One Vicinity, Two Neighbors, and Two Different Stories: A Comparison of Mortality Experiences in Greece and Bulgaria since the 1960s

Konstantinos Zafeiris, Mariana Mourgova

Abstract: Greece and Bulgaria are neighboring countries. In the 19th century, the two countries became independent after the Greek-Turkish and Russian-Turkish Wars, respectively. After several territorial transformations, the modern territory of Greece was formed in the 1920s, and that of Bulgaria after WWII. In addition to territorial transformations, both countries underwent socio-economic and political transformations differently. Between the two countries as well, there are geographical differences as well as cultural and lifestyle differences. Differences in mortality between Eastern and Western European countries have been and still are, of scientific interest to many researchers. However, differences in mortality between Bulgaria and Greece, in particular, have not been well studied. The paper aims to analyze the differences in life expectancy in Bulgaria and Greece from 1961 to 2019. We used data provided by EUROSTAT. The main results show significant differences between Bulgaria and Greece in mortality and longevity due to socioeconomic development, diet, lifestyle, access to medical care, etc.

Keywords: mortality; life expectancy, life expectancy decomposition, Bulgaria, Greece

Assoc.Prof.Dr., Democritus University of Thrace, Komotini - Greece, kon.zaferis.tie@gmail.com
Assoc.Prof.Dr., University of National and World Economy, Sofia-Bulgaria, mmourgova@unwe.bg

http://orcid.org/0000-0002-2587-6565
http://orcid.org/0000-0001-9380-9471

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Introduction

The historical, social, political, and economic periods during which Bulgaria passed determined trends in mortality among the population. At the beginning of the 20th century, Bulgaria was a typical agricultural country. Between 1901 and 1905, life expectancy (LE) was over 42 years, with a difference in LE between men and women, respectively, 42.1 and 42.2 years.

Despite the five wars in which Bulgaria participated, by 1940, the LE of men and women had increased by 10 years and reached 52 years (51 for men and 52.6 for women.) In Greece, LE at birth was 56.8 years for females and 54 years for males in 1941. By 1951, it increased to 66.8 and 63.7 years, respectively, and from 1960 to 73.2 and 69.9 (Zafeiris et al., 2020). Greece has experienced several territorial and socioeconomic transformations since the first decade of the 20th century. First, the country expanded to recent territories (except for the Dodecanese Islands in 1947) in the 1920s. After defeating in the Greek-Turkish War, numerous refugees entered the country, enriching its population dynamics. In 1940, Greece participated in World War II, was occupied by the Nazis and their allies, and was liberated in 1944. A bloody civil war followed, which lasted until 1949. Afterward, a massive emigration wave towards Western Europe was accompanied by a rapid urbanization process, mainly enlarging Athens and Thessaloniki. In the 1960s, many countries entered a new era. In the 1960s, political instability and minor economic development gave way to an extreme military dictatorship during 1967-1974. After the restoration of Democracy, Greece rejoined NATO in 1980 and became a full member of the European Union in 1981. In 2001, the country adopted the euro as the national currency. In 2004, the Olympic Games in Athens were organized. After a rapid developmental process that lasted at least until 2008, the country entered a vast economic and social crisis. All socioeconomic indicators of the country were burdened (for example, GDP, unemployment, people at risk of poverty, etc.) (see Clogg 2002; Zafeiris and Kostaki, 2019).

After WWII, Bulgaria's political and social conditions changed, and there was a transition to socialism. This period was also the beginning of the industrialization of Bulgaria, accompanied by migration from rural to urban areas. Advances in medicine, including the invention of antibiotics, increased access to medical care, and improvements in living conditions and hygiene, are among the most important factors that explain the decrease in mortality and increase in LE.

From 1945 to 1960, infant mortality in Bulgaria decreased from 120.6 per 100,000 to 45.1 and that of the entire population from 14.9 to 8.1 per 100,000. The morbidity associated with infectious and parasitic diseases has decreased significantly. Thus, by 1960, Bulgaria had completed the first and second stages of the epidemiological transition formulated by A. Omran (1971). Since the mid-1960s, Bulgaria has entered the third stage of epidemiological transition, i.e. in the age of degenerative and man-made diseases. Morbidity and mortality from parasitic and infectious diseases have decreased and almost disappeared, and mortality from chronic and degenerative diseases has become the leading cause of death (Mourgova, M., 2005). A similar situation prevails in Greece, as communicable diseases decrease in favor of degenerative diseases (Nikolaidis et al., 2004; Kollia et al., 2018). Simultaneously, infant mortality decreased from 133,81 per thousand in 1931 to 118,15 in 1939, 43.58 in 1951, and 39.85 in 1960. The crude death rate of the general population decreased from 11.47 in 1931 to 7.51 in 1951 and 7.61 in 1960 (ELSAT, 1986).

