

EDITORIAL

## Behavior as the dynamic unit between polar opposites — Health and Disease

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The current definition of health of the World Health Organization (WHO), formulated in 1948, describes health as “*a state of complete physical, mental and social well-being and not simply the absence of disease or infirmity*”.<sup>[1]</sup> Although, this formulation was been revolutionary because it overcame the negative definition of health as the absence of disease and included physical, mental and social domains, it has been partially criticized over the past 60 years. This definition is in fact referred to the disease acute pattern, which is transient and limited in the time. Today, the number of people living with chronic diseases for decades is increasing worldwide. Ageing with chronic diseases has become the norm representing the main care burden and the most of the expenditures of the healthcare system. In this context the WHO definition becomes confounding as it could declare people with chronic diseases definitively ill. Machteld Huber, *et al.* believe that the WHO would benefit if it extends the definition of health, taking into account that the demography of populations and the nature of disease have changed considerably since 1948.<sup>[2]</sup> Georges Canguilhem suggested a new idea of health as a capability to adapt and self-manage in the social, physical and emotional challenges, it moving from the static formulation towards a more dynamic one based on the resilience or capacity to cope and maintain and restore ones integrity, equilibrium, and sense of well-being.<sup>[3]</sup> Health, considered as “*ability to adapt*”, becomes a condition of equilibrium (dynamic, therefore always new, continually to be reset) between the subject and the environment (human, physical, biological, social) that surrounds it. Therefore, health and disease

cannot be simply defined in dichotomous terms, present or absent; they are continually redefined as people adapt to changing functional skills across the spectrum of life. The change in the health concept makes medical care that focuses only on the diagnosis and treatment of individual diseases no longer applicable to new paradigms of biological and clinical complexity. The current approach to consider disease as a result of individual organ impairments is very useful, but it fails in understanding the whole system, its complexity, environmental adaptability and overall health of the human organism. Clinical management, primarily oriented to disease, can inadvertently lead to underestimate overburden or abuse of treatment.<sup>[4]</sup> The 21st century clinician has to consider the individual, both healthy and ill, as the complex system that it really is, structured on systems, organs, tissues and cells, in which the individual parts that compose it interact with each other (physiologically and physiopathologically) in a dynamic way with non-biological determinants, in order to realize a comprehensive functional system.<sup>[5]</sup> It is necessary to produce a synthesis that respects the singularity of the patient with its complexity defined by the genotypic and phenotypic diversity, and by the dynamic interweaving between clinical (disease – specific) and non-clinical determinants (genetic aspects including the gene-environment interaction, environmental factors, socio-family status, economic status, psychological features, *etc.*), and finally by the availability and accessibility to care services. The complex framework that today characterizes the concept of health cannot be approached only according to the methodology of Evidence-Based Medicine (EBM). By its nature, the EBM researches and obtains evidence related to diseases with a well-defined ontological definition, by clinical trials focused as much as possible on patients with a specific disease but without other relevant clinical conditions that would be “*confusing*” for the researched evidence. While the EBM provides for a “*chain of exclusions*” process, the methodology of complexity requires the ability to “*include*” all the different relevant elements, which contribute to a com-

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plete and real clinical picture. In this context, behavior has a broad and central role: behavioral interventions can be effective to empower health, prevent new diseases, improve the management of existing diseases, enhance quality of life and reduce health costs.<sup>[6]</sup> The benefits of behavioral interventions go beyond the impact on a particular disease or risk factor, they can influence the course and outcome of chronic diseases, defined by the WHO in the new meaning of Non-Communicable Diseases (NCDs). According to the latest Global Report on NCDs, published by WHO in 2014 and updated in 2017, 38 million deaths due to NCDs were recorded in 2012, over 40% were premature as they affected people aged less than 70 years. WHO Member States have agreed on a set of nine voluntary global objectives to be achieved by 2025: reduce the harmful use of alcohol, stop tobacco smoking habit, increase physical activity, limit salt/sodium intake, manage hypertension, block the increase of diabetes and obesity, improve treatment coverage for the prevention of heart attacks and strokes, and improve the availability and affordability of technologies and drugs essential for NCD management.<sup>[7]</sup> Changing individual behavior is very important for addressing NCDs and preventing premature deaths due to them, so we now have an unprecedented opportunity to change the course of the NCD epidemic through health behaviors. A greater recognition of the behaviors as health determinants is essential for the improvement of global health; in this field, the research moves forward thanks to the effort of many disciplines contributing to the knowledge of health and behavior. These include not only the behavioral sciences but even other relevant sciences such as neuroanatomy, neurology, neurochemistry, en-

doocrinology, immunology, psychology, psychiatry, epidemiology, sociology and anthropology, as well as new interdisciplinary fields such as behavioral genetics, psychoneuroimmunology and behavioral medicine.

It is fundamental to increase and support research on the role of health behaviors in the prevention and treatment of chronic diseases, and at the same time propose educational and training activities for a full understanding of the interaction between health, disease and behavior.

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