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EDITORIAL COMMENT

The potential for health education to target cardiovascular risk factors at an age when it really matters

O potencial da educação para a saúde na abordagem dos fatores de risco cardiovascular numa idade em que a literacia é realmente importante

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It is well established that endothelial dysfunction is at the genesis of cardiovascular diseases (CVD), whose triggers include preventable cardiovascular (CV) risk factors, such as obesity, physical inactivity, and smoking. These, as highlighted in the article published by Timóteo et al., are present from an early age, a period during which lifestyle changes could have a more pronounced impact on the reduction of cardiovascular disorders later in adulthood.[1,2] Evidence has shown that individuals who reach middle age without traditional CV risk factors have a higher morbidity-free survival and greater health-related quality of life in older age. Based on this premise, in 2010 the American Heart Association introduced the concept of cardiovascular health, which includes seven health metrics, four of which related to lifestyle factors – nonsmoking status, healthy diet, physical activity at goal levels, and normal weight.[3] It is logical, therefore, that as atherosclerosis is progressive and its severity related to the intensity of exposure to risk factors, early-onset prevention is essential to reduce its cardiovascular burden. It is within this framework that health education in the young has its greatest benefits.

Therefore, considering the current body of evidence, the aims of cardiovascular health promotion through education in children should be two-fold: primordial prevention, by implementing measures that focus on adherence to a healthy lifestyle by preventing the development of risk factors related to atherosclerosis, and, secondly, by addressing children at risk for early atherosclerosis due to the presence of established risk factors.

For public health interventions to be successful, it is paramount to have a deep understanding of the epidemiology of CVD caused by early-onset CV risk factors. It is widely recognized that the development of these risk factors and the consequent loss of cardiovascular health in adulthood are mainly due to an excessive and unbalanced calorie intake, lack of physical exercise and smoking. In our pediatric population, as in other developed countries, they are the main contributing factors, often in coexistence. These were clearly addressed in this pilot study adapted from the Spanish ''Salud Integral'' school program, in which the authors analyzed the impact of health education on behavioral change related to CV risk factors in children aged 9. The chosen age is of particular importance, as it is well known that lifestyle changes, as a therapeutic tool, particularly in adolescents, carry a frustratingly high failure rate. Experience has taught us in that spite of well intended interventions, an obese adolescent will more likely become an

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obese adult. The same can be applied to physical activity patterns and smoking.

Interventions should, however, be multileveled. Although school-based initiatives targeting various age groups are an important part of the public health programs, these should, as suggested by the authors, be included in school curricula. Cardiovascular health syllabus should be age-related and taught as part of a continuum. As also advocated by the authors, it is essential to include parents as part of CV health programs. Childhood risk factors usually mirror family dynamics and habits. For example, parental weight is a strong predictor of pediatric obesity, even more so, if both parents are obese.[4] In this setting, maternal obesity is a stronger predictor of childhood and adolescent obesity, as it more than doubles its incidence, compared with paternal obesity. In this regard, the family's dietary preferences and lifestyle habits also have a crucial role in influencing the child's lifestyle behavioral patterns. Although the questionnaire does not include any item related to the children's or parental weight or body mass index, it would have been interesting to explore this aspect, possibly offering a different insight into the children's perception regarding weight or being overweight.

Socio-economic circumstances are also involved in the development of CV risk factors. Children from less privileged social backgrounds have a higher risk of CV disease later in life due to well-known underlying factors, such as, lower level of parental education and income, less access to healthier food options and affordable physical activity opportunities.[5]

A recent study by Sun et al.[6] showed that the prevalence rate of CVD related to CV risk factors was highest in countries with a low- and low-middle sociodemographic index. Curiously, Timóteo et al. showed that, although lacking statistical significance, children from the low to medium income school fared better than their possibly wealthier counterparts. The authors were, however, careful to mention that the parental socio-economic characteristics could not be clearly established due to the anonymous nature of the study.

As mentioned in the text, school interventions and family awareness are paramount in sustaining healthy behavioral changes.[7] However, various other agents should be considered, as their contributions play an important role in curbing childhood CV risk factors. Governmental policies, primary health care systems and food industry practices should all participate in the promotion of health education awareness programs and policies that strive towards healthy behavioral change. In this regard, the input of our pediatric medical societies, including, the Portuguese Society of Pediatrics and the Portuguese Society of Pediatric Cardiology, is crucial, as they are responsible for the formulation of recommendations and guidelines regarding CV health.

As it is a childhood issue, medical professionals that mostly deal directly with children with CV risk factors, including family doctors, pediatricians and pediatric cardiologists should have a profound understanding of the underlying physiopathological mechanisms involved in the CV disease process. It is imperative that, they too, should be involved in continued education programs that encompass CV health.

We are dealing with a complex and difficult to resolve issue due to its multifactorial inputs. Health education targeting children, their respective families and health professionals is at the foundation of the promotion of CV health, as it sets a platform that aims at reducing the overall burden of future CVD.

Conflicts of interest

The authors have no conflicts of interest to declare.

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