# 45 Trends in the sex gap in life expectancy at birth in Africa and its regions 1950-2022

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**Introduction**

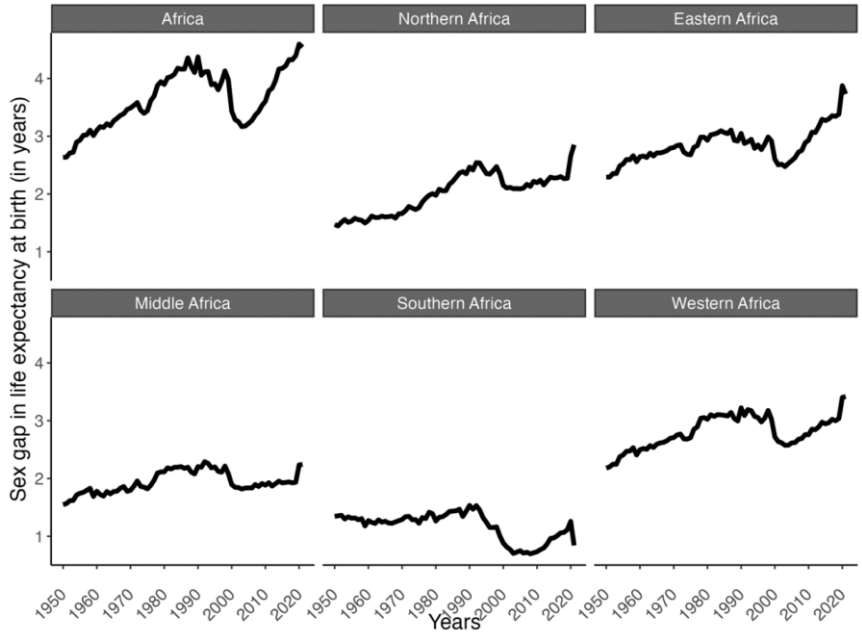
Around the world, females live longer than males (Bergeron-Boucher *et al*., 2022). Most of the female advantage in life expectancy is explained by health behaviors and biological factors (Rogers *et al*., 2010), such as smoking (Janssen, 2020). Even in conditions where males and females adopt similar lifestyle habits such as among nuns and monks, females' survival advantage persists (Luy, 2003). In the European context, in 2015 females lived on average 6.6 years longer than males (Zazueta-Borboa *et al*., 2023), and the chance that a male outlives females ranges from 29 to 50% (Bergeron-Boucher *et al.,* 2022). In terms of long-term trends in the sex gap in life expectancy, we know that over time sex differences in life expectancy have been narrowing (Glei & Horiuchi, 2007). However, our understanding of the long-term trends in the sex gap in the African continent is limited. Nevertheless, it is crucial to enhance our demographic knowledge about Africa because, in 2022, Africa accounted for 21% of the world's population (United Nations *et al*., 2022a).

In this article, I looked at the different trends in the sex gap in life expectancy at birth in the African continent and its regions. Monitoring the sex gap in life expectancy at birth is important for tracking progress in population health and measuring social development, considering gender differences and the social determinants driving those differences (Pinho-Gomes *et al.,* 2023). From previous studies, we know that in Africa under-five mortality is still high, especially in Sub-Saharan Africa (Ahinkorah, 2021). Another important driver of mortality in Africa is AIDS and HIV, during the 1990s Sub-Saharan Africa was heavily affected by the AIDS and HIV epidemic, affecting progress in life expectancy (Masquelier & Reniers, 2018; Trinitapoli, 2023). After 2005, in some African countries, the number of AIDS and HIV-related deaths has halved since 2005, due to the expansion of antiretroviral treatment (Masquelier & Reniers, 2018). This article aims to describe trends in the sex gap in life expectancy across Africa and the African region, from 1950 to 2022 using the most updated version of the United National World Population Projections 2022 revision.

