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WHY MEN IN KAZAKHSTAN LIVE SHORTER LIVES THAN WOMEN: THE GENDER GAP IN LIFE EXPECTANCY BY CAUSE OF DEATH, COMPARED WITH RUSSIA AND CENTRAL ASIA

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Abstract: In 2023 women in Kazakhstan lived 8.4 years longer than men, a gap smaller than in Russia (12.4 years) but twice as large as in Uzbekistan (4.1) and two and a half times as large as in Tajikistan (3.3). This study uses World Health Organization Global Health Estimates for 2023 to divide the gap in each of the five countries into the years contributed by each cause of death, and compares the result with the author's hypothesis that men die earlier mainly because of harmful habits and risky behaviour. Heart and circulatory diseases are the largest single block in all five countries, but they contribute almost the same in Kazakhstan, Kyrgyzstan and Uzbekistan (2.3-2.4 years) and do not explain why the gap differs between them. Injuries follow the size of the gap: 4.0 years in Russia, 1.8 in Kazakhstan, 1.2 in Kyrgyzstan and 0.6-0.7 in Uzbekistan and Tajikistan, as do deaths directly caused by alcohol and the male-female difference in heavy drinking, while the male-female difference in smoking does not. Road injuries, the risky behaviour the author named, do not follow the gap. Kazakhstan also shows an unusually large contribution from chronic respiratory disease (1.4 years, against 0.3 or less elsewhere). The results support the part of the hypothesis about alcohol and, partly, about injuries, but not the parts about road behaviour and smoking as explanations of the differences between countries.

Keywords: life expectancy, gender gap, male mortality, causes of death, injuries, alcohol, Kazakhstan, Central Asia

1. Introduction

Women live longer than men almost everywhere, but the size of the gap varies widely. In Kazakhstan, according to the WHO, men born in 2000 could expect to live 58.8 years and women 69.6, a gap of 10.8 years. The gap peaked at 11.6 years in 2007 and then narrowed: in 2023 men lived 70.4 years and women 78.8, a gap of 8.4 years [3]. A study of population health in Kazakhstan based on the Global Burden of Disease database found that life expectancy fell from 1990 to 1996 and then recovered, and that ischaemic heart disease, stroke and chronic obstructive pulmonary disease remain among the leading causes of death [4].

Kazakhstan sits between its neighbours. In 2023 the gap was 12.4 years in Russia, 5.9 in Kyrgyzstan, 4.1 in Uzbekistan and 3.3 in Tajikistan [3]. The question of this study is which causes of death produce the gap in Kazakhstan and which of them explain why it is larger than in Central Asia and smaller than in Russia.

2. Hypothesis

Before seeing any data, the author wrote (14 October 2026): "I think the higher mortality of men is caused by harmful habits and risky behaviour. Smoking, alcohol use, dangerous behaviour on the roads and seeing a doctor late can increase the risk of early death. Working conditions and stress may also play a role" (original in Russian). When she saw that the gap in Uzbekistan and Tajikistan is half as large, she added (16 October) that alcohol use there may be lower because of religious and cultural traditions.

3. Data and methods

Deaths by cause come from the WHO Global Health Estimates 2023 (GHE), which give death rates per 100,000 population for each country, year, sex, five-year age group and cause [1]. All 74,580 rows for the five countries, men and women, 2023, were downloaded on 24 October 2026. From the all-cause rates, an abridged life table was built for each sex (age groups 0, 1-4, five-year groups to 80-84, and an open group 85+). The difference between female and male life expectancy at birth was divided by age with the Arriaga method [2], and the contribution of each age group was shared between causes in proportion to the difference between male and female death rates from that cause in that age group. The causes were combined into heart and circulatory diseases (ischaemic heart disease, stroke, cardiomyopathy and other), injuries (road injuries, self-harm, interpersonal violence, poisoning, drowning and other injuries), deaths directly caused by alcohol (cirrhosis of the liver and alcohol use disorders), lung cancer, chronic respiratory disease, other cancers, infectious, maternal and nutritional conditions, and digestive and other causes. Age-standardised death rates were calculated with the WHO world standard population. The allocation of each age group's contribution to causes follows the standard approach described by Preston and colleagues [5].

The reconstructed gaps are close to the official WHO life expectancy figures [3]: Russia 12.8 against 12.4, Kazakhstan 8.8 against 8.4, Kyrgyzstan 5.9 against 5.9, Uzbekistan 4.0 against 4.1, Tajikistan 3.4 against 3.3, so the contributions below should be read as approximate, to about a tenth of a year. To compare the causes with behaviour, two WHO indicators were added [3]: the age-standardised share of current smokers in 2022 and the age-standardised share of people aged 15 and over who had at least one episode of heavy drinking in the past 30 days in 2020, by sex. Because the gap compares men with women, the indicators are compared with it as male-female differences, in percentage points. Where official and reconstructed gaps are both used, the text says which.

