

## Profile

### Nizal Sarrafzadegan: leading cardiovascular research in Iran

As a young doctor working in Iran's Isfahan University of Medical Sciences (IUMS) in the early 1990s, Nizal Sarrafzadegan puzzled over two questions: why were some of the patients who had heart attacks surprisingly young, and why did long-distance drivers seem more prone to heart disease than people from other professions? These and other questions she had about the epidemiology of coronary artery disease would turn out to be prescient. The next decade would see growing economic prosperity coupled with a staggering rise in mortality from heart disease in Iran. In 2004, the country's ministry of health estimated that heart disease accounted for more than 40% of all deaths, bringing it on a par with the USA.

Now professor of medicine at IUMS's internal medicine and cardiology department, Sarrafzadegan has devoted her career to understanding the risk factors for cardiovascular disease and the ways of controlling and preventing them in low and middle income countries like Iran and to promoting healthy lifestyles to combat such disease. In 1992, she established the Isfahan Cardiovascular Research Center (ICRC) affiliated to IUMS, in the wake of promising findings from population studies into risk factors for heart disease. The centre expanded to do larger epidemiological and public-health studies, as well as clinical and basic research. In 2003, it became a WHO Collaborating Center tackling cardiovascular disease in the Eastern Mediterranean region (EMR), which includes 22 countries such as Egypt, Morocco, and Oman.

In 2000, Sarrafzadegan set up a demonstration study for the National Plan of Non-Communicable Diseases Prevention and Control—a framework that the WHO regional office in the EMR has supported as a model for other developing countries. An ambitious community-based programme that formed part of this plan was the 6-year Isfahan Healthy Heart Programme, designed by the ICRC and undertaken jointly with Isfahan Provincial Health Center to show that community-level interventions could encourage healthy nutrition, physical activity, and tobacco control at the population level and among high-risk groups, thereby reducing the burden from non-communicable diseases. The programme was based on the North Karelia Project, a Finnish model, says Sarrafzadegan, "that created the most evidence on comprehensive community-based programmes for non-communicable disease prevention since it started in 1972".

Two counties, Isfahan and Najaf-Abad, were given multidisciplinary interventions, such as public education, environmental changes, and legislation, with Arak county as the control area. The team worked closely with the media, various organisations, and policymakers to implement a range of projects. One project aimed to improve the lifestyles of children and adolescents through education, games, the

provision of healthy snacks and meals, and encouraging exercise. Another was aimed at office and factory workers, educating them about cardiovascular disease risk factors, and encouraging exercise, training kitchen staff in healthy cooking and nutrition, enforcing regulations against indoor smoking, and encouraging smokers to quit. The results from annual studies on independent random samples in Isfahan were promising: compared with controls, those exposed to the interventional activities reduced the amount of hydrogenated fat and increased the amount of fruits and vegetables they ate. Rates of smoking dropped in men, and physical activity increased in women and adolescents. Sarrafzadegan is still trying to secure funding for the final phase of the programme—to measure the physical as well as biochemical variables—and she hopes to be able to undertake some of the work later this year. Oman has implemented similar interventions and she hopes "that all countries in the EMR fight against non-communicable diseases."

Actively campaigning to change behaviour is at the core of Sarrafzadegan's work, and in 1999 she was one of the founders of the Iranian Heart Foundation (IHF) to "translate into practice" the evidence produced by the ICRC and other centres. The IHF is anything but passive, she says, and "undertakes campaigns to promote tobacco control, and tackle high blood pressure, obesity, unhealthy nutrition, and sedentary lifestyle in adults and children in many provinces". Sarrafzadegan's work has particular importance because chronic diseases are now the major cause of death in adults in almost every country of the world. As she points out, just a few cases of a new infectious disease can prompt a whirlwind of activity in which health agencies alert news media, the general population, and politicians, while "the thousands or even millions of daily deaths related to cardiovascular disease, diabetes, cancers, etc not only in developing but in developed countries as well" get virtually ignored.

Sarrafzadegan's many awards and prizes are evidence of her dedication to her work, but her passion for promoting healthy lifestyles shows that she cares about the wellbeing of her fellow citizens. So it is not so surprising that despite the brain drain of talented scientists from developing countries to wealthier environments, she has stayed at the university she first trained in. Despite being offered prestigious positions in Tehran at the ministry of health and by international agencies, Sarrafzadegan sees it as an honour that she is able to "work, teach, and do research in the same university that I was educated in—it is our responsibility to give back what we learnt in our countries to our own communities".

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For more on the Isfahan Cardiovascular Research Center see <http://crc.mui.ac.ir/ICRC>