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Gender Gap in Life Expectancy and Its Socio-Economic Implications

Lev Lvovskiy, BEROC

Why is Belarus's Gender Gap in Life Expectancy Among the Highest Worldwide?

Viyaleta Panasevich, BEROC



Abstract

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Today women live longer than men virtually in every country of the world. Although scientists still struggle to fully explain this disparity, the most prominent sources of this gender inequality are biological and behavioral. From an evolutionary point of view, female longevity was more advantageous for offspring survival. This resulted in a higher frequency of non-fatal diseases among women and in a later onset of fatal conditions. The observed high variation in the longevity gap across countries, however, points towards an important role of social and behavioral arguments. These include higher consumption of alcohol, tobacco, and fats among men as well as a generally riskier behavior. The gender gap in life expectancy often reaches 6-12 percent of the average human lifespan and has remained stubbornly stable in many countries. Lower life expectancy among men is an important social concern on its own and has significant consequences for the well-being of their surviving partners and the economy as a whole. It is an important, yet underdiscussed type of gender inequality.

Why Is Belarus's Gender Gap in Life Expectancy Among the Highest Worldwide?

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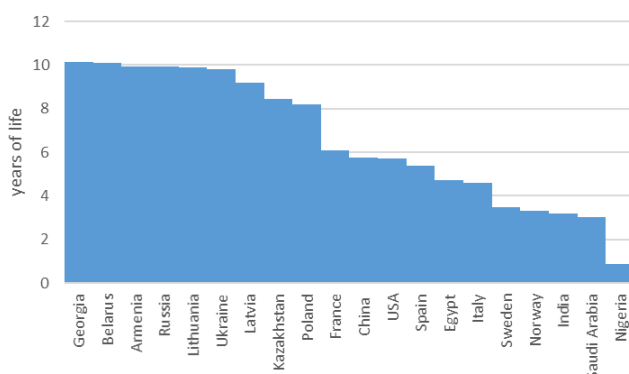
Women are expected to live longer than men all over the world with various factors contributing to this disparity. Biological differences, such as hormonal influences and genetic factors, play a significant role. Social and behavioral factors also contribute; for instance, men more often engage in risky behaviors and are less likely to seek medical help. The average Gender Gap in Life Expectancy worldwide is 5.1 years, while in Belarus it is over twice as large – 10.4 years. This substantial gap in Belarus suggests that underlying behavioral factors may play a key role.



Gender Gap in Life Expectancy and Its Socio-Economic Implications

Today, women on average live longer than men across the globe. Despite the universality of this basic qualitative fact, the gender gap in life expectancy (GGLE) varies a lot across countries (as well as over time) and scientists have only a limited understanding of the causes of this variation (Rochelle et al., 2015). Regardless of the reasons for this discrepancy, it has sizable economic and financial implications. Abnormal male mortality makes a dent in the labour force in nations where GGLE happens to be the highest, while at the same time, large GGLE might contribute to a divergence in male and female discount factors with implications for employment and pension savings. Large discrepancies in life expectancy translate into a higher incidence of widowhood and a longer time in which women live as widows. The gender gap in life expectancy is one of the less frequently discussed dimensions of gender inequality, and while it clearly has negative implications for men, lower male longevity has also substantial negative consequences for women and society as a whole.

Figure A. Gender gap in life expectancy across selected countries

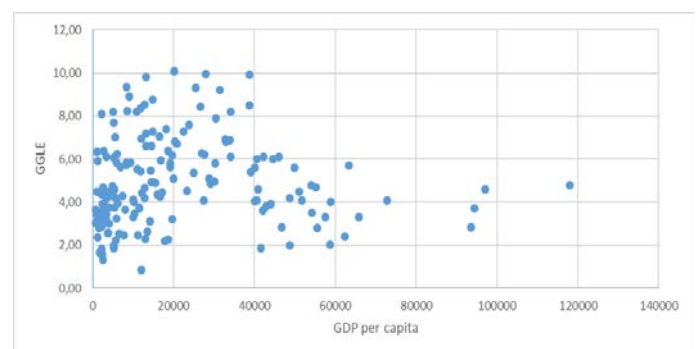


Source: World Bank

The earliest available reliable data on the relative longevity of men and women shows that the gender gap in life expectancy is not a new phenomenon. In the middle of the 19th century,