Similar trends were observed in other Central and Eastern European (CEE) countries. In Western European countries, this process begins earlier (Mesle, Vallin, Andreyev, 2002). While Western European countries are currently in the fourth stage of the epidemiological transition, as defined by Olshansky and Ault (1986), Bulgaria is still in the third stage. Greece, in contrast, has many affinities with Western European countries regarding its epidemiological characteristics (see Zafeiris, 2019, 2020a, 2020b).

The differences in mortality and life expectancy in Eastern and Western European countries after WWII were significant. This gap began to decline between the early 1950s and the mid-1960s. In the early 1970s, life expectancy in some CEE countries, including Bulgaria, approached that of Western European countries. For example, in the early 1970s, life expectancy in Bulgaria was higher than in France, the FRG, and Portugal, as well as in most CEE countries (Mourgova, M., op. cit.). After this period, however, the decrease in mortality slowed down, and in some CEE countries, it even begins to increase. By 1990, the life expectancy of men in Eastern Europe was on average seven years lower than that of Western European countries and that of women by nearly five years (Velkova et al., 1997).

According to Cornia, G. & Pannicia, R. (2000), the most unexpected and unexplained population crisis in the 20th century was the rising mortality rate in most CEE countries, which accompanied the transition to a market economy. As the authors point out, mortality in all countries increased at the beginning of the transition to a market economy and then began to decrease, though not equally in all countries. The men most affected by the increase in mortality were middle-aged, low-educated men living in rural areas and in an unstable family environment. The main cause of death was cardiovascular disease, both in countries where mortality increased and in countries where it decreased. The risk of poverty-related diseases in these countries has significantly increased since 1989.

Despite numerous scientific studies, the issue of the increase in mortality of men of active age since the mid-1960s in all CEE countries has still not been resolved from a demographic and epidemiological point of view. A similar increase was observed in other countries, such as the US, Japan, and Chile, but the period for which it was observed and its magnitude, like that of CEE, remain unparalleled in demographic history (Stolnitz, 1974). While the mortality of the working-age population has mainly increased, the mortality among infants and children has

decreased, while the mortality among older people aged 65 or over has remained almost unchanged.

Thus, the scope of this paper is to comparatively analyze the temporal trends of the mean duration of life (expressed as life expectancy at birth, e0) and apply it following Arriaga (1984-1989). To our knowledge this is the first time that this method has been applied for comparative reasons between Greece and Bulgaria, two neighbouring countries of south-eastern Europe, with discrete socio-economic and political history, development and significant episodes of crisis, as briefly discussed above. Of course, several other countries could have been added to this paper; though, it must be stressed that this is the first paper of a series of others aiming to investigate and understand the mortality regimes, convergences, and divergences in it. At a later stage, the analysis will be extended to include countries such as Turkey, Romania, and others.

Data and Method

Data were obtained from the Eurostat database, including the average annual population by sex and age, and the corresponding number of deaths. Full life tables per sex were calculated according to Chiang (1979).

Based on these life tables, the probabilities of death of infants and people in broad age classes were studied (0, [1-14), [15-29), [30-44), [45-64), [65-84)), along with the relevant life expectancy at birth and other ages (15, 30, 45, 65 years).

Subsequently, the life expectancy at birth and sex between the two countries were examined in light of mortality differences in each age group of the human life span. Numerous methods have been published in the literature for this purpose, such as those by Andreev (1982), Pollard (1982, 1988), Pressat (1985), Arriaga (1984), and Andreev and Shkolnikov (2012; see also Andreev et al. 2002). Arriaga's method was used in this study because it is easy to apply and provides consistent

results (see Auger et al. 2014; Le et al. 2015; Sunberg et al. 2018; Zafeiris 2020a; 2020b).

