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Contents

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Facing the Challenges of Aging Population in the Turkish Health System

Sabahattin Aydın[1]
Ömer Ataç[2]

ABSTRACT

Health systems are deeply affected from demographic change since the burden of diseases and health expenditures, and struggles in health care delivery system are very much related to age groups in a society. This study aims to analyze the composition of Turkish society's age structure compared to available global data, mainly focusing on elderly population. In the light of the aging population and future demographic assessments, the challenges of the health system and possible new policy requirements are discussed, accordingly.

Keywords: Demographic Changes, Elderly, Aging, Health Services, Health Policies

INTRODUCTION

Demographic changes will have profound impacts for almost all organizations in a society, as well as health systems in the next decades. The global aging population with the dependency rate has a great impact on the shape and functions of many organizations. Public policy leaders need to look forward and prepare for the requirements of the changing structures of the future and understand the organizational changes this will bring.

Turkey has recently achieved a great progress in its health system. However,

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the population of Turkey is getting older, with significant impact on the health system priorities together with health professionals and organizations that fulfill the requirements. It is necessary to understand the previous demographic trends to estimate future size and characteristics of the older population as well as to forecast their demands for services. Analysis of demographic trends of the elderly population will also help identify the needed data to make informed policy decisions which are related to the health needs of the elderly population in the future.

METHODOLOGY

To understand the trends, the past demographic structure of Turkish population and the future projections are obtained from the data of Turkish Statistics Institute (TSI). The growth rate of the population, life expectancy at birth, the ratio of different population groups, especially the young and elderly, and dependency rates are the main demographic indicators that help to estimate future trends and consequences. Population projections in Turkey were produced using the most recent population data obtained from Address Based Population Registration System (ABPRS), established according to Population Services Law 5490. National and regional population projections were adjusted by the results of Turkey Population and Health Survey realized by Hacettepe University Institute of Population Studies (Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, 2014).

Health data from United Nations World Population Prospects (UN WPP), European Statistical Office (EUROSTAT), and Organisation for Economic Co-operation and Development (OECD) provided a valuable opportunity for making a comparative analysis. Thus, the demographic trends of the Turkish population are more accurately compared with the trends of EU and OECD countries as well as the whole world population.

Population Division of United Nations Department of Economic and Social Affairs (UN DESA) prepares and conducts the UN WPP. It is mainly based on four different sources: Vital registers of countries, censuses, surveys which are conducted by National Institutes or different organizations, and adjustments, if needed (UN DESA, 2017).

EUROSTAT is the statistical office of European Union. Its main responsibil-

ity is to process and publish statistical information about both European Union and Member States and Norway as well. Year-based population projections are some of the works. These projections, based on statistical models, which are prepared by a working group and that includes Eurostat and National Statistical Institutes of Member States. Eurostat annually collects demographic and migration data to update the projections and Member States have a legal obligation to provide data to Eurostat (European Commission Eurostat, 2017).

OECD also carries out demographic projections. It collects data from different sources. For EU member states, it uses Eurostat information. For non-EU countries, the data is obtained from World Bank or National Institutes, but the data for these countries has country-specific methodological differences (OECD, 2019).

The actual and projected growth of the older population, old-age dependency ratio and total dependency ratio obtained from the data were compared with the available data from OECD and United Nations, European Union. OECD projections does not go further to 2060 and 2080, thus long-term comparison with these data was ignored.

RESULTS AND DISCUSSION

According to TSI, the population of Turkey was 64.7 million in 2000, 67.2 million in 2003, 71.5 million in 2008, 76.5 million in 2013 and reached 80.1 million at the end of 2017 (TSI, 2018). It is expected to become 86.9 million in 2023 (TSI, 2018). While the rate of population growth was 1.14% from 2003 to 2013 it is expected to be 1.3% from 2013 to 2023. According to the projection of TSI, the population of Turkey will be 100.3 million in 2040 and 107.1 million in 2080 (TSI, 2018). Life expectancy at birth has also been increasing as it is expected, which means that our people now live longer. Furthermore, life expectancy at birth is expected to reach 80.2 years in 2023, which is already 78.0 (TSI, 2018). While the number of citizens aged under five in Turkey was 6.1 million in 2003, it remained at the same level until 2013 and reached up to 6.54 million by 2018. In 2023, it is estimated to become 6.59 million (TSI, 2018). If evaluated with the general population counts, it can be seen that the percentage of individuals under five decreased from 9.1% to 7.9% between 2003 and 2013 and it is expected to decrease further to 7.6% in five years (TSI,

2018). In other words, child population will relatively decrease.

