

New study connects religiosity in US South Asians to cardiovascular disease

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The Study on Stress, Spirituality and Health (SSSH), a cutting-edge proteomics analysis, suggests that religious beliefs modulate protein expression associated with cardiovascular disease in South Asians in the United States. The research, published by investigators from Massachusetts General Hospital (MGH) and Beth Israel Deaconess Medical Center (BIDMC) and the University of California San Francisco (UCSF) in *Scientific Reports*, demonstrates that spiritual struggles, in particular, significantly modify the impact of unique proteins on risk of developing cardiovascular disease (CVD) in U.S. South Asians, a community that has especially high rates of CVD.

This study represents the first proteomics analysis ever conducted on [protein levels](#) in relationship to CVD within a U.S. South Asian population and the first published study to analyze proteomics signatures in relationship to religion and spirituality in any population.

"Before we can develop the best interventions to reduce CVD disparities, we need to understand the biological pathways through which health

disparities are produced," says the study's principal investigator and co-senior author Alexandra Shields, Ph.D., director of the Harvard/MGH Center on Genomics, Vulnerable Populations and Health Disparities at the MGH Mongan Institute and associate professor of Medicine at Harvard Medical School (HMS). "As this study shows, psychosocial factors—and religious or spiritual struggles in particular—can affect biological processes that lead to CVD in this high-risk population. Spirituality can also serve as a resource for resilience and have a protective effect. Given that many of the minority communities that experience higher levels of CVD also report higher levels of religiosity and spirituality, studies such as the SSSH may help identify new leverage points, such as spiritually focused psychotherapy for those in spiritual distress, that could reduce risk of CVD for such individuals."

Results of the study, which included 50 participants who developed CVD and 50 sex- and age-matched controls without CVD from the [Mediators of Atherosclerosis in South Asians Living in America \(MASALA\) Study](#) (100 participants), indicate that there may be unique [protein expression](#) profiles associated with CVD in U.S. South Asian populations, and that these associations may also be impacted by religious struggles, in which, for example, individuals experiencing adverse life events feel they are being punished or abandoned by their God, or have a crisis of faith. The MASALA study includes 1,164 South Asians who were recruited from the San Francisco Bay Area and the greater Chicago area and followed for approximately eight years with the goal of investigating factors that lead to heart disease among this high-risk ethnic group. MASALA is one of the original cohorts participating in SSSH, through which this research was conducted.

"Understanding the pathways of this mechanism at the molecular level using proteomics technology is crucial to developing potential interventions that

can help reduce CVD incidence in this population," says Long H. Ngo, Ph.D., lead author and co-director of Biostatistics in the Division of General Medicine at BIDMC and associate professor of Medicine at HMS.

Co-senior author Towia Libermann, Ph.D., director of Genomics, Proteomics, Bioinformatics and Systems Biology Center at BIDMC, adds: "The kinds of blood-based protein biomarkers used in this study are particularly effective in assessing CVD risk because they carry clinical information about risk of disease and are the most commonly used molecules for diagnostic applications."

More information: Long H. Ngo et al, Plasma protein expression profiles, cardiovascular disease, and religious struggles among South Asians in the MASALA study, *Scientific Reports* (2021). [DOI: 10.1038/s41598-020-79429-1](https://doi.org/10.1038/s41598-020-79429-1)

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