15-49 years. The prevalence of hypertension is higher in urban areas (men: 27%, women: 24%) than in rural areas (men: 23%, women: 20%). The regions with a low prevalence of hypertension also had a low proportion of awareness, treatment, and control, indicating a high burden of hypertension in these regions, which underscores the importance of estimating not only prevalence but also awareness, treatment, and control to comprehensively understand the burden of hypertension and ensure effective policy formulation and implementation (Rauniyar et al., 2020).

Hypertension should be considered a primary concern due to its significant impact on health and economic issues at the individual and societal levels (Hebel et al., 1990). According to the Global Burden of Diseases study, hypertension caused 1.63 million deaths in India in 2016, which represents an increase of 108% compared to 0.78 million deaths in 1990. Moreover, the disease burden, as measured by DALYs, attributed to hypertension, increased from 21 million in 1990 to 39 million in 2016, indicating an 89% rise. Treating hypertension is associated with higher healthcare expenses compared to individuals with normal blood pressure, making it one of the most expensive diseases to treat, with treatment costs for hypertensive patients being 80% higher than those for normotensive patients (Hebel et al., 1990). The treatment of hypertension is accompanied by direct and indirect costs, which are very high. This highlights the importance of hypertension prevention and early detection to reduce the financial burden on individuals and healthcare systems (Hebel et al., 1990).

Considerable literature exists on hypertension prevalence, awareness, and control in India. Therefore, the objectives of the chapter include addressing the direct cost burden of hypertension in India and relating it to population health management, pharmacogenomics, and patient-centered care. The chapter aims to present existing evidence on the direct cost burden of hypertension to households, provide policymakers with accurate and relevant information on this critical issue, and determine where further research is needed. Additionally, it seeks to comprehensively understand the burden of hypertension and ensure effective policy formulation and

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