REVIEW ARTICLE

Advancing Cardiometabolic Prevention in South Asia: Integrating Life's Essential Model into Primary Care Practice

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Abstract

South Asia has a high burden of cardiovascular diseases due to modifiable risk factors. This review explores the potential integration of the Life's Essential 8 (LE8) model into primary care across the region, providing a structured framework to promote cardiovascular health. A comprehensive search of the related topic was conducted through PubMed, Scopus, and Google Scholar. This model can not only support cardiovascular risk assessment but also help through lifestyle counseling, individualized management and monitoring, task sharing, and community engagement. Its implementation requires healthy dietary practices, increased physical activity, reduced nicotine exposure, and adequate sleep. The key barriers include a workforce shortage, limited consultation time, poor digital infrastructure, and disconnected healthcare pathways. This will help shift healthcare from a reactive to a more proactive approach in South Asia. Further research is needed to assess the effectiveness of the Life's Essential 8 model in low-resource settings.

Keywords: *Life's Essential 8, cardiovascular health, cardiometabolic health, primary care, family medicine, cardiovascular disease prevention, non-communicable diseases.*

INTRODUCTION

Non-communicable diseases (NCDs) are the leading cause of morbidity and mortality in South Asia [1]. South Asia bears significant social and economic consequences due to a high burden of metabolic risk factors resulting in cardiovascular diseases [2, 3]. Global Burden of Disease estimates show that more than 40% of cardiovascular deaths in South Asia occur before the age of 70, compared with 25-30% in high-income countries [4]. Modifiable cardiovascular risk factors play a huge role in this earlier onset across the region [5]. Despite this, primary care across South Asia has focused more on acute treatment than on prevention of cardiovascular risk factors [6, 7].

To reduce the growing burden of this epidemic, chronic disease management within local communities should be strengthened [8]. Family Medicine can address this gap through preventive approaches, as it allows for continuous, longitudinal, and holistic care [9]. The Life's Essential 8 (LE8) framework by the American Heart Association, built on earlier Life's Simple 7, provides an evidence-based approach for cardiovascular health throughout the lifespan [10]. As stated above, cardiovascular disease is mostly caused by modifiable risk factors such as unhealthy diet, physical inactivity, tobacco use, metabolic disorders, and poor sleep health, and all these factors need to be improved to promote cardiovascular health [11]. This narrative review explores the potential applications of LE8 in primary care and family medicine in Pakistan and across South Asia.

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Received: February 14, 2026; Revised: July 31, 2026; Accepted: September 08, 2026
DOI: https://doi.org/10.37184/lnjpc.2707-3521.8.86

LITERATURE SEARCH STRATEGY

A comprehensive search was conducted of the published literature related to Life's Essential 8 (LE8) and cardiometabolic health promotion across Pakistan and South Asia. Electronic databases including PubMed, Scopus, and Google Scholar were searched. Search terms included "Life's Essential 8," "cardiometabolic health," "primary care," "family medicine," "non-communicable diseases," "implementation," "Pakistan," and "South Asia." Studies were selected for relevance, and only English-language articles were included. Eligible sources included American Heart Association scientific statements, WHO policy documents, systematic reviews, meta-analyses, randomized controlled trials, and observational studies. This is a narrative review; therefore, methods such as protocol registration, duplicate screening, and formal risk-of-bias assessment were not performed. Findings were synthesized narratively to present current evidence and its application to primary care.

LIFE'S ESSENTIAL FRAMEWORK OVERVIEW

Life's Essential 8 (LE8) assessment tool (**Fig. 1**) represents an update to the previously used "Life's Simple 7" cardiovascular health score, including sleep health and improved metrics for metabolic and behavioral aspects. Each component receives its own score on a scale of 0 to 100, with higher scores representing good cardiovascular health. The components include diet, exercise, nicotine intake, sleep, BMI, blood lipids, glucose and blood pressure. According to American Heart Association recommendations, the overall cardiovascular health (CVH) score is classified into

