



## EDITORIAL

# Novel risk factors' hunting. Lessons from the study of older olds



### KEYWORDS

Cardiovascular disease;  
Risk factors;  
Elderly;  
Diet;  
Lifestyle

*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*

From the World Health Organization (WHO) definition of health,<sup>1</sup> it is obvious that in older adults, the increase in comorbidities and risk factors is in some way inherent to the process of aging, identification of lifestyle, and environmental factors, which can determine overall cardiovascular status and quality of life. Hippocrates considers “disease as the product of environmental factors, diet and living habits,” being the first to identify the substantial role of the surrounding environment to health status.

The same conception holds true in our days, and recent guidelines of the European Society of Cardiology on cardiovascular disease prevention<sup>2</sup> emphasizes the role of psychosocial status, healthy diet, physical activity, and environmental status. However, gaps exist in evidence and answered questions; that is, i) the lower and upper limits of aerobic activity, ii) whether routine screening for psychosocial risk factors can decrease cardiovascular risk, iii) the type and amount of food consumption best for cardiovascular disease prevention, and so on.

As lifestyle factors and habits cluster over a long time before any clinical relevant consequence, it may be difficult to conclude on a definitively causative association based solely on prospective or retrospective

epidemiological studies. Therefore, the definite role of lifestyle impact on cardiovascular and overall health status may be clarified by the study of lifestyle characteristics of communities shown an increase prevalence of aging people. These characteristics may be distinguished as favorably.

A few years ago, Loma Linda in Mexico, Nicoya in Costa Rica, Sardinia in Italy, Okinawa in Japan, and Ikaria in Greece have been recognized as places that have the highest percentage of people older than 90 years and have been characterized as “blue zones”.<sup>3</sup> Inhabitants of these areas share common characteristics (social engagement, moderate energy intake, plant-based diet, regular physical activity, engagement in family life, moderate expectations, and reduced stress). From the Ikaria study, in which our department has been involved, we have noticed that beyond the high prevalence of classic cardiovascular risk factors is also a high adherence of the elderly cohort to a Mediterranean type of diet, everyday physical activity, noon siesta, and social engagement.<sup>4–6</sup>

These observations imply the notion that novel modifiable life habits can significantly interact with established risk factors<sup>7–10</sup> to determine and beneficially alter the total cardiovascular outcome. Importantly, the favourable characteristics of “blue zone” nations seem to protect against cognitive impairment and inability. Therefore, WHO defines health in terms of not only longevity but also quality-of-life attainment.

Novel risk factors have been recognized recently. For instance, household exposure to high-pollution fuels

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(kerosene/diesel) was associated with increased risk for all-cause and cardiovascular disease mortality;<sup>11</sup> short (<6 hours) and long (>11 hours) sleep durations are associated with mortality and poor health status;<sup>12,13</sup> intestinal microbial flora may increase cardiovascular disease;<sup>14</sup> and vitamin D deficiency may be associated with increased atherosclerosis.<sup>15,16</sup>

To this direction, Foscolou et al, in this issue of *Hellenic Journal of Cardiology*,<sup>17</sup> examined the common and different lifestyles and health characteristics of older Greek individuals living in the Eastern Aegean islands of both Greece and Turkey. It is interesting that they reported that although overall cardiovascular risk is low in the inhabitants of the Eastern Aegean islands, regional differences exist in cardiovascular disease risk characteristics such as the prevalences of hypertension, diabetes mellitus, and hypercholesterolemia, and in the dietary patterns. This highlights the importance of not only focusing on specific characteristics but also examining lifestyle habits as a complex entity, which may better explain cardiovascular risk.

As the cost for cardiovascular disease treatment across the European Union amounted to €106 billion in 2009,<sup>18</sup> prevention of cardiovascular disease by implementation of lifestyle changes has been advocated, highlighting the need to further understand and unlock the mysteries of longevity.

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