

## EDITORIAL COMMENT

# Protecting the South Asian DIL

## A Vulnerable Population With Elevated Cardiovascular Risk



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South Asians, including individuals from Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka, are one of the fastest-growing ethnic populations in the United States and are known to have a higher risk of atherosclerotic cardiovascular disease (ASCVD) as compared to other ethnic groups.<sup>1-3</sup> The 2018 guidelines on the management of blood cholesterol denote the South Asian population and ancestry as a high-risk ethnic group, favoring early initiation of statin therapy to mitigate these risk factors.<sup>4</sup> South Asian ancestry has been identified as a risk-enhancing factor due to the elevated incidence of premature ASCVD compared to other ethnic groups, such as non-Hispanic White populations and other Asian American subgroups in the United States.<sup>3</sup>

Elucidation of factors that cause individuals of South Asian ancestry to be at increased risk for ASCVD remains an area of fertile investigation. The MASALA (Mediators of Atherosclerosis in South Asians Living in America) study assessed the prevalence of cardiovascular risk factors and aimed to determine the traditional, socio-cultural, and behavioral risk factors that could explain the elevated risk observed in the South Asian population.<sup>5</sup> The study was designed to parallel the MESA (Multi-Ethnic Study of Atherosclerosis) cohort and identified

phenotypic attributes associated with elevated ASCVD risk. While the results of the cohort analysis from the MASALA study added meaningfully to our understanding of this population, further data were needed to better address the merits of certain risk factors that were observed.<sup>3</sup> For example, compared to the MESA cohort, South Asian men had higher coronary artery calcium score progression, but when adjusted for traditional risk factors, there was no significant difference between South Asian men and white men.

In this context, the DILWALE (DIL Wellness and Arterial Health Longitudinal Evaluation) registry embarks upon its goal of examining this cohort and the prevalence of traditional risk factors in this population. Using electronic medical records from 51 hospitals across Texas, USA, the DILWALE registry evaluated 31,000 South Asian patients using a retrospective, multicenter study design.<sup>6</sup> They were able to collect patient-reported family and social history, clinical documentation of International Classification of Diseases-10th Revision codes pertaining to ASCVD and risk factors, as well as information regarding medications associated with relevant diagnoses. Laboratory measurements, as well as a detailed analysis of past medical history using administrative codes, allowed the DILWALE registry to conduct a comprehensive assessment of risk-enhancing factors in this population. This approach enabled the assessment of both inpatient and ambulatory visits, representing a unique contribution as compared to the community-based approach of the MASALA study.

The cohort analysis by the DILWALE registry highlights the high prevalence of traditional risk factors and a strong correlation with the risk of ASCVD events. Given that the cohort was sampled using system-wide electronic medical records, the registry

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also revealed a discrepancy in the prescription of lipid-lowering therapy among the South Asian cohort, with South Asian women with premature ASCVD being less likely to receive prescriptions for lipid-lowering therapy as compared to men (80.5% vs 92.1%,  $P < 0.001$  for hydroxymethylglutaryl coenzyme-A reductase inhibitors [statins]; 8.6% vs 16.2%,  $P = 0.009$  for ezetimibe). Hypertension was also identified as a significant risk factor for ASCVD in both South Asian men and women, with a similarly high risk as observed in other global studies. The study provides consistent evidence that other risk factors, such as impaired glucose tolerance and diabetes, are also associated with an increased risk of ASCVD events. Overall, the study presents compelling data from a large representative cohort, indicating that the South Asian population requires significantly more attention in primary prevention to address critical ASCVD risk factors.

While the registry encompasses a large ethnic population within a large tertiary health system, the methodology of recruitment and inclusion of patients may have potentially excluded a certain percentage of South Asians. Identification of South Asians was based on a predetermined list of last names obtained from the Institute of Clinical Evaluative Sciences, which may not have fully represented South Asian ancestry but rather offered a selective and potentially biased selection. Additionally, the cohort assessment did not account for whether these patients had

routine follow-up, which could have influenced their incidence of risk-elevating factors. As is often the case with large population registries, the results outlined in this study provide only a snapshot of the current state of the South Asian population in Texas and do not address how well patients adhere to therapy in the outpatient setting.

Overall, the authors of this study and the DILWALE registry contribute significantly to the growing body of evidence that highlights the need to proactively address ASCVD risk factors in the South Asian population. As the largest growing ethnic group in the United States and representing nearly one-third of the world's population, South Asians need a better understanding of the drivers of their ASCVD risk. The DILWALE registry adds to the collaborative efforts in the cardiovascular community and provides valuable insights into primary prevention moving forward.

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#### REFERENCES

1. U.S. Census Bureau. 2020 Census results. U.S. Department of Commerce; 2021. Accessed September 2, 2024. <https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-results.html>
2. SAALT (South Asians Learning Together). A demographic snapshot of South Asians in the United States. 2015. Accessed September 2, 2024. <http://saalt.org/wp-content/uploads/2016/01/Demographic-Snapshot-updated-Dec-2015.pdf>
3. Volgman AS, Palaniappan LS, Aggarwal NT, et al. Atherosclerotic cardiovascular disease in South Asians in the United States: epidemiology, risk factors, and treatments: a scientific statement from the American Heart Association. *Circulation*. 2018;138(1):e1-e34.
4. Grundy SM, Stone NJ, Bailey AL, et al. 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA guideline on the management of blood cholesterol: a report of the American college of cardiology/American heart association task force on clinical practice guidelines. *J Am Coll Cardiol*. 2019;73(24):e285-e350.
5. Shah H, Garacci E, Behuria S, et al. Cardiovascular risk-enhancing factors and coronary artery calcium in South Asian American adults: the MASALA study. *Am J Prev Cardiol*. 2023;13:100453.
6. Agarwala A, Satish P, Ma T, et al. Cardiovascular disease risk in South Asians in the Baylor Scott and White Health DILWALE registry. *JACC Adv*. 2024;3:101349.

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