Arriaga's decomposition method was used to decompose differences in longevity at birth. According to Arriaga (1984, 1989), there are two categories of the effects of mortality change on life expectancy. The first is related to the change in mortality in each age group and can be divided into direct and indirect effects. As Arriaga (1984) notes, "*the direct effect on life expectancy is due to the change in life years within a particular age group as a consequence of the mortality change in that age group.*" The indirect effect "*consists of the number of life years added to a given life expectancy because the mortality change within (and only within) a specific age group will produce a change in the number of survivors at the end of the age interval.*" The second category was the interaction between the exclusive effect of each age group and the overall effect.

The direct effect, named *index* is calculated as:

$$_iDE_x = \frac{l_x^t}{l_a^t}\left(\frac{T_x^{t+n} - T_{x+i}^{t+n}}{l_x^{t+n}} - \frac{T_x^t - T_{x+i}^t}{l_x^t}\right)$$

The indirect effect, named $_iIE_x$ is given by:

$$_iIE_x = \frac{T_{x+i}^t}{l_a^t}\left(\frac{l_x^t l_{x+i}^{t+n}}{l_{x+i}^t l_x^{t+n}} - 1\right)$$

The interaction $_iI_x$ is given by:

$$iI_x = {}_iOE_x - {}_iIE_x$$

and,

$$_iOE_x = \frac{T_{x+i}^{t+n}}{l_a^t}\left(\frac{l_x^t}{l_x^{t+n}} - \frac{l_{x+i}^t}{l_{x+1}^t}\right)$$

In these equations, the terms *x and x+i* refer to age groups, *t* and *t+n* correspond to time points (years), *l* to the number of survivors at an exact

age and T is the number of person-years lived and a is the age at which the life expectancy is calculated.

This paper will study the differences between Greece (denoted as EL in the text) and Bulgaria (denoted as BG). The analysis will be presented in extended age groups except the first one, corresponding to infant mortality. These age groups are 1-14 years, roughly covering mortality during childhood, 15-29 years corresponding to the well-known accident hump, 30-44 years (the middle maturity), 45-64 years (the late maturity), and 65+ years (the elderly, i.e. pensioners). An example of how to interpret the results follows.

In 1996, the probability of death in the age group 30-44 in males of Greece was 0.03 and 0.051 in males of Bulgaria. The relevant decomposition results for this age group revealed that these mortality differences contribute +0.85 to the overall differences between the two populations. The opposite happens when mortality is lower in Bulgaria.

Results

Probabilities of death

The recent political history and differentiation in the socio-economic environment and development in the two countries are pictured reasonably in the temporal trends of the probabilities of death in large age classes (Fig. 1). These probabilities are much higher for most years and large age classes studied in Bulgaria within the two sexes. Additionally, the mortality of women in Bulgaria aged 0, 1-14, and 65–84 years exceeds that of males in Greece. As the phenomenon of excess male mortality is well known worldwide, such findings indicate the enormous differentiation of the mortality patterns between the two countries. Mortality is always higher in males than in females in each country.

