

Transcendental Meditation to combat psychosocial stress, hypertension and cardiovascular disease

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Psychosocial stress is a major, modifiable driver of hypertension and cardiovascular disease. Transcendental Meditation can effectively lower blood pressure, improve cardiometabolic health and might even reduce clinical cardiovascular disease events. Recognizing Transcendental Meditation within prevention frameworks could transform stress management from a lifestyle option into a core strategy for cardiovascular protection.

Psychosocial stress is recognized as a crucial determinant of cardiovascular health. Chronic stress, depression and anxiety increase the risk of hypertension, cardiovascular disease (CVD) events (such as myocardial infarction and stroke) and premature death. Large epidemiological studies, such as INTERHEART and PURE, have demonstrated that psychosocial stress nearly doubles the risk of major cardiovascular events – similar to the effects of smoking or diabetes mellitus. Through autonomic imbalance, hypothalamic–pituitary–adrenal activation, inflammation and endothelial dysfunction, stress accelerates vascular ageing and impairs repair mechanisms¹.

Global impact of psychosocial stress on hypertension and CVD

Globally, psychosocial factors contribute to approximately 15–20% of mortality from CVD and impose a substantial economic toll of billions of US dollars annually in health-care expenditure and lost productivity. As the global burden of hypertension and CVD continues to rise, addressing psychosocial stress is increasingly essential not only for low-income and middle-income countries (where access to pharmacological therapy is limited and lifestyle strategies offer cost-effective, scalable prevention), but also in high-income countries, where psychosocial stress is escalating. The World Health Organization and American Heart Association (AHA) identify psychosocial stress as one of the top modifiable risk factors for CVD, one which requires integrated action from large-scale policy to individual patient levels¹. In a Review in *Nature Reviews Cardiology*, Vaccarino and Bremner emphasize that stress is both a biological and a social determinant of CVD, and call for multilevel interventions that strengthen resilience while addressing inequities².

However, despite decades of mechanistic and clinical evidence, stress reduction remains underused in CVD prevention.

Mechanistic and clinical evidence for Transcendental Meditation

Transcendental Meditation is a standardized, easy-to-learn meditation technique that has been shown to produce a physiological state characterized by restful alertness, with reduced sympathetic activity, lower cortisol levels and increased parasympathetic tone, indicative of improved autonomic regulation^{3,4}. Transcendental Meditation is practised effortlessly while sitting with eyes closed, allowing mental activity to settle, without focused attention or cognitive control. Neuroimaging and electrophysiological studies demonstrate reduced activation in stress-related regions of the brain and increased neural coherence in the default mode network (the intrinsic network associated with self-referential processing and baseline resting-state integration)⁵.

These neurophysiological changes reflect a coordinated reduction in stress system activation and restoration of autonomic and vascular homeostasis across central and peripheral pathways – a biologically plausible basis for the observed cardiovascular benefits associated with practising Transcendental Meditation⁴. Transcendental Meditation has been associated with reduced sympathetic activity and stress hormone levels, favourable modulation of inflammatory and metabolic biomarkers, and improved indices of vascular structure and function^{3,4}. These integrated effects parallel pharmacological strategies aimed at autonomic and endothelial regulation, which positions Transcendental Meditation as a complementary, low-risk behavioural intervention in CVD prevention and management⁴.

Clinical evidence from more than three decades of randomized controlled trials indicates that practising Transcendental Meditation is associated with reproducible reductions in blood pressure and improvements in surrogate outcomes for ischaemic and hypertensive heart disease as well as clinical cardiovascular event outcomes⁴. In a landmark randomized controlled trial involving patients with established coronary heart disease, Transcendental Meditation was associated with a statistically and clinically significantly reduced risk of the composite clinical end point of all-cause death, myocardial infarction and stroke as compared with a control intervention consisting of health education⁶. A multicentre trial further demonstrated slower progression of carotid intima–media thickness and a substantial reduction in the risk of major adverse cardiovascular events in the Transcendental Meditation group, as compared with the group receiving health education⁷. Long-term follow-up of two earlier randomized controlled trials involving participants with high blood pressure showed sustained reductions in all-cause and cardiovascular mortality over >5 years

Box 1 | Lifestyle modifications to reduce blood pressure

- Weight management
- Heart-healthy diet (Dietary Approaches to Stop Hypertension)
- Regular exercise
- Stress reduction: Transcendental Meditation

with Transcendental Meditation, as compared with other behavioural interventions and usual therapy, consistent with these findings⁸. Taken together, these results provide multiple lines of evidence that a specific stress-reduction intervention can reduce hard cardiovascular end points.

In addition to haemodynamic effects, Transcendental Meditation improves cardiometabolic risk profiles, including insulin sensitivity, plasma lipid levels and components of the metabolic syndrome^{9,10}. These results indicate that Transcendental Meditation acts on upstream pathways that link psychosocial stress to cardiometabolic dysfunction.

Integrating stress reduction into cardiovascular care

The 2025 AHA/American College of Cardiology (ACC) guidelines for hypertension recognize Transcendental Meditation in the context of non-pharmacological therapy to reduce blood pressure. Stress reduction, including Transcendental Meditation, is classified under lifestyle modification (class IIb, level of evidence B-R), alongside recommendations for a heart-healthy diet, physical activity, weight control and sodium restriction¹¹ (Box 1). This inclusion represents a major shift in clinical practice guidelines, and places validated stress-management approaches squarely within evidence-based strategies for the prevention and treatment of hypertension and CVD.

Implementation of stress reduction strategies can follow existing clinical pathways: screening for psychosocial stress in hypertension, cardiology settings and primary care settings; referral to certified Transcendental Meditation instruction; and outcome monitoring through pragmatic registries or routine clinical follow-up. Integrating stress reduction training fits in the AHA/ACC prevention framework by addressing physiological and psychosocial contributors to cardiovascular risk, and thereby supporting personalized, patient-specific treatment strategies¹¹.

Precision public health and health equity

Psychosocial stress disproportionately affects populations exposed to adverse social determinants of health. The practice of Transcendental Meditation is associated with high adherence and effectiveness in these groups, and contributes to reductions in hypertension and cardiovascular risk disparities^{4,6,7,10}. As a low-cost, scalable intervention, Transcendental Meditation training can be implemented through primary care, workplaces and schools, bridging clinical and community prevention. Although less time-consuming than most lifestyle therapies (such as dietary change, exercise or sodium restriction), the practice of Transcendental Meditation still requires ongoing adherence for lasting benefit.

Future research should prioritize pragmatic implementation trials, cost-effectiveness analyses and mechanistic studies that link stress biomarkers, vascular ageing and neuroplasticity. Even modest population-level reductions in blood pressure and CVD event rates could yield large public health benefits.

Conclusions

Psychosocial stress accelerates cardiovascular ageing and widens health inequities. The Transcendental Meditation technique – standardized and validated through decades of research – offers an evidence-based, cost-effective approach to restore physiological balance and resilience. As behavioural cardiology and systems medicine converge, integrating Transcendental Meditation into the prevention of hypertension and CVD could herald a new era in precision public health, in which inner coherence yields measurable reductions in hypertension, cardiometabolic risk and cardiovascular mortality. Such integration could help to reframe CVD prevention around resilience and recovery, and shift the focus from disease management to the promotion of health and longevity at both the individual and societal levels.

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Competing interests

R.H.S. is a co-founder and holds equity in Total Health Centers, LLC. The other authors declare no competing interests.