women in Scandinavian countries outlived men by 3-5 years (Rochelle et al., 2015), and Bavarian nuns enjoyed an additional 1.1 years of life, relative to the monks (Luy, 2003). At the beginning of the 20th century, relative higher female longevity became universal as women started to live longer than men in almost every country (Barford et al., 2006). GGLE appears to be a complex phenomenon with no single factor able to fully explain it. Scientists from various fields such as anthropology, evolutionary biology, genetics, medical science, and economics have made numerous attempts to study the mechanisms behind this gender disparity. Their discoveries typically fall into one of two groups: biological and behavioural. Noteworthy, GGLE seems to be fairly unrelated to the basic economic fundamentals such as GDP per capita which in turn has a strong association with the level of healthcare, overall life expectancy, and human development index (Rochelle et al., 2015). Figure B presents the (lack of) association between GDP per capita and GGLE in a cross-section of countries. The data shows large heterogeneity, especially at low-income levels, and virtually no association from middle-level GDP per capita onwards.

Figure B. Association between gender gap in life expectancy and GDP per capita



Source: World Bank

Biological Factors

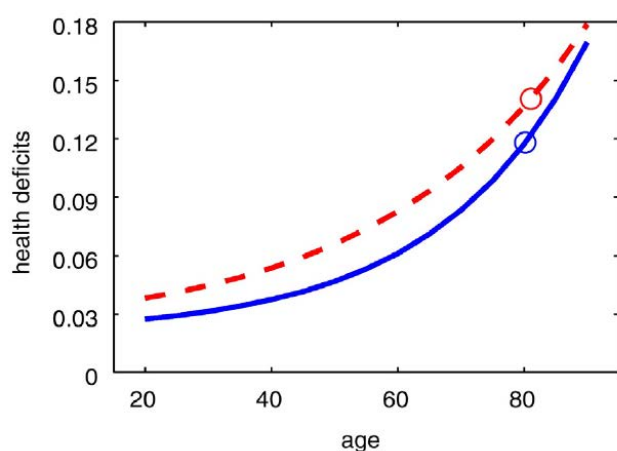
The main intuition behind female superior longevity provided by evolutionary biologists is based on the idea that the offspring's survival rates disproportionately benefited from the presence of



their mothers and grandmothers. The female hormone estrogen is known to lower the risks of cardiovascular disease. Women also have a better immune system which helps them avoid a number of life-threatening diseases, while also making them more likely to suffer from (non-fatal) autoimmune diseases (Schünemann et al., 2017). The basic genetic advantage of females comes from the mere fact of them having two X chromosomes and thus avoiding a number of diseases stemming from Y chromosome defects (Holden, 1987; Austad, 2006; Oksuzyan et al., 2008).

Despite a number of biological factors contributing to female longevity, it is well known that, on average, women have poorer health than men at the same age. This counterintuitive phenomenon is called the morbidity-mortality paradox (Kulminski et al., 2008). Figure C shows the estimated cumulative health deficits for both genders and their average life expectancies in the Canadian population, based on a study by Schünemann et al. (2017). It shows that at any age, women tend to have poorer health yet lower mortality rates than men. This paradox can be explained by two factors: women tend to suffer more from non-fatal diseases, and the onset of fatal diseases occurs later in life for women compared to men.

Figure C. Health deficits and life expectancy for Canadian men and women



Source: Schünemann et al. (2017). Note: Men: solid line; Women: dashed line; Circles: life expectancy at age 20.