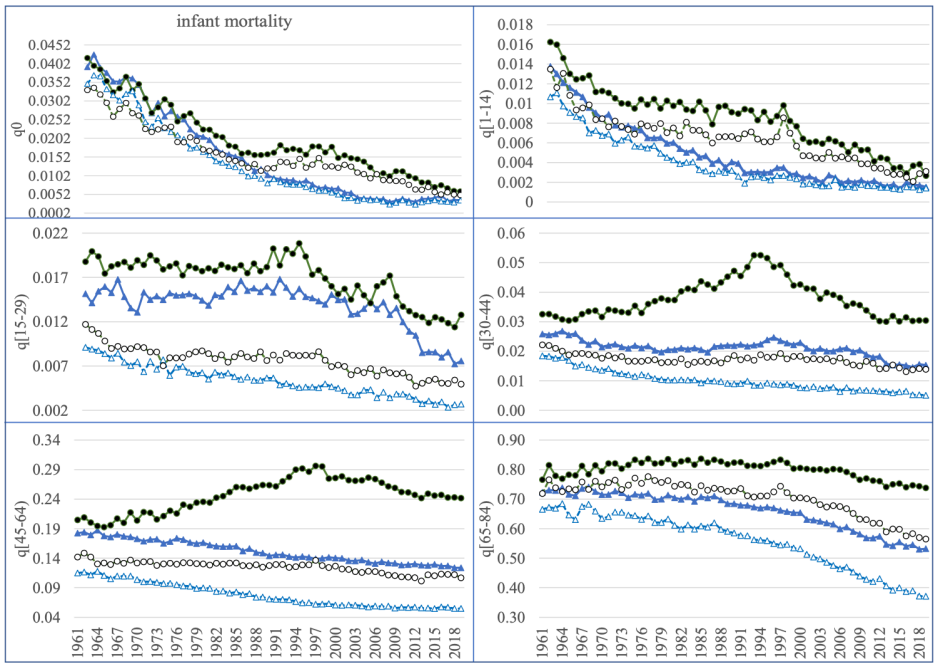

Figure 1. Probability of death in the large age groups (1961-2019)

Infant mortality is strongly correlated with economic development. Both countries had minor differences in the probability of death of infants until the late 70s-early 80s, but they started to diverge in the 1980s. In the early 1990s, this trend accelerated significantly as infant mortality increased in Bulgaria, whereas it continued to decline in Greece. It was a time of intense political reformation in Bulgaria, which deteriorated its health levels and socio-economic conditions. This divergence lasted until the beginning of the 21st century when Bulgaria began to converge with Greece after an apparent decrease in infant mortality rates. At the same time, infant mortality increased slightly in Greece due to the economic crisis that has afflicted the country since 2008. However, infant mortality rates in the modern era still differ significantly between the two countries, in addition to some minor fluctuations.

The probability of death is higher at the ages of 1–14 years, and any developments in Bulgaria stagnate in the mid-70s / late-90s. In the

subsequent years, they decreased almost constantly. At the same time, it decreases constantly in Greece, even if the pace of reduction gradually decelerates. As a result, Greece increased its differences to a point, and afterward, a convergence trend prevailed.

In contrast, the transition timetable for ages 15-29 is similar in both countries, corresponding mainly to the accident hump. However, the burden is higher in Bulgaria than in Greece, as in males than in females. The male accident hump decreased in both countries a few years before or after the eve of the 21st century, while the decrease was constant in females.

However, the story is different for people 30–44 years old. More visible to men than women, mortality was steadily rising in Bulgaria until the first years of the 1990s when it started to decrease. On the contrary, it remained virtually unchanged in Greek males until approximately the same period when it started to decrease slowly. The mortality rates of males of these ages have more affinities with females than with people of the same gender. In contrast, mortality decreased steadily in Greek females. A similar trend characterizes male mortality at the ages of 45–64 years in Bulgaria. A stagnant picture prevails for females. In contrast, mortality in this age group constantly decreased in Greece.

The most profound differences between the two countries were found at older ages (65–84 years). Despite the temporal trends being similar between the two countries, older people in Greece have consistently lower mortality.

Life expectancy at birth and other age groups

According to our analysis, in 1961, male LE at birth in Bulgaria was 68.5, while in Greece it was 70.3 (Figure 2). The relevant figures for females are 72.3 and 73.8%, respectively. Thus, the differences were relatively small during the first few years of the analysis. However, after some fluctuations, the average longevity trend diverged between the two countries a few years later. Since the mid-70s and until 1997, the pace

of LE improvement was lower in Bulgarian females than in Greece. Characteristically, the average longevity increased by 4.9 years in Greece between 1997 and 1970, while in Bulgaria, it increased by only 0.6 years. As in most CEE countries, the LE at birth of men in Bulgaria continued to decrease at the beginning of the transition to a market economy period and reached its lowest level in 1997, when the country was in a period of the most severe economic crisis, comparable only to periods before WWII. In Bulgaria, for males, LE decreased between 1970 and 1997 by approximately two years, while in Greece it increased by 3.9 years. Overall, as shown in Figure 2, the longevity differences between the two countries progressively became more significant until 1997. It was not only the political transformation in Bulgaria in the late 1990s that shaped them; their etiology must be addressed through several other factors. This question is briefly discussed in the discussion section of this paper.