4. Results

4.1. Which causes produce the gap

Table 1 shows how many years of the gap each group of causes contributes. In Kazakhstan the largest contributions come from heart and circulatory diseases (2.3 years), injuries (1.8) and chronic respiratory disease (1.4). Men in Kazakhstan die from self-harm 5.2 times more often than women and from road injuries 3.4 times more often, against 1.9 times for all causes together (age-standardised rates).

Table 1. Years of the female-male gap in life expectancy at birth contributed by each group of causes, 2023 [1]

Cause of death	Russia	Kazakhstan	Kyrgyzstan	Uzbekistan	Tajikistan
Heart and circulatory diseases	4.32	2.31	2.41	2.40	0.91
Injuries, all	3.97	1.84	1.16	0.60	0.65
of which self-harm	0.63	0.57	0.24	0.05	0.10
of which road injuries	0.23	0.41	0.50	0.23	0.34

Cirrhosis and alcohol use disorders	0.82	0.79	0.66	0.27	0.20
Lung cancer	0.55	0.50	0.31	0.14	0.07
Chronic respiratory disease	0.29	1.42	0.24	0.06	0.14
Other cancers	0.69	0.39	0.36	−0.03	0.25
Infectious, maternal and nutritional	1.13	0.68	0.45	0.28	0.70
Digestive and other causes	0.98	0.86	0.32	0.32	0.44
Gap reconstructed from GHE	12.76	8.78	5.93	4.04	3.36
Official gap, WHO [3]	12.4	8.4	5.9	4.1	3.3

4.2. Which causes follow the size of the gap

Heart and circulatory diseases are the largest block in Russia (4.3 years), but in Kazakhstan, Kyrgyzstan and Uzbekistan they contribute almost the same (2.31, 2.41 and 2.40 years), so they cannot explain why the official gap in Kazakhstan is 4.3 years larger than in Uzbekistan. Injuries, by contrast, fall in nearly the same order as the gap: from 3.97 years in Russia to 1.84 in Kazakhstan, 1.16 in Kyrgyzstan and 0.60-0.65 in Uzbekistan and Tajikistan. Within injuries, self-harm follows the same order (0.63 and 0.57 years in Russia and Kazakhstan against 0.05 in Uzbekistan), but road injuries do not: they take more years in Kyrgyzstan (0.50) than in Kazakhstan (0.41) or Russia (0.23). Deaths directly caused by alcohol and lung cancer follow the gap exactly, but each contributes less than one year.

The gap in Kazakhstan is 2.86 years larger than in Kyrgyzstan (reconstructed values). Of this difference, 1.18 years come from chronic respiratory disease, 0.68 from injuries (of which 0.33 from self-harm) and 0.13 from deaths directly caused by alcohol; lung cancer adds 0.19, infectious conditions 0.23 and digestive and other causes 0.54, while heart and circulatory diseases contribute −0.10. The gap in Russia is 3.98 years larger than in Kazakhstan (reconstructed values), and here heart and circulatory diseases (2.01 years) and injuries (2.13) together account for more than the whole difference, while chronic respiratory disease works the other way (−1.13).

The countries also differ in the age at which men die early. In Russia 51% of the gap is produced at ages 15-49, against 27% in Kazakhstan, 29% in Kyrgyzstan, 21% in Uzbekistan and 16% in Tajikistan.

4.3. Smoking and drinking

The male-female difference in heavy drinking follows the gap exactly: Russia 21.7, Kazakhstan 8.9, Kyrgyzstan 6.8, Uzbekistan 5.3, Tajikistan 4.0 percentage points (Table 2). The male-female difference in smoking does not: Russia 22.5, Kazakhstan 28.3, Kyrgyzstan 31.3, Uzbekistan 19.3 points, the largest in Kyrgyzstan. Male smoking alone is almost the same in Russia, Kazakhstan and Kyrgyzstan (36.8%, 35.3% and 34.2%), although their official gaps range from 5.9 to 12.4 years. Smoking cannot be ruled out, however: lung cancer, which is mostly caused by smoking, follows the gap, and men smoke far more than women in every country.