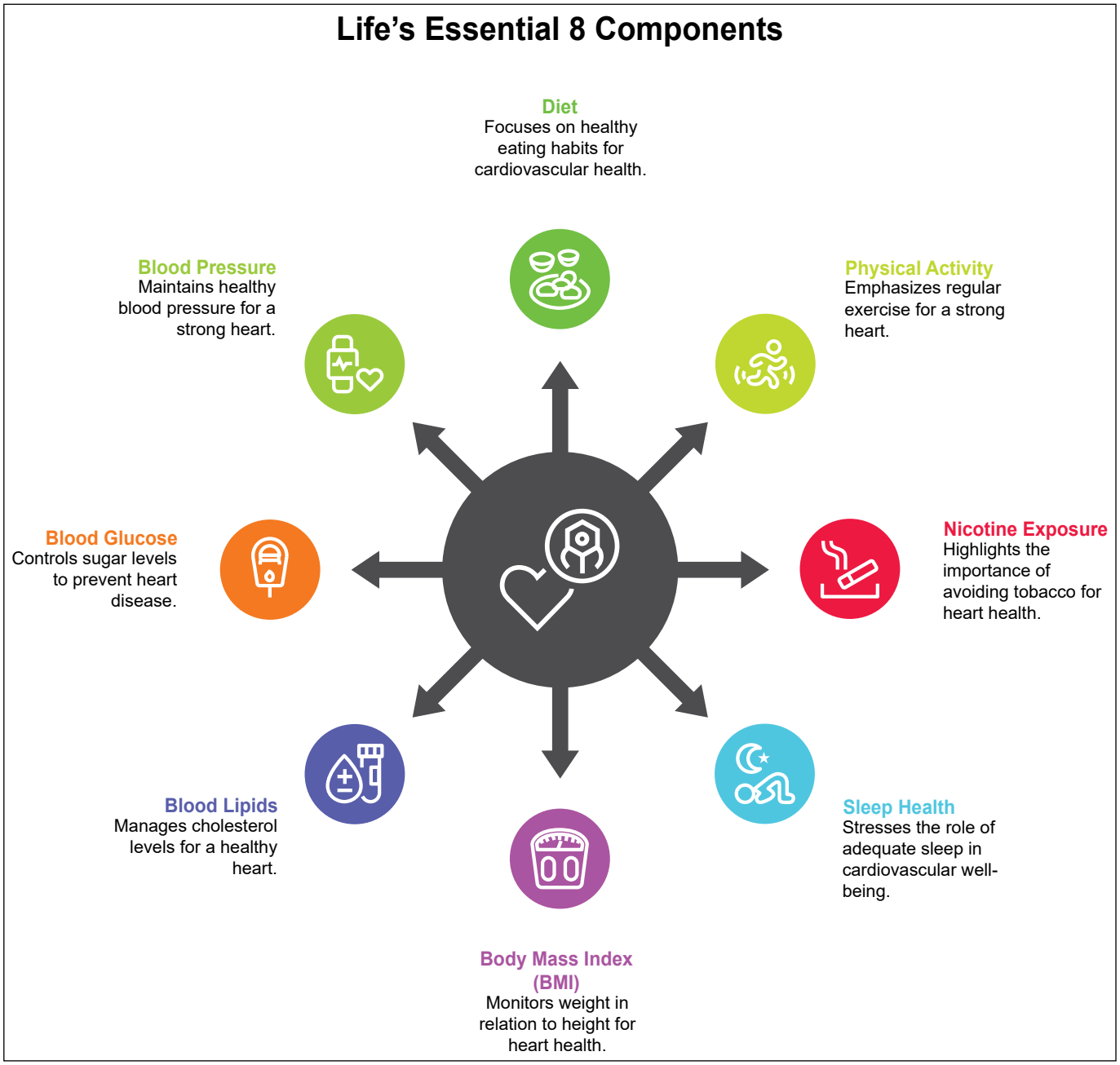


Fig. (1): Life's essential 8 (LE8) components of cardiovascular health.

three categories: low (0 to 49), moderate (50 to 79), and high (80 to 100).

CLINICAL WORKFLOW IN FAMILY MEDICINE

The model can be integrated into routine outpatient consultations using a structured yet simple clinical workflow (**Fig. 2**). A well-known major barrier for primary care physicians is the limited consultation time, making provision of preventive guidelines difficult without systematic support [12]. Nurses or trained healthcare assistants can therefore perform initial screening by measuring blood pressure, BMI, and blood glucose, and by obtaining a lifestyle history [13]. Furthermore, risk assessment tools can be effectively adapted using non-laboratory metrics, such as the WHO CVD-risk non-laboratory-based tool, in resource-limited settings [14].

Family physicians can then calculate scores, perform risk stratification, and provide individualized counseling during consultation [15]. Clinicians should implement structured, evidence-based behavioral counseling interventions to promote healthy diet and physical activity [16]. Patients with severe or suspected cardiovascular disease should be referred to secondary or tertiary care when needed. Task shifting to nurses and community health workers can significantly improve follow-up and adherence in low-resource settings [17]. Electronic medical records or paper-based tools can be used for longitudinal tracking depending on digital capacity [18].