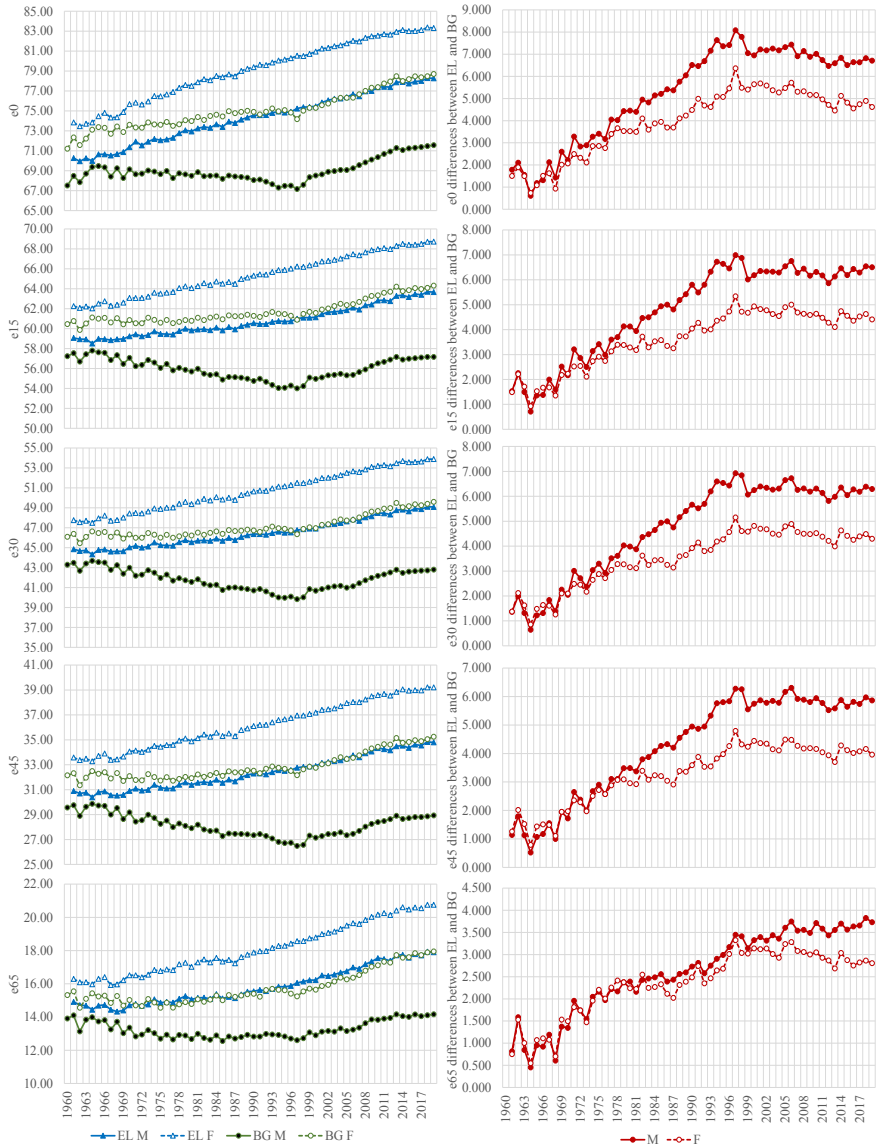

Figure 2. Trends in LE at birth in Bulgaria and Greece (1961-2019)

After 1997, the situation changed: the average longevity increased in Bulgaria for both sexes. However, the differences in the probabilities of death discussed in the previous paragraph were large, and thus, the

longevity gap between the two genders and between the two countries remained high. Between 1997 and 2019, the average longevity increased in Bulgaria by four years in males and 4.5 in females. Longevity gains in Greece were smaller; three years in males and 2.8 in females. Thus, as the mortality transition in Greece has moved considerably ahead of Bulgaria, any improvements decelerated in Greece.

In contrast, they accelerated in Bulgaria, but this was not enough for the two populations to fully converge. Thus, in 2019, LE at birth was 6.7 years shorter in males and 4.6 in females in Bulgaria. An indicator of mortality differences is that the average longevity of Bulgarian women was approximately equal to that of men in Greece after 1997.

Similar observations can be made for other ages, as shown in Figure 2.

