

ORIGINAL PAPER

Anthropology and Population: Perspectives on Aging

Veronica Gheorghiță*

Abstract

In the last decades it was noticed a significant demographic growth, as world population surpassed 7.3 billion persons in 2015. The increasing number of people was linked to a significant increase in the number of older persons in the population. This trend is projected to accelerate in the coming years, the global population of older persons is going to reach 1.4 billion in 2030 and 2.1 billion in 2050. In Romania, in 2015, the population of 65 years and older, represented 16% of the total population. In the period 2015 - 2050 the forecasted values are much higher, reaching over 30% of the elderly population. From this point of view, the ascending of the "graying" population involves changes in many fields of society, from social to economic ones.

The paper focuses on presenting the anthropological perspective in the study of population in general and the understanding of the experience of growing old. It examines the global changes in the age structure of the population and the future trends of the demographic characteristics. At national level, the article explores the changes in the age characteristics of the population, the demographic drivers of the aging of population and the challenges posed by the growth in the number and share of older persons. Also, it will underline the peculiarities of the process of aging, an approach that shows human aging related to social and biological changes.

Keywords: aging, anthropology, demographic processes, Romania

^{*}Assistant Professor, PhD, University of Craiova, Faculty of Social Sciences, Sociology Specialization, Phone: 004 0740458527, Email: veronikaion@yahoo.com

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Introduction

Worldwide, in most countries, the accelerated pace of economic and technological development produced significant changes in the quality of life of individuals, social structures and family, but also in the demographic processes, such as the fact that increasingly more people live longer and reach old ages. Currently, the percentage of people aged 60 years and over is growing; the number will reach 1.4 billion in 2030 and 2.1 billion in 2050. Thus, there is a reconfiguration of the age structure of the population, a significant increase of the age group over 60 years and a decrease in the younger age groups. This population aging is understood as a success story "for public health policies and for socioeconomic development, but it also challenges society to adapt, in order to maximize the health and functional capacity of older people as well as their social participation and security" (World Health Organization [WHO], 2016). Anthropologically, the approaches for the study of aging concern understanding and exploring the aging process within and beyond the variety of human cultures. Therefore, they aim to answer questions such as: *which is the origin of aging? how are we getting old? what is the meaning of aging?*

What do we understand by aging?

From a demographic perspective, the aging refers to the increase in the proportion of the elderly population (U.S. Department of Commerce Economics and Statistics Administration, 2014: 1). Thus, the aging of the population means the process by which older individuals become a proportionally larger share of the total population (United Nations, Department of Economic and Social Affairs, Population Division, 2001a). The elderly population is defined as "the share of the dependent population is calculated as total elderly and youth population expressed as a ratio of the total population"(Organisation for Economic Co-operation and Development [OECD], 2016). The elderly dependency rate represents the percentage between the old and the working age population.

Factors influencing aging

Demographic changes in the age structure of the population are associated with three demographic processes: *fertility, mortality and migration*. Therefore, levels and trends in fertility explain the size of the population; while in mortality determine the percentage of survival of birth cohort in old age (United Nations, Department of Economic and Social Affairs, Population Division, 2015a: 41).

Fertility decline is considered the main cause of aging of population. The age structure of the population is changed as fertility decreases and life expectancy is growing. Thus, in most parts of the world, it is observed a change in the pole age group, from the young to the old group (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 5).

Globally, the fertility rate has followed a downward trend, from 5.0 to 2.7 children per woman. For the next 50 years the fertility rate will reach 2.1 children per woman, the developed countries reaching just below the demographic replacement rate. Currently, in industrialized countries there is a fertility rate below the rate of replacement of 2.1 children per woman, while in less developed countries is 2.9 children per woman. In the least developed countries, such as those in East, West and Middle Africa, the total fertility rate is 5.2 children per woman, and in Central Asia and South America, in South America and Caribbean current rates of fertility is 2.5 children per woman (United Nations, Department

of Economic and Social Affairs, Population Division, 2001a: 5-6). By 2050 the total average fertility rate is projected to rise in the more developed regions (1.9 children per woman) and to fall in less developed regions (2.2 children per woman) and the least developed countries (2.5 children per woman).