Behavioural Factors

Given the large variation in GGLE, biological factors clearly cannot be the only driving force. Worldwide, men are three times more likely to die from road traffic injuries and two times more likely to drown than women (WHO, 2002). According to the World Health Organization (WHO), the average ratio of male-to-female completed suicides among the 183 surveyed countries is 3.78 (WHO, 2024). Schünemann et al. (2017) find that differences in behaviour can explain 3.2 out of 4.6 years of GGLE observed on average in developed countries. Statistics clearly show that men engage in unhealthy behaviours such as smoking and alcohol consumption much more often than women (Rochelle et al., 2015). Men are also more likely to be obese. Alcohol consumption plays a special role among behavioural contributors to the GGLE. A study based on data from 30 European countries found that alcohol consumption accounted for 10 to 20 percent of GGLE in Western Europe and for 20 to 30 percent in Eastern Europe (McCartney et al., 2011). Another group of authors has focused their research on Central and Eastern European countries between 1965 and 2012. They have estimated that throughout that time period between 15 and 19 percent of the GGLE can be attributed to alcohol (Trias-Llimós & Janssen, 2018). On the other hand, tobacco is estimated to be responsible for up to 30 percent and 20 percent of the gender gap in mortality in Eastern Europe and the rest of Europe, respectively (McCartney et al., 2011).

Another factor potentially decreasing male longevity is participation in risk-taking activities stemming from extreme events such as wars and military activities, high-risk jobs, and seemingly unnecessary health-hazardous actions. However, to the best of our knowledge, there is no rigorous research quantifying the contribution of these factors to the reduced male longevity. It is also plausible that the relative importance of these



factors varies substantially by country and historical period.

Gender inequality and social gender norms also negatively affect men. Although women suffer from depression more frequently than men (Albert, 2015; Kuehner, 2017), it is men who commit most suicides. One study finds that men with lower masculinity (measured with a range of questions on social norms and gender role orientation) are less likely to suffer from coronary heart disease (Hunt et al., 2007). Finally, evidence shows that men are less likely to utilize medical care when facing the same health conditions as women and that they are also less likely to conduct regular medical check-ups (Trias-Llimós & Janssen, 2018).

It is possible to hypothesize that behavioural factors of premature male deaths may also be seen as biological ones with, for example, risky behaviour being somehow coded in male DNA. But this hypothesis may have only very limited truth to it as we observe how male longevity and GGLE vary between countries and even within countries over relatively short periods of time.

Economic Implications

Premature male mortality decreases the total labour force of one of the world leaders in GGLE, Belarus, by at least 4 percent (author's own calculation, based on WHO data). Similar numbers for other developed nations range from 1 to 3 percent. Premature mortality, on average, costs European countries 1.2 percent of GDP, with 70 percent of these losses attributable to male excess mortality. If male premature mortality could be avoided, Sweden would gain 0.3 percent of GDP, Poland would gain 1.7 percent of GDP, while Latvia and Lithuania – countries with the highest GGLE in the EU – would each gain around 2.3 percent of GDP (Łyszczař, 2019). Large disparities in the expected longevity also mean that women should anticipate longer post-retirement lives. Combined with the gender employment and pay gap, this implies that either

women need to devote a larger percentage of their earnings to retirement savings or retirement systems need to include provisions to secure material support for surviving spouses. Since in most of the retirement systems the value of pensions is calculated using average, not gender-specific, life expectancy, the ensuing differences may result in a perception that men are not getting their fair share from accumulated contributions.

Policy Recommendations

To successfully limit the extent of the GGLE and to effectively address its consequences, more research is needed in the area of differential gender mortality. In the medical research dimension, it is noteworthy that, historically, women have been under-represented in recruitment into clinical trials, reporting of gender-disaggregated data in research has been low, and a larger amount of research funding has been allocated to “male diseases” (Holdcroft, 2007; Mirin, 2021). At the same time, the missing link research-wise is the peculiar discrepancy between a likely better understanding of male body and health and the poorer utilization of this knowledge.

The existing literature suggests several possible interventions that may substantially reduce premature male mortality. Among the top preventable behavioural factors are smoking and excessive alcohol consumption. Many studies point out substantial country differences in the contribution of these two factors to GGLE (McCartney, 2011), which might indicate that gender differences in alcohol and nicotine abuse may be amplified by the prevailing gender roles in a given society (Wilsnack et al., 2000). Since the other key factors impairing male longevity are stress and risky behaviour, it seems that a broader societal change away from the traditional gender norms is needed. As country differences in GGLE suggest, higher male mortality is mainly driven by behaviours often influenced by societies and policies. This gives hope that higher male mortality could be reduced as we move towards