Decomposing the differences in life expectancy at birth

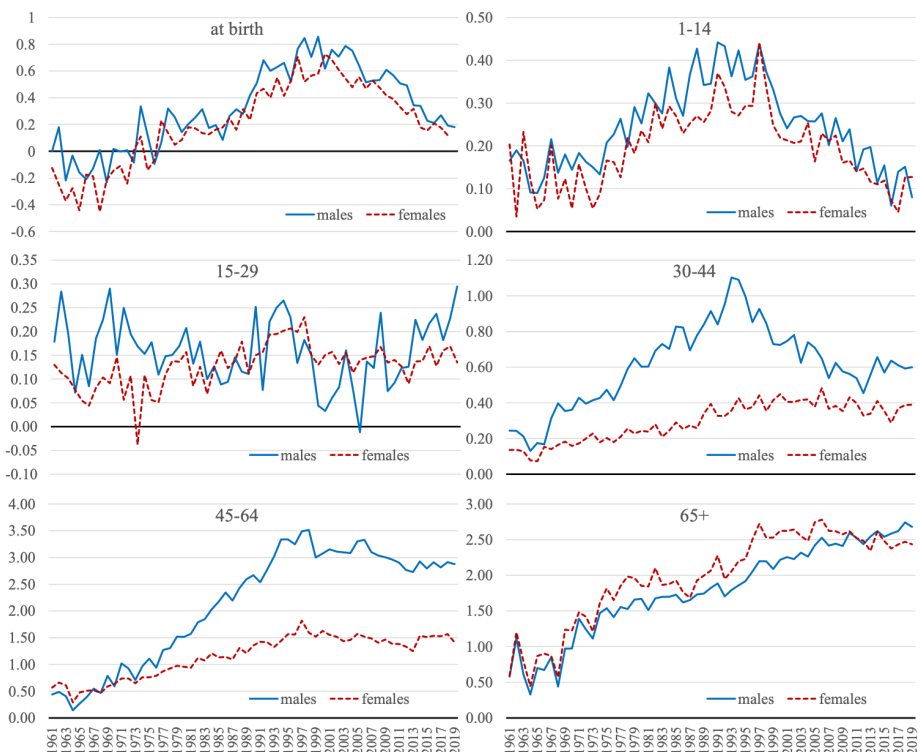

Fig 3. Contribution to changes in LE for males and females in Bulgaria and Greece (1961-2019)

The decomposition of life expectancy at birth by age group is shown in Figure 3. The first group, corresponding to the contribution of infant mortality to the overall differences in life expectancy at birth, exhibits a similar pattern in both sexes. In the first years of the study, these effects fluctuated significantly but tended to decrease the longevity gap between the two countries. However, since the mid-70s, the temporal trends of these effects have had a parabolic shape. Thus, the contribution enlarged up to the late 90s (0.9 years in 1999 in males and 0.7 in females in 1997) and have decreased afterward as expected, considering the temporal trends of the relevant probabilities of death described previously. In the last years, the effects remain positive, but they decrease significantly to 0.2 months in males and 0.1 in females.

The effects of the 1-14 age class are moderate. The same parabolic scheme denotes the initial and subsequent divergence of the effects of mortality differences in this age group. The maximum positive effect is 0.4 for males in Greece and 0.3 for females. In 2019, any effects have become minimal (0.2 months in males and 0.1 in females). In contrast, the effects of the age class 15–29 years fluctuate significantly, usually enlarging the longevity differences in favor of Greece. In 2019, a positive effect of 0.3 months was found in males and 0.1 in females.

In the remaining age groups, the effects gradually became more significant. In males aged 30–44 years, the parabolic scheme prevailed. In the most recent era, the positive effect in favor of Greece stabilized at about 0.6 years. By contrast, females in Bulgaria diverged until 2006. The effect of mortality on longevity differences is smaller, fluctuating in the last years of the study to approximately 0.3-0.4 years. One of the most crucial effects on longevity is in the 45-64 age group. These effects gradually became more critical until 1998 (+3.52 years for Greece). In the next era, they remain below three years. In females, these effects increased until 1997 and remained practically unchanged afterward. However, the two genders differ a lot concerning the effects of this age group's mortality on the average longevity differences. For males until

1982, the effects were smaller than those of 65+ years age group. The most crucial agent governing the longevity differences between the two countries is mortality developments in the age group 45–64 years, despite the decreasing trend of its effect in the most recent era. On the contrary, females' most crucial determining longevity factor always remains the older part of the population (65+ years). This differentiation is connected to the different exposure of men and women to health-aggravating factors, including occupational hazards, lifestyle agents, and others.

