

Cardiovascular benefits of lipid-lowering drugs apply across ethnicities and regions, study finds

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Minority ethnicities and regions derive at least as much cardiovascular benefit from lipid-lowering therapies as majority groups despite being underrepresented in clinical trials, according to a study published today in the *European Journal of Preventive Cardiology*.

"Future clinical trials should endeavor to adequately represent [minority groups](#) to improve the generalizability of evidence-based therapies to different populations and identify subgroups who may respond differently to treatment," said study author Dr. Sonia Sawant of Imperial College London, U.K., and the University of Sydney, Australia. "In addition, there is a need for public health interventions that optimize access to lipid-lowering therapies among vulnerable populations."

Ischemic heart disease is the world's biggest killer, followed by stroke; together they caused approximately 15 million deaths in 2019—more than a quarter of all deaths. Both conditions are types of atherosclerotic cardiovascular disease, where the arteries become clogged with fatty deposits and can no longer supply enough blood to the body, leading to heart attack and stroke.

There is overwhelming evidence that elevated [low-density lipoprotein \(LDL\)](#) cholesterol is a potent cause of heart attack and stroke and that lowering LDL cholesterol reduces the risk of cardiovascular disease. ESC guidelines recommend reducing LDL cholesterol levels as much as possible to prevent cardiovascular disease.

This was the first study to investigate the effect of lipid-lowering medication on [cardiovascular disease](#) according to ethnicities and regions in previously published randomized [clinical trials](#). Databases were

searched for trials of statins, ezetimibe or proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors comparing intensive versus less intensive cholesterol lowering.

The primary outcome was major adverse cardiovascular events (MACE), defined as the composite of cardiovascular mortality, myocardial infarction, stroke and revascularization. A [meta-analysis](#) was conducted to pool effect sizes for the cardiovascular risk reduction associated with lipid-lowering therapies in each minority group and enable direct comparisons between ethnicities and regions.

A total of 53 trials with 329,897 participants were included in the analysis. The average age was 62 years and 73% were men. Regarding regions, 39.5% of participants were from Europe, 16.0% from North America, 9.0% from Japan, 2.8% from Australasia (Australia and New Zealand), 1.8% from South America, 1.1% from Asia, 0.6% from South Africa and 29.2% were unspecified. Many trials did not report ethnicities; among those that did, there were 60.3% White participants, 20.2% Japanese, 9.4% Asian, 5.5% Black and 4.7% Latin American.

LDL cholesterol lowering reduced MACE across all regions, with risk reductions of 20% worldwide, 25% in Australasia, 25% in North America, 24% in the U.S., 24% in Europe and 27% in Japan. In studies reporting outcomes by ethnicity, risk reductions with LDL cholesterol lowering were 45% in Blacks and 27% in Japanese.

Head-to-head comparisons between regions and ethnicities revealed no significant differences in MACE reduction with lipid-lowering therapy. For example, the effects were similar in Europe vs. North America, South Africa vs. North America, South America vs. North America, Australasia vs. U.S., Asia vs. North America and non-North America vs. North America.

Dr. Sawant said, "The findings highlight poor recruitment of minority groups including South Africa, South America and Asia as well as Black, Latin American and Asian ethnicities. Previous research has shown undertreatment of certain populations; for example, those of Black ethnicity are less likely to be prescribed statins than their White counterparts.

"In our study, however, MACE was consistently reduced across regions and ethnicities, indicating that the benefits of lowering LDL cholesterol are universal. This means that all patients should receive lipid-lowering treatment when indicated, regardless of ethnicity or region, to ensure equitable health care."

More information: Sonia Sawant et al, Underrepresentation of ethnic and regional minorities in lipid-lowering randomized clinical trials: a systematic review and meta-analysis, *European Journal of Preventive Cardiology* (2023). [DOI: 10.1093/eurjpc/zwad030](https://doi.org/10.1093/eurjpc/zwad030)

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