On the other hand, elderly population rapidly increases as the population of over sixty-five years of age was 4.5 million in 2003, 5.89 million in 2013 and 6.89 million in 2017. It is expected to reach 8.87 million in 2023. If we estimate its proportion based on general population, elderly population formed 6.7% of the total population in 2003, 7.7% in 2013, and 8.5% in 2017. It is expected to increase up to 10.2% in 2023 (TSI, 2018).

As mentioned earlier, TSI, estimates the population of Turkey to be 100.3 million in 2040 and 107.1 million in 2080 (TSI, 2018). The population of individuals under five years of age is expected to be 6.3 million (6.2%) and 5.5 million (5.1%) in these periods, respectively (TSI, 2018). As it can be seen, in 2080, with the decreasing trend of our population, the ratio of child population continues to decrease as well. The population over sixty-five years of age will be 16.3 million (16.2%) in 2040 and 27.4 million (25.6%) in 2080 (TSI, 2018; TSI, 2018). It can be seen that aging is rapidly increasing while the growth rate of the population tends to decrease. It is understood that one quarter of our population will be elderly in the 2070s. Compared to other age groups, the elderly population has a higher growth rate than the other age groups. While the growth rate of the total population was 12.4 ‰ in 2017, the growth rate of the elderly population was 32.2 ‰ which is nearly three times faster (TSI, 2018; TSI, 2018).

According to the population projection of the United Nations, it is estimated that the proportion of elderly people in the world population which was 6.9% in 2000 will increase to 15.8 by 2050. While this proportion will change from 14.3% to 26.6% in developed countries, it will increase from 5.1% to 14% in developing countries (UN DESA, 2017). According to the projection of 2060, the proportion of elderly people in our country will be 22.6%, and Turkey will stand in between the developed and developing countries.

The ratio of the population over the age of 65, namely the elderly, within the population between the ages of 15-64 is called the elderly dependency ratio (Porta, 2014, p. 72). The social security systems now in place is on the edge of balancing between the size of the working population and the retired. This is vital for the sustainability of the pension system. The trends for people to live longer and the decline in the ratio of the active working population are dete-

riorating the balance by changing the shape of the elderly dependency ratio.

While the number of elderly people taken care of by the working population was 12.9 per 100 workers in 2017, it is estimated to increase to 15.1 in 2023 and 37.4 in 2060 (TSI, 2018; TSI, 2018). In other words, every three employees will take care of an old person. In addition to the significant increase in number of people over 65 years of age, which we define as the elderly population, the interior demographic change of this elderly population is also very important. The proportion of people who are 85 years and over and at much higher risk in terms of life limitation and burden of disease is only 9.2% at the moment, while the proportion of this population is expected to be 10.5% in 2040 and 15% in 2060. Eventually, it is expected to rise up to 19.7% in 2080 (TSI, 2018; TSI, 2018).

The total dependency ratio, the sum of the young and elderly ratios, is a crude index of the total burden on the working population of its support for both old and young dependents. The total dependency ratio in Turkey is 45.7 at the moment, at a point between the OECD (35.0) and EU average (54.5). It is expected to increase in the following decades, and reach 55.2 in 2040, 65.4 in 2060 and 70.3 in 2080 (TSI, 2018).

The actual and projected growth of the older population, old-age dependency ratio and total dependency ratio of available data from United Nations, European Union, OECD and Turkish Statistics are given in the table. The World, EU and Turkish indexes can easily be compared in the following figures. OECD projections did not go further to 2060 and 2080, thus long-term comparison with these data has been ignored.

Table 1: Actual and projected growth of the older population, 2018-2080 and the dependency ratios.