The effect of the older age group (65+) is almost linear in males, reaching 2.7 years in 2019 from 0.56 in 1961. It seems then that the most significant differentiation in males between Greece and Bulgaria comes from the people in their late working life and retirement. In females, the positive effect for Greece reached a maximum of 2.7 years in 1997, and afterward, it remained high but less changed. In any case, the differences in the mortality regimes between the two countries, predominantly among middle-aged and younger people, indicate the urgent need for public interventions and improvements in the social security and health systems aiming at the improvement of the quality of life and possibly the decrease in social inequalities, especially in matters related to access to the health system.

Discussion

After comparing the longevity of both sexes in Greece and Bulgaria, it was found that the two countries started from an adjacent point at which the differences were minor. This was the beginning of the 1960s. Afterward, their longevity differences increased towards the early 1990s. In the following years, they started to converge, and the longevity gap between the two sexes and between the two countries remains significantly high. Note that as Hrzic et al. (2020) state, "the high mortality rates in the European Union (EU) Member States that acceded in 2004 sparked political interest in mortality convergence. Whether mortality

is converging in the EU remains unclear". Therefore, besides any convergences, Bulgaria still maintains a distant position compared to Greece.

During this course, the longevity differences stemmed mainly from the mortality excess in the 65+ age group in Bulgaria, i.e. the seniors; except for males aged 45–64 years, for which mortality in Bulgaria is much higher than in Greece and plays a major role in the regulation of longevity differences between the two countries. The mortality excess is also apparent for males aged 30-44 for most of the time. Because the differences between Greece and Bulgaria are smaller in females than in males, one must consider that the differential effects of occupational hazards and lifestyle agents have shaped this situation. On the contrary, the differences between the two countries in males and females aged 15–29 years are not systematic concerning their effects on longevity. While mortality in this age group is higher in males in both countries. For both sexes, mortality in Bulgaria exceeds that of Greece. Considering that most of the deaths in this age group result from road accidents (for Greece, see Zafeiris and Kostaki, 2019), one can reasonably hypothesize that the longevity differences due to this age group result from the lower quality infrastructure in Bulgaria (roads, cars, and others) but mainly from insufficient control of the car speed and the use of alcohol and drugs and probably some other reasons. Note that this is a qualitative approach, as the scope of this paper is not to examine the causal relationships between mortality and its determining factors. This is a multivariate phenomenon, and any kind of causal analysis is outside its scope. In any case, the effects of the age group 1–14 years are almost parallel in the two countries, with Greece being in a better position. Lastly, infants suffered significantly during the political change in Bulgaria, and for several years the longevity gap between the two countries enlarged. Afterward, the LE in both countries converges.

As in most CEE countries, the mortality crisis in Bulgaria has affected men more than women. From the mid-1960s to 2019, the gender gap in Bulgaria increased from nearly 4 years to more than 7 years. During

the same period, the gender gap in Greece increased by only about 1.5 years, from 3.58 in 1961 to 5.05 in 2019. The large differences in mortality between men and women in Bulgaria are mainly due to the excess mortality of men of active age. There have been numerous studies in recent decades of high and excess mortality among men in former CEE. Some suggestions that could explain the differences include life‡ style, eating habits, alcohol consumption, smoking, socio-economic factors, environmental and chronic stress, and the state of the health care system.

Traditionally, the meals in Bulgaria included fresh fruits and vegetables. In the past Bulgarian cuisine included saturated fat and high salt consumption. Nowadays a healthy lifestyle has become very popular in Bulgaria, especially among middle age population and young generations. In Greece, the Mediterranean diet still prevails, despite the subs stantial divergence towards the American lifestyle observed in the last decades. Generally, this kind of diet is responsible for better health and longevity in Greece (Sikalidis et al. 2021). Diet to some extent is respons sible for the observed differences between in mortality and longevity between Greece and Bulgaria. These differences may explain the findings but further research is needed to evaluate them. The same holds for the discussion below.

