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The DOHaD concept: Advances and challenges ten years after its inclusion in the pediatric agenda

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Ten years ago, the incorporation of the developmental origins of health and disease (DOHaD) paradigm into the Argentine pediatric agenda represented much more than the creation of a new scientific subcommittee within the Sociedad Argentina de Pediatría. It meant beginning to view childhood from a different perspective: understanding that many chapters of future health are silently written in the earliest moments of life.

Known since the 1980s, the DOHaD concept inspired the work of several researchers but was still perceived by many as an innovative approach of academic interest, though distant from everyday practice. However, in just a decade, this paradigm established itself as one of the most profound conceptual transformations in contemporary medicine: "Adult health begins long before birth."

David Barker's findings[1] marked a turning point by demonstrating the link between low birth weight and an increased risk of cardiovascular disease in adulthood. That finding opened an unexpected door: the possibility of understanding that many noncommunicable diseases—such as obesity, high blood pressure, and type 2 diabetes, cardiovascular disease, and even some mental health disorders—may have their roots in the earliest stages of development.[2]

Over time, epigenetics and new experimental and epidemiological evidence supported what seemed almost intuitive: the environment "becomes embedded" in biology. The intrauterine environment, maternal nutrition, early bonding, social and environmental conditions, and the early experiences surrounding each child from the intrauterine period through the first years of life leave their mark.

The human body possesses extraordinary plasticity that allows it to adapt during certain critical windows of development. Still, that same capacity for adaptation can become a vulnerability when the environment is adverse.[3,4]

Behind every child exposed to poverty, violence, environmental pollution, malnutrition, or toxic stress lies not only a current problem, but also a factor that affects their future health.

Our country reflects the global trend: noncommunicable diseases are currently the leading cause of morbidity and mortality, as well as premature death. Nearly three-quarters of deaths in Argentina are caused by cardiovascular disease, stroke, hypertension, or diabetes, many of which have obesity as a common factor. Furthermore, they represent a significant burden of disability and high healthcare costs.[5,6]

Understanding the DOHaD concept profoundly changes the meaning of our work as pediatricians.

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DOHaD is not merely a theoretical framework; it is, above all, a different way of understanding our individual and collective responsibility toward children and the future of society.

Over the course of this decade, the paradigm also expanded and became firmly established. Concepts such as “life course,” “programming,” “critical windows,” and “plasticity” moved beyond the realm of research to become part of the everyday language of pediatrics and many other disciplines. The DOHaD perspective began to permeate conferences, scientific publications, educational settings, and prevention strategies.

It also took on a regional and global dimension. Building on the experience gained at the Sociedad Argentina de Pediatría,[7] the Latin American Association of Pediatrics (ALAPE, by its Spanish acronym) launched its Committee on the Prevention of Noncommunicable Diseases (NCDs), fostering commitment among pediatric societies in the region. More recently, the International Pediatric Association (IPA) included a workshop on this topic at its most recent Congress in Mexico and subsequently established a DOHaD working group within its Committee on NCDs and Mental Health. This reflects that the challenge no longer belongs to a single discipline or country: it is a global commitment to future generations. Perhaps one of the greatest contributions of the DOHaD concept has been to restore to pediatrics the full scope of its significance. Every preventive action taken during childhood now takes on new meaning. Promoting breastfeeding, ensuring proper maternal nutrition, reducing exposure to toxic environmental factors, protecting early bonding, supporting mental health, preventing violence, and fostering healthy development are no longer merely interventions for the present—they are decisions that can alter future biological and social trajectories.

This redefines our role. Pediatricians are no longer merely those who diagnose and treat childhood illnesses; they have also become key players in preventing adult diseases and in promoting the health of future generations.

The future of the DOHaD paradigm demands far more than scientific research alone. It requires cross-cutting education at all levels of schooling, local research, interdisciplinary and intersectoral collaboration, and sustained public policies that effectively protect children. The health of future generations cannot depend solely on the healthcare system. It also involves the environment, education, social development, urban planning, nutrition, and the media.

There is still much work to be done to translate knowledge into concrete, sustainable actions.

DOHaD reminds us of something essential: health is built from the very beginning of life, day by day, bond by bond, care by care. Understanding this compels us to look beyond the immediate and to assume an ethical responsibility toward future generations.

The first ten years showed us the way. The challenge now is to keep moving forward on that path. ■

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