	Year	World (UN)	EU	OECD	Turkey
Elderly population (>65)	2018	8.9	11.8	17.2	8.7
	2025	10.4	22.1	19.6	10.2
	2040	14.1	27.0	23.8	16.3
	2060	17.8	29.0	-	22.6
	2080	20.1	29.1	-	25.6
Total dependency ratio	2018	-	54.5	35.0	47.5
	2025	54.0	56.6	58.2	48.7
	2040	56.9	68.7	66.3	55.2
	2060	61.9	75.1	-	65.4
	2080	64.0	76.4	-	70.3
Old-age dependency ratio	2018	-	30.5	26.5	12.9
	2025	16.0	34.5	31.0	15.1
	2040	22.1	45.6	39.7	25.3
	2060	28.8	50.7	-	37.4
	2080	32.9	51.4	-	43.6

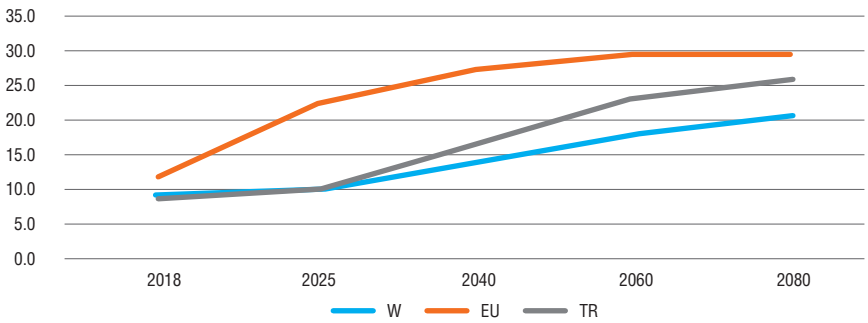

Figure 1: Elderly population (% of total), World average, EU average and Turkey

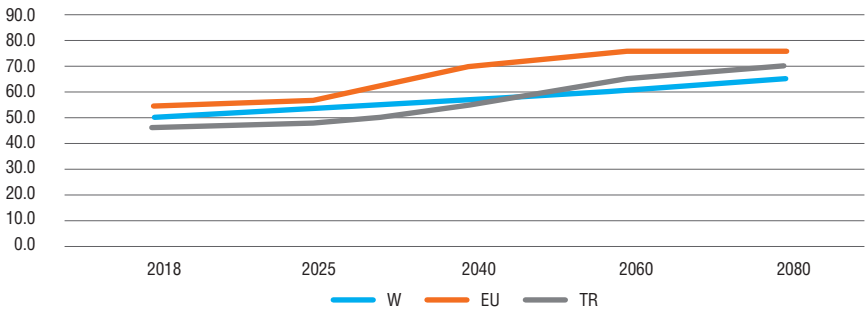

Figure 2: The share of dependent population, World average, EU average and Turkey

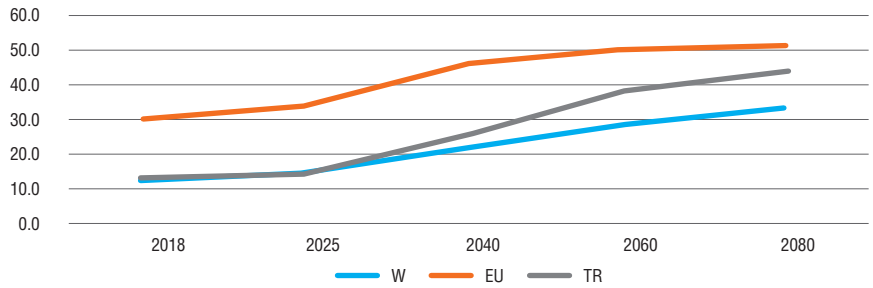

Figure 3: Old-age dependency ratio, World average, EU average and Turkey

As seen in the figures, the average figures of European Union are high in all indicators including the share of elderly population, total dependency ratio and old-age dependency ratio. According to the projections, the slope of the increase will decrease after 2040, but it will reach its highest level in 2060. Currently, Turkey's population structure, in terms of old population, total dependency ratio and old-age dependency ratio are very close to the world average. However, when we look at future projections, contrary to the low slopes of the curves of the world's population indexes, rapid increases of these indicators are observed in Turkish population. So, it can easily be observed that the demographic structure of Turkey, in terms of share of the elderly and dependent population, will approach to that of Europe and close the gap in a fast manner.