The decline in *mortality* is associated with a decline in the fertility rate, particularly at older groups, which thus brings an increase in the longevity. În more developed countries with low fertility, life expectancy has increased, which also implies a growth in the older population and their chances of surviving at this stage of advanced age (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 6).

In the last 50 years, the life expectancy increased about 30%, which represents a gain of 20 years. Thus, in less developed countries, life expectancy at birth increased to 23.1 years, while growth in developed countries was 9.4 years. For the next 34 years it is expected to a 10 years expansion in life expectancy at birth. By 2050, average life expectancy at birth is expected to reach 80 years in more developed regions and 71 years in the less developed regions. Therefore, these increases in life expectancy will influence the older age groups: people get to live to old age and once they reach the age limit, they tend to live longer. Therefore, in more developed regions in the coming decades, average life expectancy will increase by 27% at age 80, in the less developed countries by 28%, and in the least developed is expected a higher life expectancy at birth, than in older age (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 6-8). In all age groups, mortality rates were lower among women than men. By 2050, the gap on gender of mortality is expected to increase up to 4.8 years.

Population migration or replacement migration is emphasized as a solution to decrease the number and the aging of population. Replacement migration refers to "international migration that would be needed to offset declines in the size of population and declines in the population of working age, as well as to offset the overall ageing of a population" (United Nations, Department of Economic and Social Affairs, Population Division, 2001b: 7). Besides the benefits for the economy, there are also important ones for the demographic dynamic in general, as population policies and easy ways to integrate immigrants in their new country (Eurostat, 2013: 5). Increasing the size of the population following the arrival of immigrants is contributory to significant demographic changes in the host country: the changing of the age structure of the aging population, the increasing fertility and longevity and also the decrease of mortality.

Globally aging of population: statistics and trends

In 2015, the world's population reached 7.349 billion people, distributed as follows: Asia (4.4 billion), Africa (1.2 billion), Europe (738 million), Latin America and the Caribbean (634 million), Northern America (358 million) and Oceania (39 million). Currently, the world population increases by 83 million people annually that is 1.18% per year. Therefore, the global population is estimated to grow by more than 2 billion over the next 35 years, reaching 9.7 billion in 2050 and 11.2 billion in 2100. Thus, compared to 2015, in the coming decades it is foreseen a world population growth of 14% in 2030, 24% in 2050 and 34% in 2011. The distribution by age shows a percentage of 26% for group under 15 years, 62% for those enrolled in the group of 15-59 years and 12% are those of 60 or more (United Nations, Department of Economic and Social Affairs, Population Division, 2015b: 1).

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Figure 1. Projection of world population distribution (2015, 2030, 2050, 2100) Source: United Nations, World Population Prospects The 2015 Revision Key Findings and Advance Tables, New York, 2015, p.1

The senior population has increased considerably in recent years and it is estimated that the number will triple over the next 50 years. If there were 205 million people aged over 60 in 1950, in the next years the number has doubled, reaching 606 million of old people in 2000 (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 11). Between 2015-2030, the elderly population will increase by about 36%, from 901 million in 2015 to 1.4 billion in 2030 (United Nations, Department of Economic and Social Affairs, Population Division, 2011 and Social Affairs, Population Division, 2012 to 1.4 billion in 2030 (United Nations, Department of Economic and Social Affairs, Population Division, 2015a: 22).

Table 1. Worldwide trend in population aging (1950-2015)						
1950	2000	2015	2030			
205 millions	606 millions	901 millions	1.4 billions			
Source: United Nations, Department of Economic and Social Affairs, Population Division, 2015						

Therefore, during 2015-2050 the population aged 60 and older will represent 22% of the world population, an increase of over 43% compared to 2015.