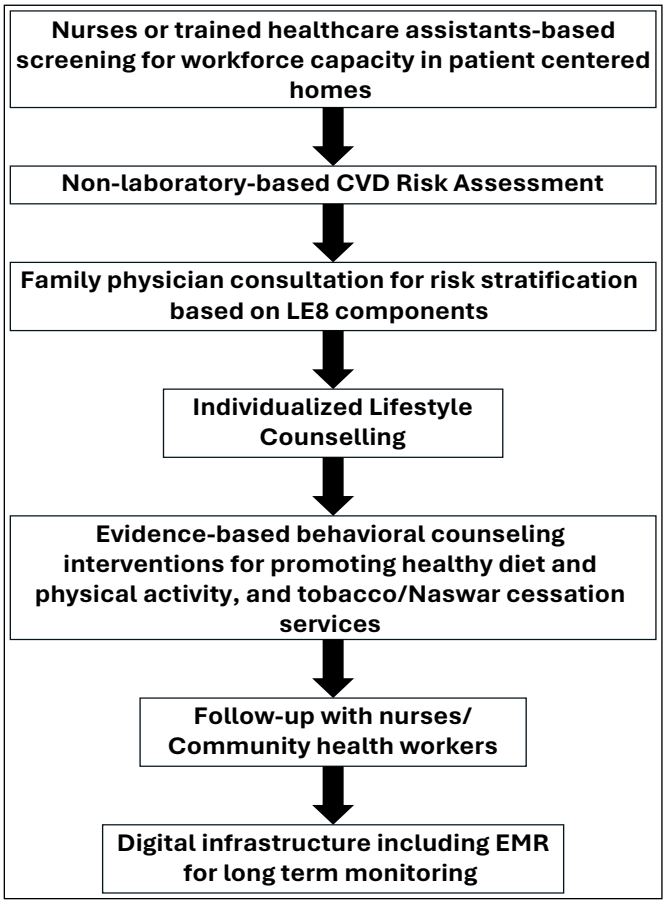


Fig. (2): Clinical workflow for implementation.

COMMUNITY ACTIVATION AND POPULATION-LEVEL HEALTH PROMOTION

Cardiometabolic health promotion should involve the community and society [15]. Awareness of cardiometabolic disease risk factors and their prevention can be done through organizing screening camps, health programs, workplace wellness schemes, and walking groups. Such initiatives should be backed by national policies in Pakistan and South Asia [19, 20].

Moreover, food, exercise and other health behaviors are often influenced by family practices in the region; hence, counselling on family lifestyle is particularly relevant and effective [9]. Large-scale study results show that community health workers are as capable of assessing cardiovascular risk factors as healthcare professionals, so they can play an important role, especially in counseling and follow-up, in rural communities where healthcare professionals are not readily available [21]. This strategy shifts the emphasis for cardiovascular disease prevention from the clinical setting to the community and prevention programs [22]. This change is more critical for South Asia, where it is imperative to develop family medicine and primary care due to rising rates of cardiovascular disease and type 2 diabetes [23, 24].

ADAPTING LE8 TO LOCAL REALITIES

- **Diet:** South Asian diets are typically high in oils, refined carbohydrates, and sugary beverages. LE8 dietary guidance recommends reducing intake of ghee/oil and bakery items, and encourages intake of mixed grains, lentils, vegetables, and fruits [25]. Lifestyle modifications can drastically reduce the rate of progression from impaired glucose tolerance to type 2 diabetes [26].
- **Physical Activity:** Low physical activity is a major factor contributing to poor cardiometabolic health. Major barriers include lack of safe spaces, gender restrictions, and sedentary workplaces. Solutions include home-based exercise guides, indoor and outdoor walking, and workplace movement breaks [27].
- **Sleep Health:** Widespread late-night culture, long working hours, and screen exposure have been proven to directly cause adverse long-term cardiovascular outcomes and all-cause mortality [28]. LE8 recommends that physicians advise sleep hygiene strategies tailored to everyday reality.
- **Nicotine Exposure:** Pakistan has some of the world's highest rates of smokeless tobacco use. LE8 allows clinicians to properly address the disadvantages of smokeless tobacco (*e.g.*, gutka, naswar, paan) and cigarette smoking [29]. This is in accordance with international frameworks that address tobacco cessation through public policy and clinical measures [30].