Although the elderly population and the old age dependency ratio of European countries are high at the moment and will continue to be higher in the projections up to year 2080, these countries have the chance for adaptation in a reasonable time. On the other hand, in spite of lower values in the figures, the slope of the aging rate of Turkey's population is very high, showing faster demographic changes compared to European countries as well as the world averages. The figures clearly demonstrate these structural diversities. That is to say, Turkey will not have the same chance as Europe, for adapting her systems to future demographic changes.

That is why special effort should be made to reorganize Turkey's health system as well as the social security system. It is extremely vital to take serious measures and make a series of reforms for strengthening her systems to respond to the emerging situations in terms of new forms of health care delivery, and sustainability.

The Burden Of Elderly Population On The Health System

The burden of disease in elderly people varies both in terms of violence and diversity. The major health problems of the elderly include depression, cancer, heart diseases, diabetes, fall-related injuries, hearing impairments, impaired vision, forgetfulness, severe influenza, osteoporosis, pneumonia, balance problems, Alzheimer's disease and Parkinson's disease (Detels and Gulliford, 2015). As a result, almost all of these diseases are chronic and generally require more examination and medical treatment. In addition, numbness, shortening of reaction time and other side effects can be observed due to the medicines which were taken at old ages. Therefore, falls and fractures are frequent and limitations of movement, newly appearing disability and special care needs constitute additional burdens. There isn't any definite limit to describe what day-to-day work can result from the loss of intellectual capacity and reflex reduction in the elderly. Activities such as using machinery, driving, lighting a fire and so on can sometimes cause not only to harm themselves but also to their environment (WHO, 2011; WHO, 2015).

New System Requirements for the Future Population

It is normal to see increasing interest in the fields of science related to life and health within the aging population. In this aspect, the character, diversity and even the job descriptions of the health professionals, who are struggling for the health of people, will change as well (WHO, 2015; Kuhlmann, 2006). It is obvious that addressing the old age only through physical or mental chronic diseases in medical sense is insufficient since aging is a natural process. A good understanding of this phenomenon will help to achieve healthy aging.

Gerontology is a discipline that examines the aging process. In the future, we should expect this discipline to become more prominent, and relevant studies to focus more on this area. In addition, geriatric medicine is a medical discipline that deals with the health of elder people. It aims to provide prevention and treatment of diseases and disabilities in this group (Halter et. al., 2017). Compared to other medical disciplines, it is very likely that geriatrics will also be a very important field since a high number of patients expected in the future. The importance of some medical disciplines such as cognitive neurology which focuses on diseases such as internal medicine, cardiology, rheumatolo-

gy, chest diseases, physical therapy and rehabilitation, oncology, Alzheimer, and Parkinson will also increase with the aging population. In the meantime, professions such as gerontologists, physiotherapists, elderly care workers, home care workers and occupational therapists will be more important in the future (Halter et. al., 2017; Simmers et. al., 2009).

It is not surprising to expect that drug research activities and a large economic sector of medical studies will focus on non-communicable diseases, especially cancers (Arensberg, 2017). The demands of elder people and the services for their needs are important in many aspects. Elderly care has also become a profession requiring special competencies like other professions such as child care which has transitioned from being a traditional maternity practice to a profession. This discipline will become more and more important as the proportion of the elderly population increases. In the course of elderly care services, we are going to meet with some concepts used in the West today such as assisted living, adult day care, short-term care, long-term care, nursing homes, home care, and hospice (Hui et. al., 2013).

Elder people cannot handle all of their needs on their own due to their disabilities. In their daily life, it is aimed to ensure that they are supported with human resources and technological tools to maintain their quality of life. This situation is called as supported life (Kleinberger et. al., 2017). As the nuclear family structure is spreading and almost all of young family members have a lifestyle outside of their home in which they live their active daily life, the elders are often alone. Even children who share the same house with their older family members are likely to accompany them at night, but they have to leave them alone during the daytime because of the intensive pace of daily life. Similar to the childcare service in which working parents leave their children during the daytime, the service area that appears to take care of the elderly person is called daytime adult care. Daytime rehabilitation centers, day care centers with dementia, psychiatric day care, and rehabilitation centers can also be some other examples. Sometimes, it can be a service type which aims to take care of an elderly or a disabled person temporarily in order to allow the household to rest or to do their timely work. Sometimes, this can be for longer-terms including full-time stays due to holidays, business travels or decisions of the family members not to share the same house. In this case, long-term care

is mentioned in the sense that it can be given as an example of a temporary and permanent retirement home.

