

Editorial

Education and Disparities in Cardiac Rehabilitation Effectiveness

Cardiac rehabilitation (CR) is an evidence-based systematic, medically supervised program that helps patients with cardiovascular disease to recuperate from their cardiac event; adopt and adhere to healthy lifestyle habits; address co-morbid conditions; monitor for safety issues, including new or recurrent signs or symptoms; and adhere to medical therapies. The core strategies to improve physical and psychological health are focused on patient education on healthy behaviors including smoking cessation, healthy eating (e.g., Mediterranean diet, Dietary Approaches to Stop Hypertension diet along with lowering caloric and sodium intake), physical activities, stress management, and medication adherence.¹ Despite the evidence of its beneficial effects, disparities in patient referral, access and participation in CR are still of concern, in particular for older patients, women, ethnic/racial minorities, and subjects from rural communities.^{2,3} A very important aspect not to be underestimated is also represented by social determinants of health, including educational attainment because it could impact the long-term maintenance of practices encouraged in CR.

The study of Irani et al⁴ confirms the effectiveness of CR in the improvement of several risk factors for cardiovascular diseases, strengthening the need to implement such programs from a public health perspective. As a matter of that, all patients experienced improvement in measures of diet, body composition, biophysical health, and psychological distress. In addition, the study highlights that subjects with low educational attainment (less than bachelor's degree) may benefit from a greater improvement in dietary habits because they experienced worse baseline healthy behaviors. In particular, low-education subjects showed greater improvement of triglycerides levels (-12.9 vs -6.16 mg/100 ml for low-education and high-education subjects, respectively) along with lower proportion at clinical risk threshold for triglycerides (-5.18%) and partially also for low-density lipoprotein cholesterol (-3.74%). Conversely, the high-education group experienced a greater improvement in high-density lipoprotein cholesterol ($+1.69$ vs $+2.91$ mg/100 ml).

Previous studies indicated that lower socioeconomic status is associated with lower attendance of CR.⁵ Patients with low education levels are more likely to attend fewer CR sessions probably because they disproportionately weigh the relatively immediate and tangible costs of adhering to CR program compared with the delayed and relatively intangible but more substantive long-term benefits.⁶ For these reasons, new strategies and tailored programs have been suggested to promote and increase adherence and completion of CR, including differential settings

through both inpatient and outpatient/home-based interventions, and virtual and remote delivery models, especially for underrepresented groups.^{7–10} The findings of Irani et al⁴ further reinforce the need to tailor CR programs also considering the differential knowledge about cardiovascular risk factors and healthy behaviors depending on subject educational levels. This also suggests the importance of increasing knowledge of cardiovascular risk factors from a young age: if action occurs early on in life, most cardiovascular diseases can be prevented, or the onset prolonged much later in life. This can be effective in reducing disparities in CR attendance, and more broadly in the improvement of primary prevention of cardiovascular and other chronic diseases.

Declaration of Competing Interest

The authors have no competing interests to declare.

Tommaso Filippini, MD, PhD^{ab*}
Marcella Malavolti, BSc, PhD^a

^a CREAGEN - Environmental, Genetic and Nutritional Epidemiology Research Center, Section of Public Health, Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Italy

^b School of Public Health, University of California Berkeley, Berkeley, California

* Corresponding author
(tommaso.filippini@unimore.it).

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See page 1 for Declaration of Competing Interest.

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