IMPORTANCE IN PAKISTAN AND SOUTH ASIA

The primary health care framework, which emphasizes both individual- and population-level prevention and management of cardiometabolic diseases by addressing the associated risk factors, is highly relevant and contextually appropriate for Pakistan and other South Asian countries [10]. Family Medicine doctors, being the first point of contact for most patients, play a very important role in delivering this preventative cardiovascular care and structured chronic disease management.

REQUIREMENTS FOR EFFECTIVE FOUNDATION

Stakeholder Collaboration: Strong policy backing is essential to standardize care across the country through the formal integration of Family Medicine as the first point of contact for every patient within the Pakistan National Health Action Plan for Non-communicable disease control. Clearly defined referral and counter-referral pathways, together with effective collaboration among interdisciplinary teams, are needed to ensure coordinated prevention, early detection, and appropriate management of cardiometabolic diseases.

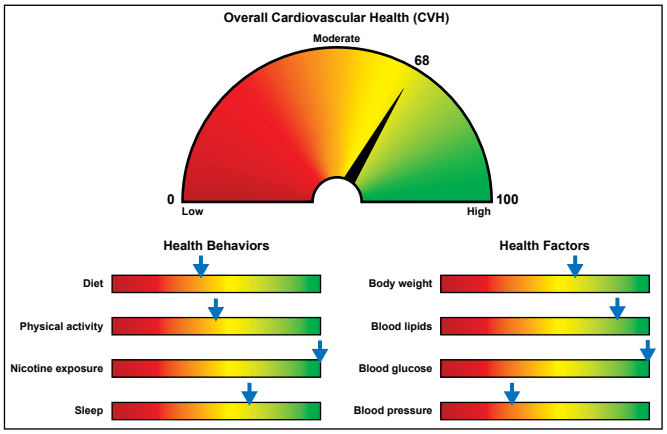


Fig. (3): Cardiovascular health score dashboard for risk stratification [10].

Workforce Optimization: A tiered model of delivery led by trained family physicians, with task-sharing among nurses, health educators, and community health workers to enhance service accessibility, efficiency, and continuity of care, will optimize the delivery of care.

Digital Infrastructure: Non-laboratory-based cardiovascular risk assessment and integration of individual patient records in electronic medical records (EMRs) should be implemented for comprehensive risk assessment, clinical decision-making, optimization of follow-up care, and referral monitoring. Point-of-care testing (POCT)—including rapid blood glucose testing and urine dipsticks should also be used for resource optimization and to avoid over-spending [18].

Family-Centered Care: Family members play a crucial role in Pakistani households; engaging them in adopting a healthy lifestyle can help sustain long-term adherence to preventive interventions. It will also create strong social support and shared responsibility, helping to bring a cultural change.

Risk-Based Triage and Care Pathways: Individuals should be categorized into low-, intermediate-, and high-risk categories using validated cardiovascular risk assessment tools to inform individualized management plans, appropriate referral pathways, and efficient resource allocation (**Fig. 3**) [10].

OUTPUTS

The implementation of this framework in primary care can result in better control of blood pressure, diabetes, and cholesterol. Weight management, dietary control, Smoking and naswar cessation will help to improve overall cardiovascular health outcomes. It will also lead to enhanced medication compliance and continuity of follow-up care. The impact of implementation can be evaluated at baseline and then re-evaluated at 3-year intervals using quantitative and qualitative measures to assess changes in clinical outcomes, service coverage, patient experience and continuity of care.