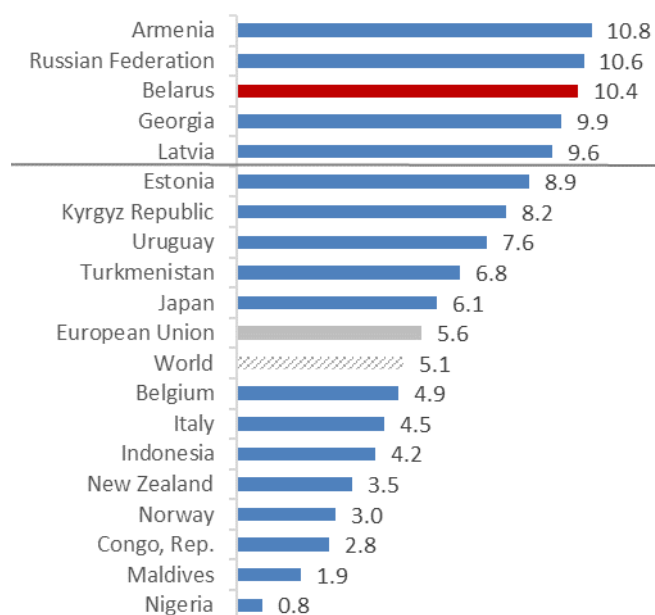
greater gender equality, and give more support to risk-reducing policies.

While the fundamental biological differences contributing to the GGLE cannot be changed, special attention should be devoted to improving healthcare utilization among men and to increasingly including the effects of sex and gender in medical research on health and disease (Holdcoft, 2007; Mirin, 2021; McGregor et al., 2016, Regitz-Zagrosek & Seeland, 2012).

Why Is Belarus's Gender Gap in Life Expectancy Among the Highest Worldwide?

In 2019 and 2018, Belarus headed the GGLE rankings with a 10-year gap in female versus male life expectancy at birth. Two years later, the gap was still 10.4 years, earning Belarus the 3rd place in the international ranking, while the average gap in the European Union was 5.6 years (Figure 1).

Figure 1. Gender Gap in Life Expectancy in selected countries, 2021



Source: World Bank. Note: Five countries with the highest GGLE worldwide are listed above the horizontal line, below the line only selected countries are mentioned.

Women's advantage, globally and in Belarus, is confirmed by the indicator Healthy life expectancy at birth, which represents the average number of years that a person can expect to live in "full health" (considering that years lived in poorer than "full health" are affected by a disease and/or disability). Globally women live in good health for 2.4 years longer than men, and in Europe this difference rises to 3.4 years (WHO, 2022). The gender gap in Healthy life expectancy at birth in Belarus in 2019 was 7.1 years, meaning that Belarusian women spend more time than men living in full health, but also more time living in poorer than full health.

In other words, the longer time women in Belarus live in less than full health than men can hardly be considered as a male advantage, since basically the average male life ends at an age when women only begin to experience significant health issues (Table 1).

Table 1. Life expectancy in Belarus

	Men, years	Women, years
Life expectancy at birth (2021)*	67.3	77.7
Healthy life expectancy at birth (2019)	62.3	69.4

Source: World Health Organization, Belta. Note: *Data on Life expectancy at birth is provided also by the Belarusian Ministry of Health for 2020. While for women it equals the WHO 2021 statistic, for men it is over 3 years lower.

Alcohol: The Leading Factor Among All Mortality Causes

There are some likely explanations for the large gender disparity in longevity in Belarus. The WHO divides the causes of death into 3 broad categories:

- communicable diseases (5.3 percent of all deaths in Europe, 2019);
- noncommunicable diseases (89.6 percent);
- injuries (5.1 percent) (WHO, 2022).



Although the mortality rate from communicable diseases in Belarus corresponds to the European average (not taking into account the Covid-19 pandemic), the situation with noncommunicable diseases (NCDs) is much worse. Belarusian men die of cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases twice as often as other European men, while women die 1.5 times as often. The most obvious explanation for this lies in the area of male behavior. There are two groups of NCDs risk factors. The first group includes metabolic factors such as high blood pressure, excessive weight, and obesity. In Belarus the prevalence of these conditions is around the European average. The second group are behavioral factors, like harmful use of alcohol or tobacco and physical inactivity. 47.4 percent of Belarusian men smoke, while for comparison, only 29.3 percent of men smoke on average in Europe. Turning to alcohol consumption in Belarus, its level is surprisingly comparable to the European average – 18.2 and 17.4 liters of pure alcohol per year for a man aged 15+ years, respectively.