Under the influence of contemporary social structure and ever-changing needs, an important issue waiting for elders who need enhanced care is the days spent in the last period of their lives. A growing number of people who live longer have non-communicable diseases which often become the causes of their death. We have increasing number of people whose treatments are limited to palliative care and are at the end of their lives. The fact that these patients spend their last days in health facilities is a serious burden and leads to loss of opportunities for other treatable patients. It is not possible for those patients to receive adequate service in their family environment where home care facilities are commonly scarce. The service provided in special care centers established to take care of such patients is called terminal patient care (Hui et. al., 2013; Poor and Poirrier, 2000).

Home in which they spend their daily lives is actually the most suitable care environment for people whether they are very old, or they have some kind of chronic diseases. It is more efficient for the sake of both economy and patient comfort. However, home care, which is a service model where the needs of life comfort and healthy life can be provided, requires special organization (Kim and Antonopoulos, 2011). This unique service style, which was initially practiced by local governments in our country. Later on, Ministry of Health tried to implement it as a national policy, whereas, the policy still needs to be developed as home care and home health care. Under the social security umbrella, there is a need for more comprehensive structuring. These concepts can also be transformed in accordance with the form of our own behavior and cultural structure. In particular, the existence of the family institution and the interdependencies between the family members require that certain services to be redefined and interpreted in their own capacity. While the nuclear family structure becomes more common in the society, the group of single living elderly people is becoming more and more prevalent. Even this is not the case generally, we are not able to save our old parents from their loneliness. Even though they might not be in the need of physical care, the development of related psychosocial problems is inevitable for them as our lifestyle that we embrace today also produces problems that were not common in the past. We have to foresee

that the problems of the growing old population will also grow with a higher velocity. It is necessary to develop social policies and health policies in order to prevent this situation and to define the responsibility of the public partners in these policies. More social activity fields for the elder population, creating more available occupations for social interaction and more cognitive exercises such as, travel, chatting, discussion, communication and prayer, or regular actions such as walking, shopping, voluntary service, and worship can be seen as the simplest protective precautions. For example, the elders in an Anatolian village or in a neighborhood environment who regularly go to the mosque to perform their prayers plays an important role in the construction of their daily lives. The positive effects of tea parties and camellia conversations with their peers who come to the mosque cannot be denied in terms of social integration. It is possible to find solutions that can facilitate their social integration by taking the intellectual, cultural, belief patterns and habits of the target audience into consideration. Although the traditional structures of small neighborhoods and villages in closed societies produced such solutions within themselves, the housing structure of the modern country life remains unresolved in this case primarily because of the traffic chaos and the intense working life in cities.

Future Health Policy Challenges

With the aging population, our health policies will have to change too. In fact, it seems inevitable that public health services which prioritize maternal and child health will evolve into type of policies that prioritize the elderly population as the latter continues to develop a more fragile group. It will be necessary to broaden and even redefine the primary health services for the elderly population. After healthy growth and healthy motherhood, healthy aging should also be considered in public policy. If we differentiate elderly related policies under three different headings, such as direct health services, primary care services and social services, the systematics of the policies to be developed emerge as well. While the Ministry of Women, Family and Social Affairs will be responsible for social services towards the elderly, primary health care and health services will be undertaken both by the Ministry of Health and Social Security Institution. However, since the limits of these areas of responsibility cannot be as clear as they are supposed to be, these institutions need to work

together in order to determine the limits of responsibility, and to avoid gaps or duplications.

