

The effect of war on Palestinian life expectancy in 2023

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The Israel-Hamas war, triggered by the October 7th 2023 Hamas-led attack in Israel, has caused extensive mortality and sparked a major humanitarian crisis in the region. Direct conflict mortality has been mostly concentrated among non-combatants in the Gaza Strip. Here, most of the population has been internally displaced and faces limited access to food, water, shelter, sanitation, and essential health services ([Jamaluddine et al., 2024](#)). We aim to assess the impact of conflict deaths reported between October and December 2023 on life expectancy at birth (LE) in Palestine—including Gaza, the West Bank, and East Jerusalem. For this, we combine multiple sources of data on combatant and non-combatant fatalities and use demographic methods to impute the missing sex and age distribution of conflict mortality. We focus on LE because it is a widely used mortality indicator that is not affected by the population’s age distribution and can be meaningfully compared across populations and over time.

We compute LE at birth in Palestine in the 2000–2023 period using standard life table methods; LE loss to conflict is estimated as the difference between the observed LE and a counterfactual ‘conflict-free’ LE built using cause-deleted life tables ([Preston et al., 2001](#)). Between January 1st, 2000 and October 6th, 2023, we compute yearly age- and sex-specific mortality rates by combining non-conflict-related deaths and population exposures from World Population Prospects (WPP, [United](#)

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Nations, 2022) with conflict-related deaths from B’Tselem (2023). To capture fatalities between October 7th and December 31st, 2023, we retrieve the total number of conflict deaths reported by OCHA (2023, 2024). Since OCHA (2023) only reports total counts for very wide age groups, we develop three complementary disaggregation approaches. Each scenario uses the age-sex distribution of conflict fatalities based on i) the report by the Gaza Ministry of Health (GMOH, 2023) on October 26th; ii) the observed distributions in 53 historical conflicts (Mathers et al., 2023); and iii) the average distributions reported by B’Tselem (2023) between September 29th, 2000 and October 6th, 2023. In i), all sexes and ages have similar and relatively high conflict mortality risks; in ii), mortality is highest for young males, but still affects other demographic groups; and in iii), conflict mortality is mostly concentrated among young males, reflecting a substantial predominance of combatant mortality during 2000-2022. Additionally, we account for the uncertainty around the total death toll by inflating or deflating the total death counts by 20% and 50%, to capture the fact that deaths may be under- or over-reported. This is shown as error bars in Figure 1.

Figures 1A-C present – for 2000-2022 – the empirical LE estimates reported by WPP (solid line) by sex; the grey points show the counterfactual LE (in the absence of conflict deaths), and the LE according to our three age-disaggregation scenarios (colored points). Figures 1D-F show the annual years of LE lost to conflict between 2000 and 2023. The LE loss observed for 2023 is enormous: The LE loss to the Israel-Hamas war is, on average, 7.4 times larger than the loss caused by the 2014 Gaza war (5.5-7.8 for men and 3.7-13.8 for women).

The escalating levels of violence since October 7th have produced an unprecedented loss of LE in Palestine. We estimate that, in 2023, the Palestinian population LE decreased to levels not seen since 1985 (United Nations, 2022), almost 40 years earlier. Quantifying the exact magnitude of the decline is difficult, given the limited data available. While fatality data from the GMOH is of reasonable quality, a degree of uncertainty around the estimates remains (Huynh et al., 2023; Jamaluddine et al., 2023). We account for some of this uncertainty by using demographic techniques and scenario-based analysis. Nevertheless, our estimates should be considered conservative of the conflict’s impact on LE because i) we only focus on the three initial months of the war; ii) our estimates pertain to the entire Palestinian territory but conflict mortality is heavily concentrated in Gaza; iii) we do not account for emigration outside of Palestine following the start of the war; and iv) we do not account for indirect mortality caused by family losses in critical ages, the destruction of infrastructure, limited access to food, water, fuel, and medical attention, as well as limited humanitarian access in the Gaza strip. Better data will help refine our estimates in the future, but for now, protecting human lives should be a priority.

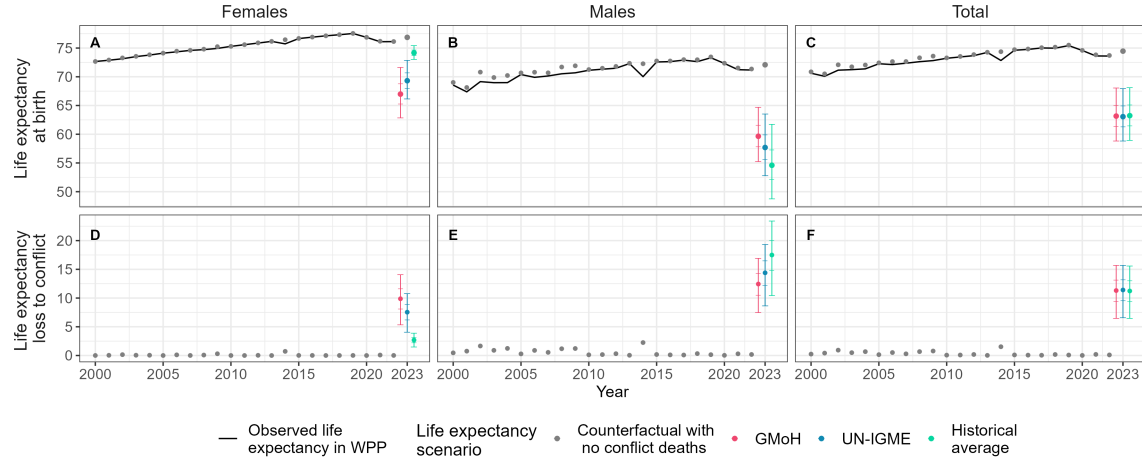


Figure 1: Panels A-C. Annual life expectancy at birth in Palestine from 2000 to 2023. Panels D-F: Annual life expectancy losses due to conflict from 2000 to 2023. The solid lines indicate the life expectancy estimates reported by the World Population Prospects ‘Median’ scenario ([United Nations, 2022](#)), which considers conflict deaths before 2023 and the impact of the COVID-19 pandemic. The counterfactual scenario of life expectancy without conflict deaths in 2023 is indicated with grey dots. For 2023, we derive three scenarios according to the age and sex distribution of the total death toll reported by OCHA between October 7th and December 31st: GMoH (in red), UN-IGME (in blue) and the Historical average (in green). The two intervals accompanying each scenario indicate the ranges of possible values assuming 20% and 50% under- or over-reporting of the actual death toll. Sources: Authors’ elaborations on data from [B’Tselem \(2023\)](#); [GMoH \(2023\)](#); [Mathers et al. \(2023\)](#); [United Nations \(2022\)](#)

Data availability

All of our analyses and results are fully reproducible using the data and codes provided in the [open-access repository](#).

Authors’ contributions

E.A. and D.A-G. conceptualized the study. E.A. identified and collected the data. E.A. designed the methodology. A.C.G-U. and E.A. conducted the analysis. A.C.G-U., E.A., U.B. and D.A-G. wrote the manuscript. A.C.G-U., E.A., U.B., and D.A-G. reviewed and approved the manuscript.

Declaration of interests

We declare no competing interests.

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