The Belarusian problem lies instead in the structure of alcohol consumption. As outlined by the Republican Scientific and Practical Center for Mental Health (Belta, 2023a), strong alcoholic beverages occupy the top position in consumption patterns, accounting for more than 55 percent of total consumption. Low-alcohol drinks take the second spot, comprising 23.2 percent of consumption. Next are medium-strength drinks, such as wine and champagne (11.2 percent), and in fourth place fruit and berry wines (9.9 percent). Vodka dominated the alcohol consumption structure in Belarus during both the 1990s and the 2010s. During the 2000s, there was a notable increase in the popularity of fruit wines, which were usually associated with cheapness and lower quality (Grigoriev & Bobrova, 2019). As a result, Belarus ranked second in total alcohol consumption in 2010, with an average consumption of 15 liters of pure alcohol per capita per year. While overall alcohol consumption levels in Belarus are comparable to those in Europe, the

high prevalence of drinking strong alcohol appears to contribute to the shorter lifespan for men.

Another factor contributing to the comparable levels of alcohol consumption with the European Union, yet higher risks of cardiovascular diseases, may lie in Belarusian alcohol consumption traditions. According to a WHO analysis, 21.1 percent of men reported heavy episodic drinking, whereas only 9.8 percent of women did so (WHO, 2020).

Last but not least, physical inactivity appears to be a relatively insignificant behavioral risk factor of developing NCDs for both Belarusian men and women. According to the WHO figures, only 11.2 percent of men and 11.9 percent of women reported engaging in physical activity below the levels recommended by the WHO (e.g. at least 150 minutes of moderate-intensity physical activity per week).

Suicides: A Major Concern

The last category of causes of death – injuries – usually includes road injuries, homicides, and suicides. The situation regarding mortality caused by road traffic injury in Belarus has improved rapidly over the last 10 years. In 2008, there were 39 male deaths per 100,000 people, and in 2019 there were 12. Globally, this figure was 28 deaths in 2008, and the situation has not changed much, with 25 deaths reported in 2019 (while the European Union reported 9 male deaths per 100,000 people in 2019).

The most compelling statistic among injuries concern male suicide: as a “leader” among regions, the European region has an average male suicide mortality rate of 17.4 per 100,000 people. In Belarus in 2019 there were 36.7 suicides per 100,000 people among men and 7.7 among women. The reasons behind the much higher suicide rate among men in Belarus are difficult to investigate, but it seems to be a common problem also among Belarus's neighboring countries



(except Poland). We argue that more research should be devoted to understanding this pattern.

Considering mortality rate attributed to unintentional poisoning Belarus ranks 9th in the world: 5.6 male and 1.3 female deaths per 100,000 people. Unintentional poisoning primarily refers to poisoning by hazardous chemicals and pollution, and at the top of the ranking are countries such as the Republic of Moldova, the Russian Federation, and a number of African countries. According to the WHO, Belarus ranks highest in alcohol-related mortality, with Russia occupying the third place: in 2020 the number of deaths due to alcohol poisoning in Belarus reached 2.54 percent of total deaths, compared to 1.23 percent of all deaths in 2018 (WHO, 2022). Another hypothesis related to unintentional poisoning, though it cannot be proven by official statistics, may be found in press releases from the Ministry of Health: cases of mushroom poisoning, spanning from acute forms to fatalities (Belta, 2023b).

Social Burden

One of the causes of a number of health diseases (stroke, heart disease, lung cancer, etc.) may be poor work conditions, especially in relation to exposure to pollution. The mortality rate attributed to household (indoor) and ambient (outdoor) air pollution in the EU is about 20 deaths per 100,000 people in 2016 (27 male and 14 female deaths). Belarusian figures are much higher – 94 male and 40 female deaths per 100,000 people. Among the biggest contributors to outdoor air pollution are electricity generation, burning of solid fuels, agriculture, industry, and road transportation. In Belarus 56.4 percent of men and 26.3 percent of women are employed in industry and agriculture. These shares are higher than the EU average (40.5 percent of men and 16.1 percent of women, respectively), with men identified as the primary risk group affected by the adverse effects of pollution (Shetty et al., 2023). The question of the nature of performed work and whether it has different harmful effects on men's

and women's health is important, but not yet well explored.

