

Lifestyle Modification for Cardiovascular Risk Reduction in India: Time to Shift from Treatment to Prevention

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Received May 27, 2026

Accepted July 12, 2026

Published July 30, 2026

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Dear Editor

Cardiovascular disease (CVD) continues to be the leading cause of death globally, accounting for nearly 19.8 million deaths annually, with more than three-quarters of these deaths occurring in low- and middle-income countries. Importantly, most cardiovascular events are preventable through timely modification of behavioural and metabolic risk factors. Despite remarkable advances in pharmacotherapy, percutaneous coronary intervention, structural heart interventions, and heart failure management, the global cardiovascular epidemic remains largely fuelled by unhealthy lifestyles. This is particularly relevant for India, where rapid urbanization, changing dietary habits, physical inactivity, obesity, diabetes, hypertension, tobacco use, and environmental pollution have accelerated the epidemiological transition toward cardiovascular disease [1,2].

India currently faces one of the world's highest burdens of premature cardiovascular mortality. Cardiovascular diseases account for nearly one-third of all deaths in the country and almost half of deaths among adults aged 40–69 years. Unlike many high-income countries, cardiovascular events in India frequently occur nearly a decade earlier, resulting in substantial socioeconomic consequences, reduced workforce productivity, and increasing healthcare expenditure. The coexistence of traditional risk factors with emerging determinants such as psychosocial stress, sedentary occupations, poor sleep quality, ultra-processed food consumption, and increasing exposure to ambient air pollution has created a "perfect storm" for cardiovascular disease [3–5].

Although hypertension, diabetes mellitus, dyslipidaemia, and obesity are routinely managed in cardiology practice, lifestyle modification often remains the least implemented component of cardiovascular prevention. Lifestyle counselling is frequently limited to brief verbal advice without structured follow-up or behavioural support. Consequently, many individuals continue to progress from metabolic risk factors to overt coronary artery disease, stroke, heart failure, atrial fibrillation, and chronic kidney disease despite receiving appropriate medications. This treatment-oriented approach must evolve into a prevention-oriented model [6,7].

Compelling evidence consistently demonstrates that adherence to healthy lifestyle behaviours substantially reduces cardiovascular morbidity and mortality. Regular physical activity (at least 150 minutes of moderate-intensity exercise weekly), a Mediterranean- or DASH-style dietary pattern rich in fruits, vegetables, whole grains, legumes, and unsaturated fats, reduction in dietary sodium, maintenance of healthy body weight, complete tobacco cessation, moderation of alcohol intake, adequate sleep, and effective stress management improve blood pressure, glycaemic control, lipid profile, endothelial function, systemic inflammation, and overall cardiovascular health. Importantly, these interventions remain highly cost-effective and are feasible even in resource-constrained settings [8,9].

India possesses several opportunities to strengthen cardiovascular prevention through its expanding primary healthcare infrastructure. The Ayushman Bharat programme, Health and Wellness Centres, the National Programme for



Prevention and Control of Non-Communicable Diseases (NP-NCD), and the WHO HEARTS technical package collectively provide an excellent platform for systematic cardiovascular risk assessment, lifestyle counselling, and long-term follow-up. However, successful implementation requires greater emphasis on behavioural interventions, multidisciplinary teamwork, community participation, and continuity of care beyond episodic clinical encounters [10,11].

The digital transformation of healthcare further provides unprecedented opportunities for lifestyle-based cardiovascular prevention. Smartphone applications, wearable devices, remote blood pressure monitoring, smart watches, teleconsultation platforms, and artificial intelligence-enabled cardiovascular risk prediction tools can facilitate personalized behavioural interventions and improve long-term adherence. Integration of these technologies with India's rapidly expanding digital health ecosystem can enable continuous monitoring of physical activity, dietary habits, blood pressure, glucose levels, medication adherence, and sleep patterns while supporting early identification of individuals at high cardiovascular risk. Such precision prevention strategies may substantially improve outcomes while reducing healthcare costs [12,13].

Nevertheless, technological innovations alone cannot overcome the cardiovascular epidemic. Population-level interventions remain indispensable. Stronger tobacco-control measures, reduction of dietary salt and trans fats, front-of-pack nutrition labelling, promotion of active transportation, creation of walkable cities, improved access to healthy foods, workplace wellness programmes, school-based health education, and aggressive control of ambient air pollution should become integral components of India's cardiovascular prevention strategy. These interventions extend beyond the healthcare sector and require coordinated action involving policymakers, urban planners, educators, public health professionals, and civil society [14,15].

The cardiology community also has an important responsibility. Lifestyle medicine should no longer be viewed as an adjunct to pharmacological therapy but rather as the foundation of cardiovascular care. Every patient encounter should include standardized assessment of lifestyle behaviours, individualized counselling, measurable behavioural goals, and structured follow-up. Training in lifestyle medicine and behavioural counselling should become an essential component of undergraduate, postgraduate, and continuing medical education programmes [16,17].

As India confronts an unprecedented burden of premature cardiovascular disease, prioritizing lifestyle modification offers perhaps the greatest opportunity to reduce future morbidity, mortality, and healthcare expenditure. A paradigm shift from treating advanced cardiovascular disease to preventing its development through evidence-based lifestyle interventions is urgently needed. Such an approach will not only improve

cardiovascular outcomes but also contribute substantially to achieving national and global targets for non-communicable disease control.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare no conflicts of interest.

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