The high number of smokers in Bulgaria also contributes to an increase in mortality, especially lung cancer and cardiovascular disease. Similarly, in Greece, smoking and tobacco-related diseases are the main forces behind mortality regulation (Zafeiris, 2020). A "Greek tobacco epidemic" still afflicts the country (Harvard School of Public Health, 2011). Because tobacco-related mortality may be classified as amenable or preventable, there is a great need to develop public intervention and smoking restriction measures in both countries.

Alcohol consumption is also an important factor in the increase in mortality, especially among men of working age. According to the Global Status Report of Alcohol and Health 2018 of the World Health

Organization (2018) from 1960 to 2016, alcohol consumption in Bulgaria increased from 5 to more than 10 liters per capita at ages 15 and over while in Greece opposite trend was observed – it decreased twice during the same period. According to Cornia and Paniccia (2000), the increase in alcohol consumption in the former socialist countries was due to several factors: already established habits in alcohol consumption, a change in income and the relative price of alcohol compared to other goods, a lack of government policy related to a restriction of alcohol consumption and environmental stress. Although the problem of alcohol consumption is of lesser importance in Greece, it remains significant. Alcohol consumption is usually higher among men than women. Data by sex from the same Report shows that in 2016 the consumption of alcohol in Bulgaria among men aged 15 and over was 21 liters per capita, while in Greece it was 17,2. Among women, the data indicates closer figures – 4,9 liters per capita in Bulgaria and 4,1 in Greece.

Some research has shown that mortality among men (manual workers and those with low education) in Bulgaria, Hungary, Russia, and the Czech Republic (Carlson 1989; Carlson & Tzvetarski, 1992; Blum & Monnier, 1989; Shkolnikov & Cornia, 2000; Blazek & Dzurova, 2000) was higher during socialism than among men with higher education and qualification. Mortality from cardiovascular disease is a major cause of death in Bulgaria in both sexes. The reason for this is lifestyle and psychological stress. Besides factors that lead to psychological stress such as unemployment, loneliness, low pay, family problems, economic insecurity, and others that are common for all developed countries, some authors (Watson, 1995; Bobak & Marmot, 1996) also point out the chronic stress as a cause of the increase in mortality and, respectively, for the decrease in life expectancy in former socialist countries. Chronic stress is explained by limited opportunities for realization, various obstacles, and prohibitions that people encountered during the socialist period, the lack of freedom to make a decision, and low pay. The high mortality rate in Bulgaria can also be explained by the quality of the healthcare system and access to medical care and services, which have

been deteriorating since 1989 (Mourgova, 2016; Sugareva & Mourgova, 2020). In recent decades, controls on health care and services have been reduced. Patients pay 50% for healthcare compared to an average of 15% for the European Union, which also limits their access to medical care.

In most Western European countries, heart attack and stroke mortality are minimized thanks to timely intervention by ambulance and well-equipped ambulances. In Bulgaria, the ambulance service has been negligible for decades.

It is also necessary to strengthen the prevention of diseases, especially cardiovascular diseases. The prevention of these diseases is essential given the decrease in mortality because of these causes of death, which is highest in Bulgaria and significantly lower in the countries of Western Europe (Sugareva & Mourgova, op. cit.). Promoting a healthy lifestyle (reducing smoking and alcohol consumption, banning ads on unhealthy food, and providing the appropriate conditions for sports and active rest) can be the beginning.

Several other facts must be added to all the above, including socio-economic differences, differential access to the public health system, structure and coverage of the health care system, living conditions, and more.

Conclusion

Life expectancy in Greece is nowadays one of the highest in Europe while that in Bulgaria is one of the lowest but it has started to converge. Bulgaria and Greece are two neighboring countries that experienced different events in their recent history and this has determined their socioeconomic development. Lifestyle, diet, and access to health care are also important factors contributing to the difference in mortality in both countries. However, due to their complexity, they will be part of more detailed research to take place in the future.

Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Author Contributions	
Data Collection	KZ (%100), MM (%0)
Data Analysis	KZ (%100), MM (%0)
Research Design	KZ (%100), MM (%0)
Writing the Article	KZ (%65), MM (%35)
Article Submission and Revision	KZ (%30), MM (%75)
Complaints	journalbalkan@gmail.com
Conflicts of Interest	The author(s) has no conflict of interest to declare.
Grant Support	The author(s) acknowledge that they received no external funding in support of this research
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