Figure 2. The percentage evolution of the population aged 60 years and over Source: United Nations, *World Population Ageing 2015*, New York, 2015, p.122

It is expected that by 2030, the proportion of elderly population will grow over 71% in Latin America and the Caribbean, 66% in Asia, 64% in Africa, 47% in Oceania, 41% in North America and 23% in Europe (United Nations, Department of Economic and Social Affairs, Population Division, 2015a: 22). In 2015, in the hierarchy of countries with the highest percentage of the population aged 60 years or older were reported Japan, Italy, Germany, Finland, Portugal and Greece. In contrast, in the last five places from the 201 countries entered in the study there were Qatar, United Arab Emirates, Kuwait, Gambia, Uganda (with percentages below 4%). In this classification, Romania ranks 22, with a percentage of the population aged 60 years and over of 24.4%.

Table 2. Ranking of the top 10 countries with the highest percentage according to the estimated percentage of population aged 60 or over in 2015

1.	Japan	33.1%
2.	Italy	28.6%
3.	Germany	27.6%
4.	Finland	27.2%
5.	Portugal	27.1%
6.	Greece	27.0%
7.	Bulgaria	26.9%
8.	Martinique	26.2%
9.	Croatia	25.9%
10.	Latvia	25.7%

Source: United Nations, *World Population Ageing 2015*, New York, 2015, pp. 138-141

If in 1950, worldwide, one person out of 12 had at least 60 years, until 2000 these ratios increased to 1 person in 10, and in 2050 it is estimated that more than 1 person in 5 will age 60 years or more (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 11). The number of persons aged 80 years and over are in an upward trend, noticing a faster increasing than the number of elderly people. During 2015-2050, the number of people aged 80 years and older will triple, reaching 434 million compared with the 125 million people aged over 80 in 2015 (United Nations, Department of Economic and Social Affairs, Population Division, 2015a: 22). The elderly are more concentrated in urban areas than in rural areas. In 2015, 58% of the population aged 60 years or older was concentrated in urban areas and 42% residing in rural areas. In urban areas, the number of elderly increased by 68% in the period 2000-2015 and by 25% in rural areas. Regarding persons aged 80 years or over, it was revealed a preponderance of them in urban areas by 2015, 63% of them residing in cities. Regarding the distribution of population aged 60 years and over, by gender, it was highlighted a preponderance of the female population, which in 2015 represented 54% of the total number of elderly. The following years brought a reduction in the percentage difference between the sexes, as the life expectancy among men will have increased (United Nations, Department of Economic and Social Affairs, Population Division, 2015a: 2).

The aging process is more advanced in certain regions of the world than in others: "the more developed countries are in general in a more advanced stage of the demographic transition; thus, the proportions of older persons there are projected to remain significantly higher than the proportions in the less developed regions" (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 12).

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Thus, the same report "World population ageing: 1950-2050" of the United Nations, underlines that by 2050, 1/3 of the population of more developed countries will be 60 years or older, while a 1/4 is expected to be 65 or older. Less developed regions will record the lowest number of older adults, one person in five will be 60 or over and one person in seven years will be over 65.



Figure 3. Proportion of population aged 60 or over in more developed/less developed regions Source: United Nations, *World Population Ageing 2015*, New York, 2015, p. 122

In the next decades, the world is 'turning increasingly grey'. Until 2050, the age structure of the countries will change; the overall size of the population is projected to be much older than it is in the present. The number of older people is projected to strongly increase in high and middle income countries, while in low-income countries the projected rise it is much lower.

	2015	2030	2050
High-income countries	22.1%	27.7%	31.9%
Middle-income countries	10.5%	15.4%	21.9%
Low-income countries	5.2%	5.8%	8.3%

Table 3. Proportion of population aged 60 or over in High-income countries, M	iddle -
income countries, Low-income countries	

