



War in Gaza: scenario-based excess mortality projections

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Introduction

Since 7 October 2023, large-scale military operations in the Gaza Strip have resulted in an escalating public health crisis. Residents of Gaza are mostly displaced from their homes and living in overcrowded conditions with insufficient access to water, sanitation, and food, and health services have been considerably disrupted. To inform humanitarian and decision-making efforts, we aimed to estimate the project excess mortality from traumatic injuries, infectious diseases, maternal and newborn complications, and non-communicable diseases (NCDs) under different future scenarios.

Methods

We used five different models to project excess deaths from February to August 2024, considering three scenarios: (1) an immediate and permanent ceasefire; (2) the status quo, reflecting conditions from mid-October 2023 to mid-January 2024; and (3) a further escalation of the conflict. Using publicly available data and expert consultations, our analysis projected excess deaths resulting under each scenario. A model was developed to determine increased malnutrition (as an underlying cause).

Ethics

This study received ethics approval from the London School of Hygiene & Tropical Medicine and the Johns Hopkins University.

Results

Without epidemics, the ceasefire scenario would result in 6550 excess deaths, rising to 58,260 under the status quo, and 74,290 under escalation. With epidemics, these projections rise to 11,580, 66,720, and 85,750, respectively. Under the ceasefire scenario, infectious diseases would be the main cause of excess deaths (1,520 excess deaths without epidemics and 6,550 with epidemics). Traumatic injuries followed by infectious diseases would be the main causes of excess deaths in both the status quo (53,450 due to traumatic injuries; 2,120 due to infectious diseases without epidemics and 10,590 including epidemics) and escalation scenarios (68,650 due to traumatic injuries; 2,720 due to infectious diseases without epidemics and 14,180 with epidemics). Our projections indicate that, even in the best-case ceasefire scenario, thousands of excess deaths would continue to occur, mainly due to the time it would take to improve water, sanitation, shelter conditions, and malnutrition, and restore functioning healthcare services in Gaza. While the total number of estimated excess deaths from maternal and neonatal causes are relatively small (100–330 excess deaths), every loss of a mother has severe consequences for family health and wellbeing. NCDs are projected to cause more deaths (1,680 (ceasefire) –2,680 (escalation) excess deaths) due to a heavily disrupted specialised health services and impeded access to treatment and medications.

Conclusion

These projections underscore the critical and urgent need for an immediate ceasefire to mitigate the alarming excess mortality in Gaza. The severity of the ceasefire scenario cannot be understated, with over 6–11 thousand excess deaths projected. Decision-makers must act swiftly to prevent further loss of life and address the dire humanitarian situation in Gaza.

Conflicts of interest

All authors declare no competing interests. The findings do not necessarily represent the views of the funder, the Johns Hopkins University, or the London School of Hygiene & Tropical Medicine.