## Data and methods

We retrieved life tables by single year of age from the United Nations World Population Prospects 2022 revision (United Nations *et al*., 2022b). This is a very well-known and useful dataset to compare life expectancy estimated across countries. I selected countries from the African continent, and I grouped countries across five big regions using the classification of the United Nations (United Nations, 1999). Our analysis consisted of estimating the sex gap in life expectancy at birth by computing the differences in life expectancy at birth between females and males. The outcome expresses the average number of years that females live longer than males each year. To account for differences in subgroups across countries in African regions, we aggregated the death rates by regions using the harmonic mean to obtain the weighted mean in life expectancy at birth in each African region using a recent approach proposed by (Feehan & Wrigley-Field, 2021). We adopted this approach instead of computing the mean value of the sex gap in life expectancy by region to control for different population sizes.

*Figure 1 Time trends in the sex gap in life expectancy at birth in Africa and by African regions. 1950-2022. We used the harmonic mean, instead of the arithmetic mean*




Source data: UN WPP 2022.

**Results**

From 1950 to 2019 the sex gap in life expectancy at birth has increased in Africa and its regions, even during the COVID-19 pandemic (Figure 1). Between 1950 and 2019, the sex gap in life expectancy increased by 2 years. In Africa as a whole, between 1950 and to mid-1980s, the sex gap in life expectancy increased and later stagnated until the late 1990s, after which the sex gap in life expectancy decreased until 2010, since then sex differences in life expectancy between females and males have been increasing. This pattern is similar across the African regions but with different timings and levels. During the COVID-19 pandemic, the sex gap in life expectancy increased in Africa and virtually in all regions except Southern Africa, where the sex gap in life expectancy decreased.

**Discussion**

In 1950, females in Africa lived 2.6 years longer than males on average, and by 2019, the sex gap in life expectancy at birth was about 4.4 years. During the COVID-19 pandemic in 2020 and 2021, the sex gap in life expectancy remained similar to previous years. When looking at trends in the sex gap in life expectancy across African regions, we observed that across all regions except Western Africa, the sex gap in life expectancy at birth grew between 1950 and 1980. Since 1980 the sex gap in life expectancy at birth has remained similar in Northern Africa, with a modest increasing after 2010. For Eastern, Middle, and Southern Africa, after 1980 the sex gap in life expectancy at birth decreased until the early 2000s, since then, the sex gap in life expectancy has continuously grown. In Western Africa, the sex gap in life expectancy experienced a modest increase between 1950 and 1990, between 1990 and 2010 the sex gap in life expectancy narrowed and after 2010 started to increase.

To put this number into context, the level of the sex gap in life expectancy in Africa is much lower compared to the European context or Latin American countries. This might be partially explained by a predominant mortality from AIDS and HIV at younger ages, rather than cardiovascular mortality at older ages. The increase in AIDS and HIV-related deaths might explain the temporary reduction of the sex gap in life expectancy that we observed across African regions, as pointed out by Masquelier & Reniers (2018), partly because before the start of the expansion of Antiretroviral therapy (ART) mortality among females was higher than males. Reflecting the uneven impact of AIDS and HIV epidemic by sex. In terms of trends in the sex gap in life expectancy, I observed that in Africa and across all African regions, the sex gap in life expectancy has been widening over time. In Europe and the US, the sex differences have been narrowing. This divergence might be explained by the impact of the expansion

of ART after 2005, where females have benefited more than males. This has resulted in larger gains in life expectancy for females than males (Masquelier & Reniers, 2018).

**Limitation**

This analysis only does not investigate specific countries, the Africa region presents a very heterogeneous mortality dynamic. Another important limitation is that I limited the analysis to focus on all-cause mortality, to have a deeper understanding of sex differences in health behaviors that are driving sex differences in life expectancy causes death data will be further needed.

**Conclusion**

The observed trends in the sex gap in life expectancy indicate a continual increase in Africa and its regions. Notably, during the COVID.19 pandemic, the sex gap in life expectancy increased in Africa and virtually in all regions, except Southern Africa, where the sex gap in life expectancy decreased. Africa accounts for 21% of the world's population and by 2050 is expected to account for 30%. In that regard, its results are relevant to understanding its mortality dynamics and its implications for future scenarios.

As my supervisor, Leo van Wissen consistently emphasized that demographic analysis serves as a descriptive and informative tool for policymakers. In this brief article, I performed this analysis as an homage to the intersection of Leo's interest in African population dynamics, and my expertise on mortality, particularly on sex differences in life expectancy.

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