Source: United Nations, World Population Ageing 2015, New York, 2015

Facts about population aging in Romania

In January 2015, according to Eurostat data, the European population was estimated at 508.5 million people, the distribution by age being as follows: 15.6% of the EU population-aged 0-14 years; 65.6% of the population is represented by people aged 15-64 years; 18.9% is the elderly population -aged 65 years and over. In the coming decades, the percent of older persons will have an ascending trend, as the population born in the post-war period reaches retirement. Therefore, the working age population will be

required to sustain bigger social expenditure associated to several services of the elderly population. Nationally, demographic changes have brought significant socio-economic transformations. In the period 2005-2015, the share of the population aged equal or older than 65 years increased from 14.2% to 17%, i.e. by 16.5% over the past 10 years, a percentage that places Romania on the 9th place among the Member States of Europe Union. Therefore, the ratio between the number of elderly people who are not economically active (65 and over) and the number of those who can activate in the labor market (15-64 years old) (Eurostat, 2016b) is 28.8 % at European level. In Romania, the old-age dependency ratio is 25.2% that is 2.5 working age people for every person aged 65 or over. The total age-dependency ratio of 48.5% ranks Romania in the bottom countries from the European Union. This old-age dependency ratio is defined as a "measure of the age structure of the population that relates the number of individuals who are likely to be *dependent* on the support of others for their daily living – the young and the elderly - to the number of those individuals who are capable of providing this support" (Eurostat, 2016c). The increasing percentage of the population of 65 years and over in most European countries, including Romania, is explained by the decreased fertility, increased longevity and life expectancy, and decreasing of the mortality. Nationally, in 2014, the total fertility rate reached 1.52 live births per woman. This represents "the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year" (Eurostat, 2016d). Over half the children born in Romania in 2014 were first born children, approximate 30% second child, 10% third child and about 7% were fourth or subsequent child.

Life expectancy has risen in the member states of the European Union, which implies a reduction in infant mortality, a better quality of life and progress in medicine. Life expectancy at birth, an indicator for analyzing mortality, is understood as "the mean number of years a newborn child can expect to live if subjected throughout his or her life to the current mortality conditions, the probabilities of dying at each age" (Eurostat, 2016e). In the period 1980-2014, life expectancy in Romania at birth increased by about six years, from 69.2 to 75.0 years, higher growth was observed among the female population. Therefore, life expectancy at birth for women increased by seven years and by about five years in men.

	1980	1990	2000	2010	2014
Life expectancy at birth-total	69.2	69.9	71.2	73.7	75.0
Life expectancy at birth- <i>males</i>	66.6	66.7	67.7	70.0	71.4
Life expectancy at birth- <i>females</i>	71.9	73.1	74.8	77.7	78.7

Table 4. Life expectancy at birth in Romania in the period 1980-2014

Source: Eurostat

This increase is due to the reduction of mortality at older ages. Therefore, once a man has reached the age of 65, he could, on average, to live another 14.7 years, while women who have reached the age of 65 have a higher life expectancy and can be expected to live another 18.1 years.

Tuble 5. Ene expectancy at age of in Romania in the period 1900 2011					
	1980	1990	2000	2010	2014
Life expectancy at birth- <i>total</i>	13.4	14.3%	14.8	16.1	16.6
Life expectancy at birth-males	12.5	13.2	13.4	14.2	14.7
Life expectancy at birth- <i>females</i>	14.2	15.2	15.9	17.6	18.1

Table 5. Life expectancy at age 65 in Romania in the period 1980-2014

Source: Eurostat

International migration can be used as a tool to resolve labour market problems. In 2014, 3.8 million people have immigrated to one of the Member States of the European Union, of which (Eurostat, 2016f): 42% belong to countries outside the EU; 34% have citizenship of an EU Member State different from the one they left; 22% migrated to an EU country they already had the citizenship; 2% without state. As for Romania, there were 136.000 registered immigrants, 91.1% (i.e. 123.000) were citizenship of the country of destination, but have emigrated from other Member States and / or in countries which are not members of the European Union.

Consequences of population aging

Demographic dynamics and the changing structure of the age groups have a strong impact on the economic, political and social level. Thus, there is a need for (United Nations, Department of Economic and Social Affairs, Population Division, 2001a: 1): maintaining social support systems, whose smooth functioning is essential for human well-being, regardless of age. In the context of reducing the number of family members, and the woman, who is the primary caregiver of the family, becomes active on the labour market, the responsibility of taking care of the family becomes more difficult; developing social security systems because with increased longevity, the social benefits (such as pensions) tend to extend over longer periods of time; increasing medical costs and the demand for health services, because older people have poor health and are more vulnerable to chronic diseases.

