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DIABETES AND HYPERTENSION IN PAKISTAN: ADDRESSING A GROWING DUAL BURDEN

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Two of the most common and linked non-communicable illnesses in the world, diabetes mellitus and hypertension share pathophysiological pathways that increase the risk of cardiovascular morbidity and mortality.[1] Their co-occurrence is not accidental; people with Type 2 diabetes mellitus (T2DM) often develop cardiometabolic syndrome due to oxidative stress, systemic inflammation, increased renin-angiotensin-aldosterone system (RAAS) activation, and chronic insulin resistance, all of which compromise endothelial function and vascular homeostasis. When diabetes and hypertension coexist, the risk of both microvascular and macrovascular problems is significantly higher than when either condition is present alone. This has a multiplicative effect on unfavorable clinical outcomes.[2] Globally, approximately one-third of adults are affected by hypertension,[3] while the International Diabetes Federation estimates that over 537 million adults are currently living with diabetes a figure projected to rise to 643 million by 2030.[4] Obesity, physical inactivity, and sedentary lifestyles are becoming more common, and the rising costs of treating these disorders make them a serious worldwide public health concern that calls for immediate, multisectoral action.[1]

The magnitude of this dual load has escalated to crisis levels in Pakistan. The largest nationally representative epidemiological survey to date, the second National Diabetes Survey of Pakistan (NDSP 2016–2017), found that the overall weighted prevalence of diabetes among adults aged 20 and over was 26.3%, with slightly higher rates in urban areas (28.3%) than in rural areas (25.3%). Alarmingly, 7.1% of survey participants were newly diagnosed during the survey itself, indicating that a substantial proportion of the disease burden remains undetected at the population level. Key risk factors identified in the national survey included central obesity, positive family history of diabetes, and hypertension, the last of which was among the strongest independent predictors of glycaemic dysregulation.[5] An equally serious problem is hypertension: according to the same national survey, the age-adjusted weighted prevalence of hypertension was 46.2% in all four provinces, with 21.3% having recently been diagnosed and 24.9% having self-reported hypertension . Punjab has the highest provincial incidence (49.2%), followed by Sindh (46.3%), Balochistan (40.9%), and Khyber Pakhtunkhwa (33.3%). The main modifiable causes of hypertension in the Pakistani population were found to be lifestyle variables such as obesity, physical inactivity, poor diet, and low socioeconomic level.[6] Pakistan now ranks among the top ten nations globally for the absolute number of adults living with diabetes, with the International Diabetes Federation placing it third worldwide.[4]

The distribution of diabetes in Pakistan has significant geographic variation, according to provincial-level study. Southern Punjab has the highest prevalence of diabetes among the four provinces (15.38% of women and 17.4% of men), followed by Sindh (11.7% of women and 16.2% of men), Punjab (9.83% of women and 12.14% of men), Balochistan (8.9% of women and 13% of men), and Khyber Pakhtunkhwa (11.6% of women and 9.2% of men).[5] Numerous regional studies conducted around the nation have shown that diabetes and hypertension coexist at the facility level. At Rawalpindi Union Councils, 38.3% of 404 participants had diabetes and 32.9% had hypertension; at Pak International Medical College in Peshawar, 25.6% of 500 participants had both conditions at the same time; and at Jinnah Postgraduate Medical Center in Karachi, 75.7% of 262 participants had hypertension and 72.5% had diabetes. Additional institution-based findings from Southern Punjab showed that 38.3% of 200 patients had diabetes associated with hypertension, while in North Punjab's cardiology wards, 37% had hypertension and 19.4% had diabetes among 505 patients . It is crucial to remember that these institution-based prevalence statistics might not be directly applicable to the community level and probably represent a subset of high-risk clinical populations.[7] Collectively, these data highlight a consistent and geographically widespread pattern of cardiometabolic comorbidity that demands a nationally coordinated clinical and public health response.

Recent high-quality clinical trial evidence has significantly influenced the management of blood pressure in patients with concomitant T2DM and hypertension. In this population, pharmacological treatment with RAAS inhibitors—specifically, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers—is the recommended course of action since these drugs concurrently treat insulin resistance, lower proteinuria, and have renoprotective advantages .[8] The right target for systolic blood pressure (SBP) in type 2 diabetes (T2DM) has long been a topic of clinical discussion, going beyond drug class selection. This topic has now been largely answered by the historic Blood Pressure Road (BPROAD) randomized controlled trial, which enrolled 12,821 individuals with T2DM and increased SBP who were 50 years of age or older across 145 clinical sites in China. Over a median follow-up of 4.2 years, participants were randomly assigned to either intensive therapy targeting SBP of less than 120 mmHg or routine therapy seeking less than 140 mmHg. The trial demonstrated that intensive blood pressure control significantly reduced the incidence of major cardiovascular events, driven principally by a meaningful reduction in fatal and non-fatal stroke.[9] These results clearly apply

to Pakistan, where stroke is one of the main causes of cardiovascular death and hypertension control among diabetic patients is still persistently poor.[6] The inclusion of stricter SBP objectives in revised national clinical guidelines for T2DM patients in Pakistan is well supported by the BPROAD data .[9]

The efficient management of these chronic illnesses at the population level is significantly hampered by significant structural limitations in Pakistan's healthcare system. According to a thorough analysis of Pakistan's hypertension management issues, the main causes of the country's rising blood pressure prevalence are lifestyle risk factors like obesity, poor diet, physical inactivity, and low socioeconomic status. The main obstacles to effective disease control, especially in primary care settings, are medication non-adherence and a lack of blood pressure monitoring.[10] A purposeful, multisectoral public health response built on four interwoven pillars is needed to address this dual burden. First, since central obesity and a favorable family history are the most frequently found risk factors in national surveys, community-level public awareness programs should focus on educating people about the dangers of obesity and physical inactivity.[5] Second, in high-burden areas like Southern Punjab and Sindh, organized, province-specific screening programs are desperately needed to detect at-risk persons before difficulties arise.[6] Third, dual-disease management pathways must be standardized at the primary and secondary care levels, and clinical procedures must be updated to include strict blood pressure targets for all diabetes patients. .[9]Fourth, updated national therapeutic guidelines should incorporate evidence-based pharmacological therapies, such as RAAS blocking and more recent cardioprotective medicines.[11] Long-term disease control requires investment in basic healthcare infrastructure, which includes accessible point-of-care diagnostics, sustainable drug supply chains, and training for frontline healthcare personnel .[12]

In addition to being a medical issue, Pakistan's growing dual burden of diabetes and hypertension is a reflection of deeper shortcomings in public health governance, primary care infrastructure, and preventive health strategy. These two disorders are clinically synergistic in increasing cardiovascular risk, epidemiologically co-prevalent in all provinces, and pathophysiologically inseparable. It is more important than ever to take transformative action as Pakistan's health system continues to struggle with both communicable and non-communicable diseases at the same time. There is an urgent need to make sustained, evidence-based, government-led investments in primary healthcare delivery, integrated chronic disease management, early diagnosis, and prevention a national health priority. Without this commitment, the cost of diabetes and hypertension would continue to rise at a rate that Pakistan's healthcare system cannot sustain

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