Other reasons for the significant disparity in life expectancy between men and women may not be readily apparent and might lie in factors that are not easily captured by statistics. For example, high levels of stress can lead to numerous health issues, including heart disease and stroke, which are prevalent in Belarus. Unfortunately, it is challenging to gather and properly analyze such sensitive information. Moreover, due to societal stereotypes, men often find it difficult to talk about their mental health. Consequently, the risk of depression is reported to be 2.5 times higher for women than for men (17.7 percent vs. 7 percent; WHO, 2020).

When discussing stereotypes and social burdens, it's important to mention the asymmetry in gender roles within Belarusian families. According to a survey conducted by the National Statistical Committee in 2022, more women than men believe that both partners should equally be responsible for making all important family decisions (83 percent of women and 71 percent of men). Also, twice as many men as women think that this is solely the responsibility of a man (28 percent compared to 14 percent). Additionally, more men than women think that providing for the family financially is a man's duty (74 and 65 percent, respectively). Consequently, 61 percent of male respondents believe that having a paid job is more important for men, compared to 50 percent of female respondents. Although the labor force participation rate is relatively high for Belarusian women (65 percent compared to men's participation rate of 75 percent; Belstat, 2023), the gender wage gap was in 2022 still 26 percent. While there may not be a direct impact of such inequalities on male longevity, these social norms can easily transform into heightened stress for men and negatively influence not only women's but also men's lives.



Conclusions

Over the past 10 years, the Gender Gap in Life Expectancy in Belarus has narrowed by 2 years. Life expectancy for men has increased by 4.6 years, and for women by 2.7 years. But the gap is still large. Men living in rural areas seem to contribute the most to this gap, with life expectancy at birth being only 66.2 years. They often face limited access to medical care and frequently engage in strenuous physical labor, which can affect their health and cause premature mortality.

The health statistics used by the WHO to monitor indicators for the Sustainable Development Goals indicate that Belarus does not differ significantly from the global and European averages in terms of the prevalence of communicable diseases, negative metabolic factors, and road injuries.

Meanwhile, the list of the Top 10 causes of death among Belarusian men is primarily dominated by non-communicable diseases such as ischemic heart disease, stroke, and lung cancer (WHO, 2024). Self-harm occupies the 5th position. Recommendations for preventing these diseases often emphasize maintaining a healthy diet, an active lifestyle, and avoiding cigarettes and alcohol. While Belarusians generally lead active lifestyles (WHO, 2020), their levels of alcohol and cigarette consumption surpass the European average. While government policies have admittedly helped to counteract the popularity of alcohol (Grigoriev & Bobrova, 2019), traditional alcohol consumption practices that involve heavy episodic drinking are still more harmful to health than consuming low-alcohol drinks (Lange et al., 2017).

While preventing excessive alcohol consumption is challenging, affecting the number of suicides is even more difficult. It seems like a common issue in the European region, and recommended interventions to prevent suicides often involve limiting access to the means of suicide, fostering socio-emotional life skills in adolescents, and early identification of individuals affected by suicidal

behaviors. When considering the Belarusian context, a societal change in norms and stereotypes is needed to prevent stigmatizing men's mental health issues.

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Lev Lvovskiy

BEROC

lvovskiy@beroc.org

www.beroc.org

Lev Lvovskiy is a Research Fellow at BEROC. He received his Bachelor's degree from Perm State Technical University in 2010 and he obtained his Ph.D. in Economics from the University of Iowa in 2017. Lev Lvovskiy has been focusing his research on areas such as macroeconomics, demographic economy, economic inequality, and income uncertainty.



Viyaleta Panasevich

BEROC

panasevich@beroc.org

www.beroc.org

Viyaleta graduated from the Belarusian State University with a degree in Analytical Economics in 2021. In January-February 2021 she did an internship at BEROC and currently holds a position as a researcher. Her research interests include female entrepreneurship and private sector development.

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