Economically, long-term consequences include: reduction of the population providing gainful activity involves substantial increase in age-related public expenditure (pension and health); changes in the structure and size of of the working age population: as the percentage of elderly in the labor market increases, the professional mobility of the young population decreases. This situation, underlines Keyfitz (1973), could bring social tensions between young groups because they must work harder for getting a promotion (Hagemann, Nicoletti, 1989: 81); labour mobility decreases with age, meaning a weaker labour adaptability to significant changes in market structure; decline in private savings, the savings rate in the aging population would be expected to fall if the model saving consumers corresponds with the hypothesis "life cycle" (LCH), pattern of behaviour suggesting that determining the rate of saving is connected the demographic profile of the population. According to this view of the world, savings meant to finance the consumption after retirement (Morrow, Roeger, 1999: 18); changes in the structure and level of people's private consumption, given that age is an important determinant of their purchasing

preferences. In general, "the categories of private consumption that would tend to decline the most in relative importance in an aging society are education, transportation, recreation and durable, including housing services, while food, most services, and, particularly, medical care would increase (Hagemann, Nicoletti, 1989: 83); decrease of income differences between countries will slow immigration flows, implying a decline in the workforce by 20% in the euro area and 15% in the United States of America (Miksa, 2015); a worsening of social problems in underdeveloped countries like hunger, corruption, conflicts, lack of access to clean water and education.

The aging of the world's population introduces several major policy challenges (Bloom, Canning and Fink, 2010): people aged 60 and over tend to work and save less, which means they provide less to society (labour and capital); health decline implies a constant concern, which implies a greater need for financial support from the government and the family. Apart from additional health care costs, implying an extra care from the state and relatives, personal savings tend to run out with increasing longevity. If, older people are healthier than previous generations, the requests for health care will be reduced and the elderly will be able to participate economically to the good developing of society; in general, the income of the elderly relies on social pensions is a greater financial support in case of elderly population growth.

Anthropological approaches to aging

Anthropological perspective on aging is based on the origin, nature and evolution of the human aging, as well as pattern differences in terms of each individual and the society. Because aging is a mysterious process, throughout time, there have been outlined numerous theoretical perspectives to answer the question "why do we age?" From the perspective of evolutionary theory, the most widespread theory, the origin of aging is identified by two perspectives: the adaptive or non-adaptive (Kaczmarek, Szwed, 1997: 38-40). In the acceptation of Maria Kaczmarek and Anita Szwed, the two theories can be explained as follows:

Adaptive explanation emphasizes the positive effects of aging by increasing the capacity of species to evolve by adapting to the environment and thus protect the natural resources needed for survival (accentuates the process of social change that increases the chances of species to adapt to changes affecting social harmony).

Non-adaptive explanation emphasizes the negative or neutral effects, somewhat indirect evolution and is understood from the perspective of the two-pronged approach: 1. the first one suggests that the human body wears out with time and natural selection cannot prevent this. Medawar in 1982 supports reducing the impact of natural selection with aging; 2. the second direction shows aging as a secondary result of the impact of natural selection on other traits. Williams (1957), by the theory of "antagonistic pleiotropy" supports the pleiotropic character of genes, that according to the dictionary Dexonline, "the ability of a gene to condition the concomitant emergence of several hereditary characters" I.e., certain genes that increase reproductive chances in early life may have harmful effects in the second half. The effects are observed later, after the reproduction was ended and so natural selection cannot remove them (American Federation of Aging Research [AFAR], 2006: 3). Also, Kirwood Thomas (1970) argues the "disposable soma" theory, aging is a progressive accumulation of physical defects. "He believed that organisms have to balance the demands of maintaining their body, or soma, cells and reproducing" (AFAR, 2006: 3). Therefore, as the resources become important for the

reproduction of the body, the soma is filled with transformation and cellular loss, as the body is unable to fix it all.

The causes underlying the aging process can be reduced to two perspectives: *the deterministic approach* presents the process of aging as a innate process, being prone to just small changes; *the stochastic approach* sustain that aging "is the result of the accumulation of harmful products of metabolism in tissues" (Kaczmarek, Szwed, 1997: 37).