As usual, health services for the elder population can be categorized into two groups: inpatient and outpatient. Elderly people who are unable to take care of themselves and who cannot be cared for at home are hospitalized and treated. For this, various institutional organizations can be made, or solutions can be found within the common health institutions. However, the preferred action is to keep the elder population in their vicinity and home. The public healthcare services can be organized for this purpose. In our country, limited mobile home care services which were initiated partially by local administrations have started to take place at a limited level within the health system by the initiative of the Ministry of Health (Ministry of Health, 2010; Official Gazette, 2005). For instance, we can provide services such as home care, assisted living, home care and nursing service, and terminal patient care at home in order to meet the general needs of the elder population. In order to keep these services around the environments of the elder population easily and to make these services sustainable, specially designed centers, which take care of these people at day time and send them home at night hours, can be organized. Daytime rehabilitation centers, day care centers for dementia patients and psychiatric day care and rehabilitation centers can be some examples.

It is known that health expenditures per elder person are higher than the expenditures made for the rest of the population. According to different studies, per capita spending amount for elderly people over 65 years old is 2.7-4.8 times higher than other age groups. There are also great differences between the subgroups of the elderly population. It is estimated that the health expenditure per person in the age group 85 and over is 3 times higher than the 65-74 age group, and 2 times more than the 75-84 age group. According to a study comparing the Medicare health expenditures of the years 2001, 2006 and 2011, 96% of the population over 65 years of age received health care services resulted with health expenditure during this time. In a decade, healthcare spending for the elderly in America increased by more than $ 100 billion (2001: $ 304 billion, 2011: $ 414 billion) (Mirel and Carper, 2014). In addition, the rate of increase in per capita health expenditures for the elderly is higher than that of non-elderly people. For example, the ratio of elderly health expenditure per capita

in the US to the expenditure of non-elderly people was 3.0 in 1987 and 3.9 in the 1990s (Fuchs, 1998). In the analysis of Medicare expenditures in 1953-87, the annual increase in health expenditures per person for 1-64 age group was 4.5%, while this increase rate was found to be 8% over the age of 65 (Cutler and Meara, 1997). In short, the elderly population constitutes a bigger proportion in health expenditures per capita and the rate of increase in health expenditures is higher for this group as well.

It is not difficult to analyze the causes of elderly people's health expenditures. Aforementioned chronic diseases and additional care services for the elderly are the main reasons for this expenditure. In addition, due to the high drug consumption period, the new drug development studies of the pharmaceutical industry primarily focus on diseases related to the elderly, particularly cancer and cardiovascular diseases. R & D costs and market revenues in this area are attributed to health expenditures through the consumption of a large number of limited effective drugs by the elderly population. We have to keep in mind that the pharmaceutical industry producing drugs for chronic diseases creates increasingly significant power by managing an important source of finance and carries the risk of influencing the health system by means of drug consumption for its own interests.

In short, the dependence of the rapidly growing elderly population, the burden of chronic illness, and the service areas required for this population will cause a significant increase in health expenditures. Even if this source might be provided in some way, the higher rate of increase in health expenditure per capita of the elderly population still threatens the sustainability. The fact that the elderly dependency ratio will reach to 15.1 in 2023 and to 37.4 in 2060 shows how difficult it is to generate resources in this area. Given the fact that our population is rapidly aging, we cannot solve the problem of old age in the natural course of health financing. Since health expenses might be shifted towards elderly groups because of their urgent health service needs, this situation constitutes the risk of neglecting other age groups or making concessions in collateral packages as well. Therefore, an extra "age budget" should be established in health financing by estimating the additional burden of aging. This means the need for new resources. We need to plan these resources separately for public health policies directed to healthy aging, health care for the elderly, care and social support services for them.

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Preparing the Manuscript

General Considerations

Manuscripts should be kept to a minimum length. Authors should write in clear, concise English, employing an editing service if necessary. For professional assistance with improving the English, figures, or formatting in the manuscript before submission please contact the editorial office by e-mail for suggestions.

The responsibility for all aspects of manuscript preparation rests with the authors. Extensive changes or rewriting of the manuscript will not be undertaken by the Editors.

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All text (including the title page, abstract, all sections of the body of the paper, figure captions, scheme or chart titles, and footnotes and references) and tables should be in one file. Graphics may be included with the text or uploaded as separate files. Manuscripts that do not adhere to the guidelines may be returned to authors for correction.

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