

Cohorts and life cycle analyses: why are they important?

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Non-communicable diseases (NCDs) are the world's leading cause of mortality, accounting for some two-thirds of all deaths ¹. Approximately 80% of deaths from NCDs occur in middle and low-income countries, which show a larger relative increase in the burden of morbidity and mortality from these diseases. In addition, regardless of the country's overall income level, lower-income individuals show greater risk of death from NCDs. NCDs are heavily associated with behavioral risk factors such as smoking, unhealthy diet, physical inactivity, and alcohol abuse. Prevalence of these risk factors is generally higher in lower-income individuals, which has been identified as one of the mechanisms for the increased morbidity and mortality from NCDs in groups with lower socioeconomic status ².

Although middle and low-income countries show higher burden of morbidity and mortality from NCDs, the majority of evidence on factors associated with these diseases and their causal mechanisms comes from high-income countries. The results of studies conducted in the latter countries are generally used in public policy decision-making. However, such generalization can have negative consequences. An example is the observation on long-term harm from rapid weight gain in childhood. The recommendation was based on studies performed in high-income countries, which have a low prevalence of nutritional deficit. Meanwhile, studies in middle and low-income countries, where the prevalence of childhood nutritional deficit is higher, showed that catch-up weight gain in childhood is important not only in the short term, reducing childhood morbidity and mortality, but also in the long term, with an impact on human capital and risk factors for NCDs ^{3,4,5}.

Cohorts provide the opportunity to assess the consequences of exposures occurring at different moments in the life cycle, allowing the identification of critical periods in which a given exposure will program the development of a disease in the long term. We can also assess the cumulative effect of exposures over the course of the life cycle, as with low socioeconomic status. For example, the 1982 Pelotas (Brazil) birth cohort showed that adult height is related to childhood socioeconomic status and is not influenced by a change in family income between birth and adulthood, while socioeconomic status in adulthood did have an effect on obesity ⁶.

In this current edition, in an article based on the *Longitudinal Study of Adult Health*, socioeconomic status in adulthood was the factor most consistently related to the adoption of

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behaviors associated with the development of NCDs 7. Individuals with downward income trajectories and who were always classified as having low socioeconomic status showed higher odds of adopting inadequate health behaviors. It is of the utmost importance to identify the most vulnerable groups in order to target public policies to them, with a focus on reducing such inequalities. This is written into the sustainable development goals for the year 2030, but countries, including Brazil, should make great efforts at the empowerment and social inclusion of these more vulnerable groups by eliminating discriminatory laws, policies, and practices.

Contributors

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