The anthropological discourse about the body envisages the relationship between three body shapes: body-self, body social, political body. Thus, in examining the relationship between anthropology and medicine to understand the human body, Nancy Scheper-Hughes and Margaret Lock identify three bodies.

Body-self is understood in light of the experience of consciousness on existence, as the body individual experience. "The constituent parts of the body-mind (matter, psyche, soul, self, etc), the relations to each other and the ways in which the body is received and experienced in health and sickness are highly variable" (Scheper-Hughes, Lock, 1987: 7).

Social body includes the physical meanings or "the representational uses of the body as a natural symbol" (Scheper-Hughes and Lock, 1987: 7) which one can use to represent society, nature and culture.

Body politic refers to the way "individual and social bodies are managed through politics and social control" (Crampton, 2013: 100).

In all of these polities-acephalous anarchy, chieftainship, monarchies, oligarchies, democracies and modem totalitarian state- (the stability of the body politic representing the analysis, enactment and supervising individual and collective bodies in the reproductive behaviour, health, labour or other forms of deviance), "rests on its ability to regulate populations (the social body) and to discipline individual bodies" (Scheper-Hughes, Lock, 1987: 8).

How do people grow old?

From a biological perspective, the human body undergoes changes along his entire life, such as growth, development, maturation or aging. Maria Kaczmarek and Anita Szwed define these processes by their biological different meaning: *growth* is an irreversible process, that implies increase in size or mass, involving the production of new protoplasm; *development* is understood as a progression of changes from a common state to a highly organized and matured form;*maturation* is the capacity of the organs and the entire organism to function properly;*ageing* has two meanings: the first is decline of body functions, gradual changes that stand out especially in the post reproductive period; the second meaning refers to the demographic perspective, the organism in not able to adapt and therefore survive, measured by the age-specific death rate.

Currently, in specialized studies, the theories which identify mechanisms generating the processes of aging are (AFAR, 2006: 4): the cross-linking / Glycation hypothesis of aging: molecular structures, DNA and protein crosslinks, which involve certain health problems (reduction of molecular elasticity, inhibition of proteolytic enzymes); free-radical hypothesis of aging: free radicals affect the good working of the body, with bad effects such as DNA damage and formation of age pigment; the replicative senescence hypothesis of aging: telomere shortening could contribute to human aging; the genome maintenance hypothesis of aging: some spontaneous mutations or changes in the structure of genes can cause poor functioning of cells, eventually even their death; the neuroendocrine hypothesis of aging: originally, the reduction of hormones was associated

with year contributor to aging. It is demonstrated that reduced hormone levels can increase life.

Conclusions

Globally, the number of older people grows faster than the number of people in any other age group. Due to the dynamics in fertility, life expectancy and migration, in the following decades, the age structure of many countries will change, with variations in timing, levels and patterns.

Demographic researchers "divide countries into four categories, according to the share of the population that is over 65: young (less than 7% aged 65 or over), aging (7-13%), aged (14-20%), and super-aged (more than 21%)" (Miksa, 2015). Today, Germany (21%), Italy (22%) and Japan (26%) are defined as super-aged societies and in the next five years, Bulgaria, Finland, Greece and Portugal are also expected to become super-aged. Other countries, such as Canada, Cuba, South Korea, Sweden, France, Austria and the UK will have majority population over 65 in the future.

The process of population aging involve challenges in different aspects regarding family, labor market, social programs, income security and access to health services. In many countries there is a rural-urban migration in order for people to gain new opportunities, older adults are left behind without support from their family.

These problems are further aggravated when ones immigrates to other countries in order to find new educational and professional opportunities. On one hand migration may slow down the process of demographic aging, on the other hand it can bring social pressures and conflicts in trying to balance the need for labour and social effects of migration (Bloom, Canning and Fink, 2010: 11).

From another point of view aging can have a positive impact on the socioeconomic development of society and public health policies. According to the World Health Organization the increased number of elderly may cause a bigger social involvement of older people, as well as the increase of their life quality (subjective wellbeing, safety and health) (WHO, 2016).

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