

# Retirement and Modern Demography



**Viorel Ordeanu\***

*Military Medical Research Center, Bucharest, Romania*

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**\*Corresponding author:** Viorel Ordeanu, Military Medical Research Center, Bucharest, Romania

## Opinion

The biological success of the species *Homo sapiens*, primarily attributable to the advancement of social structures and modern medicine - particularly the field of vaccinology - is unparalleled within the Earth's biosphere. However, the consequence of this success is a rapidly increasing global population, which is approaching the planet's capacity to sustain human life. Concurrently, the phenomenon of an aging population is contributing to an increased demographic burden. This represents the so-called "demographic time bomb" of modern societies, which is anticipated to be triggered when the proportion of individuals exiting the workforce exceeds that of those remaining economically active.

## The Ages of Humans

Aristotle philosophically described the three ages of human life - childhood, maturity, and old age - though he did not assign specific numerical boundaries, implicitly acknowledging considerable individual variability. Life expectancy within the European Union and the United States approaches 80 years, while in Japan it has long surpassed eight decades; in our country, it has only just exceeded 70 years, with women living somewhat longer than men on average.

In humans, the stages of life correspond to fundamental biological phases, a system that finds analogues across all species within the living world. Although biological thresholds differ between species, in practice, the American model has been widely adopted, defining 16 years (completion of general education by the child) and 65 years (retirement by the adult) as primary social milestones. This division is, in essence, a social construct and is likely to change, especially as discussions regarding increasing the retirement age to 70 or beyond advance. Nevertheless, from a medical perspective, biological classification remains paramount, as it most accurately reflects the capacities for learning, reproduction, and productive societal contribution - capacities that define the human as a biopsychosocial being.

The first stage, representing the period of quantitative and qualitative development, is named childhood and spans from

birth to 14 years of age, with the following subdivisions: 0-1 year - neonate or infant; 1-5 years - early childhood (nursery, kindergarten, preschool); 5 - 10 years - early school age; 10-15 years - late school age. From a societal perspective, at 14 years old, a child attains citizenship status and receives a formal identity document. At 15, with parental consent, they may enter the workforce as an employee, and at 18, they gain full legal status, with the right to vote, own property, and other civil rights.

Depending on individual development, adolescence overlaps with the final years of childhood and the initial years of adulthood. However, individual differences - such as those related to sex, race, nationality, climate, nutrition, and education - cause these age categories to vary among people. Therefore, in practice, we refer to statistical averages, with greater or lesser degrees of deviation, and experience confirms the considerable variability of these developmental stages.

From a biological perspective, the period spanning ages 15 to 60 is considered the second stage of life, known as maturity or adulthood - a phase characterized by complete biological development and reproductive potential. This stage is further divided into three subperiods: young adulthood (15 to 29 years), mature adulthood (30 to 44 years), and late adulthood (45 to 59 years). During this time, women may experience premenopause, menopause, postmenopause, or various health conditions, while most men undergo andropause, with a corresponding decline in reproductive capacity.

From a biological standpoint, the third stage of life - old age - commences at 60 years of age, marking the cessation of reproductive capacity and the onset of a gradual yet irreversible decline in the organism's structure and function. Genetic errors accumulate, and numerous cells progress toward apoptosis. This life phase is subdivided into three distinct subperiods. The first, known as senescence, spans from 60 to 74 years. The onset and duration, as well as the anatomical, physiological, clinical, psychological, and intellectual manifestations of senescence, vary considerably among individuals and are influenced by factors such as personal characteristics, sex, race, education, pathological and physiologi-

cal antecedents, physical and mental health status, family environment, and social context. From a molecular biology perspective - including gerontogenetics and pharmacogenomics - there may be grounds for optimism regarding the development of therapies aimed at extending the period of robust physical well-being.

The next sub-stage, senectude (ages 75 to 89), represents actual old age. It is marked by a noticeable decline in individual performance, visible changes in anatomy and physiology, and the reaching of the limit of active life. For most people, this period brings about death due to chronic or acute illnesses, accidents, or the cessation of vital functions. Life expectancy is around 80 years. It is important to distinguish physiological senectude from senility, which is pathological - manifesting as signs of aging observed in adults or even in children.

The final stage is longevity, referring to the few individuals who reach 90 years and beyond, called the long-lived; some even reach 100 years - centenarians. Exceptionally, some surpass this age, with known records of men living up to 112 years and women up to 120. It is believed that 120 years represents the absolute biological limit of survival for a healthy biopsychosocial human being. Life expectancy continues to rise in all civilized countries.

## Extension of the Period of Professional Activity

Considering the aforementioned aspects - ontogenetic and phylogenetic particularities, occupational factors, and individual wear and tear - there exists a variable time interval during which an individual may remain active and continue to contribute meaningfully both to society and to themselves. Consequently, it is proposed that legislation should permit any employee, based on their abilities, preferences, and professional status, to choose to retire at any point between the ages of 60 and 75. Historically, in our society, even previous laws - apart from allowing earlier retirement for certain professions (with limits of 57 years for women and 60 years for men) - provided for the possibility of extending the retirement age at the employee's request. For prominent intellectuals, an additional 5-13 years of activity is feasible, considering the lengthy duration of their training and the increased

value conferred by their experience. By amending the current legislation with the above proposal, analogous to the previous laws, the period of professional activity could be extended by up to 10 years for specific categories of intellectuals whose contributions are particularly valuable - especially in education and research, including the training of new generations of specialists - in fields where there is a chronic shortage of personnel.

For those capable and willing to remain in the workforce beyond the age of 75, the existing protocol of annual approval - based on individual request and medical evaluation - may be applied. The same procedure could govern yearly extensions following the statutory retirement age of 75. Implementing this approach would alleviate financial pressure on the pension fund, would increase the aggregate social contribution of employees (albeit with a reduced individual contribution), enhance the quality of work by retaining exceptionally experienced and skilled personnel, and help offset the shortage of highly qualified professionals.

In order to incentivize productive work in all its forms, it would be advisable to consider the active period as commencing upon entry into any form of employment following completion of general education and continuing until the attainment of the minimum retirement age of 60, the standard age of 65, the upper threshold of 75, or the individual's maximum functional working age. This would represent a total of 45 to 60 years of professional activity (including periods of study), from which any intervals of interruption would be subtracted. Such an approach would provide substantial motivation for the pursuit of further education and for the integration of young people into the workforce.

If there is sufficient political will, the "Procrustean bed" represented by an overly rigid and restrictive retirement law - which disregards the individuality of each retiree - can be abolished without delay. Employees would no longer be compelled to retire uniformly, under a falsely egalitarian policy, without consideration for their skills, preferences, or the societal importance of their work.



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