Table 2. Smoking, heavy episodic drinking and the gender gap in life expectancy, WHO estimates [3]

Indicator	Russia	Kazakhstan	Kyrgyzstan	Uzbekistan	Tajikistan
Men who smoke, % (2022)	36.8	35.3	34.2	20.2	no data
Women who smoke, %	14.3	7.0	2.9	0.9	no data

(2022)					
Men, heavy drinking in past 30 days, % (2020)	31.0	12.8	9.2	7.2	5.3
Women, heavy drinking in past 30 days, % (2020)	9.3	3.9	2.4	1.8	1.3
Gap in life expectancy, years (2023)	12.4	8.4	5.9	4.1	3.3

5. Discussion

The author's hypothesis is supported in its part about alcohol: deaths directly caused by alcohol and the male-female difference in heavy drinking rank the five countries in the same order as the gap. It is partly supported for injuries: injuries and self-harm follow the gap (only Uzbekistan and Tajikistan swap places), but road injuries, the risky behaviour she named, do not. Smoking does not explain the differences between countries well, although it contributes to the gap through lung cancer in all of them. Late visits to a doctor, working conditions and stress could not be tested with these data. Heart disease, although it is the largest single cause of the gap in every country, does not explain the differences between Kazakhstan and its Central Asian neighbours; it does explain about half of the larger gap in Russia.

When she saw these results, the author suggested (25 October 2026) that one reason is the more frequent heavy drinking in Russia and Kazakhstan, which raises the risk of dangerous actions and injuries, while in Uzbekistan and Tajikistan religious and family norms may limit such drinking more strongly; she also suggested that the high suicide rate among men may be linked to the fact that it is harder for them to talk about their problems and ask for help (original in Russian). Alcohol also acts through injuries and heart disease, so the deaths counted here as directly caused by alcohol understate its role. The larger share of the gap produced before age 50 in Russia is consistent with deaths from injuries, which happen at younger ages than deaths from heart disease.

The contribution of chronic respiratory disease in Kazakhstan stands out: the age-standardised male death rate from it is 137 per 100,000, against 19-35 in the other four countries. Chronic obstructive pulmonary disease is among the leading causes of death in Kazakhstan in the Global Burden of Disease data as well [4], but a difference this large may also partly reflect how causes of death are recorded, and it needs a separate check.

Limitations. The GHE are modelled estimates rather than raw death registrations, and registration is less complete in Uzbekistan and Tajikistan. The open age group 85+ makes the reconstructed gaps slightly larger than the official ones, so the contributions are approximate. With five countries, the agreement between the causes and the gap is descriptive and cannot be tested statistically. The smoking and drinking indicators refer to different years than the deaths, and the comparison shows association, not cause.

6. Conclusion

Men in Kazakhstan live 8.4 years less than women. Heart disease produces the largest share of this gap, but it is not what makes the gap larger than in Kyrgyzstan, Uzbekistan and Tajikistan. The largest parts of that difference are chronic respiratory disease, whose size may partly reflect how deaths are recorded, and injuries, especially self-harm, with smaller parts from several other causes. Across the five countries the gap follows the difference between men and women in heavy drinking more closely than the difference in smoking. With five countries this is an association, not proof of cause, but it suggests that heavy drinking, injuries and male suicide deserve particular attention in Kazakhstan.

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Data availability

The WHO data are public [1, 3]. The life tables, the decomposition and the analysis script are available from the author or her mentoring team on request.

Author contributions and use of AI tools

The author chose the research question, proposed the hypothesis quoted in Section 2 before any data were analysed, found the study [4] used in the introduction and proposed the explanations discussed in Section 5. The data were analysed and the text was drafted by her mentor with the help of a generative AI assistant (Claude, Anthropic). Every number was computed by the analysis script from the WHO data. Before submission, the author checked the results herself: she recalculated from Table 2 the male-female difference in heavy drinking for Kazakhstan (12.8 - 3.9 = 8.9 percentage points) and for Russia (31.0 - 9.3 = 21.7 percentage points), and both values matched.

Conflicts of interest

The author declares no conflicts of interest. No funding was received for this study.

References:

[1] World Health Organization. Global Health Estimates 2023: deaths by cause, age, sex and country (GHE_FULL). https://www.who.int/data/global-health-estimates (accessed 24.10.2026).

[2] Arriaga E.E. Measuring and explaining the change in life expectancies // Demography. 1984. Vol. 21, No. 1. P. 83-96. https://doi.org/10.2307/2061029

[3] World Health Organization. Global Health Observatory: life expectancy at birth (WHOSIS_000001), age-standardized prevalence of current tobacco smoking (M_Est_smk_curr_std), heavy episodic drinking (SA_0000001739). https://www.who.int/data/gho (accessed 16.10.2026 and 21.10.2026).

[4] Gulis G., Aringazina A., Sangilbayeva Z., Kalel Z., de Leeuw E., Allegrante J.P. Population health status of the Republic of Kazakhstan: trends and implications for public health policy // International Journal of Environmental Research and Public Health. 2021. Vol. 18, No. 22. Art. 12235. https://doi.org/10.3390/ijerph182212235

[5] Preston S.H., Heuveline P., Guillot M. Demography: measuring and modeling population processes. Oxford: Blackwell, 2001.

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