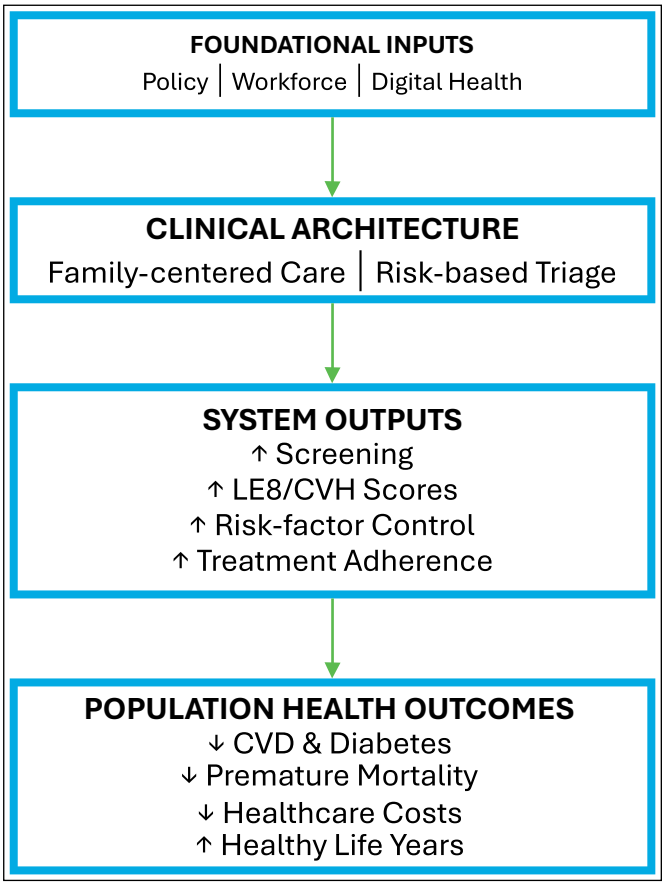


Fig. (4): Conceptual framework for implementing integrated cardiometabolic disease prevention in primary care in Pakistan.

LONG-TERM POPULATION OUTCOMES

The objective of this framework is to reduce the incidence of premature heart disease, hypertension, diabetes, obesity, and other complications of these diseases through early identification and control optimization. At the population level, it is expected to reduce morbidity and mortality and improve quality of life. At the national level, it is expected to reduce healthcare expenditures associated with preventable complications, and strengthen the capacity of primary healthcare systems in Pakistan and South Asia to address the region's growing cardiometabolic disease burden (**Fig. 4**).

BARRIERS TO IMPLEMENTATION

Fee-for-service financing and the prevailing preference for direct specialist consultation pose significant barriers to strengthening care-led prevention. Shortage of trained Family Physicians and health care staff, inadequate digital health infrastructure, fragmented referral pathways, low health literacy, socioeconomic disparities, and marked urban-rural differences in access to primary healthcare services are major barriers to effective preventive care.

POLICY IMPLICATIONS

National health policy should integrate Family Medicine encounters as the first point of contact for every individual and ensure that every individual has at least

one preventive health encounter with a Family Medicine physician every six months to enable regular risk assessment and early identification.

Policies should also support the strengthening of the national health directory and the development of digital health infrastructure for standardized care and future actions. National guidelines endorsing simplified, non-laboratory-based cardiovascular risk assessment tools and clearly defined referral and counter-referral pathways—investment for workforce training, and task-sharing with nurses and community health workers.

DISCUSSION

The preventative care model has the potential to shift the health care system from a curative model towards a preventative model, and from reactive to proactive care. It provides a timely, practical, and evidence-informed framework to strengthen preventative care in Pakistan. Family medicine, with its comprehensive care, person-centered approach, and continuity of care, is very well positioned to implement it across clinical and community settings.

The rationale supporting this framework is evident from multiple studies that have demonstrated that controlling individual components such as elevated blood pressure, diabetes, elevated cholesterol, and obesity, and early identification, are independently associated with reduced cardiovascular morbidity and mortality. [8-11] Furthermore, evidence from high-income countries indicates that structured cardiovascular risk assessment, multidisciplinary team-based care, task sharing, and digital health interventions can improve the identification and management of individuals at increased cardiovascular risk in primary care. [16-18]. Direct evidence evaluating the implementation of LE8 as a comprehensive, integrated framework in routine primary care remains limited, particularly in low- and middle-income countries such as Pakistan. Consequently, several recommendations presented in this review are based on adapting established cardiovascular prevention strategies rather than on studies that specifically evaluate implementation. Future research should focus more on assessing the feasibility, effectiveness, acceptability, and cost-effectiveness of this integrated model within the primary health care system to generate context-specific evidence to inform policy decision-making and cardiometabolic prevention.

CONCLUSION

Integrating Life's Essential 8 into primary care offers a practical way to strengthen cardiometabolic prevention in Pakistan and South Asia. Family medicine can help shift the focus of care from treating illness to preventing it by combining early risk assessment, lifestyle coaching, family and community participation, and routine follow-up.

FUNDING

This narrative review received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this narrative review, the authors used OpenAI tools to assist with language editing, grammar, and text clarity. The scientific content, literature selection, interpretation of evidence, and conclusions were developed independently by the authors. All AI-assisted outputs were reviewed, revised, and verified by the authors, who take full responsibility for the accuracy and integrity of the final manuscript.

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