Mortality trends in Mexico: Epidemiological Analysis from 83 444 cases

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Background

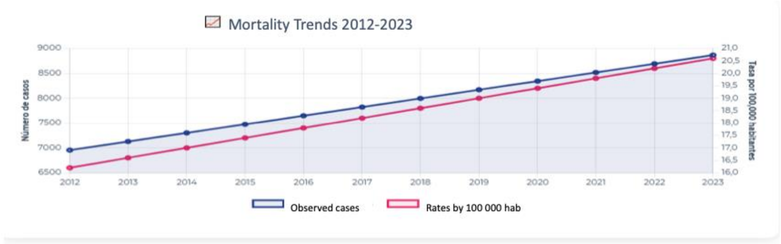
Breast cancer (BC) is the leading cause of death in women. Despite declining BC mortality rates worldwide, rates in Mexico continue to rise. The absence of nationwide epidemiological data hinders the implementation of effective mortality reduction measures. This analysis aims to characterize BC mortality patterns across Mexico.

Patients and methods

This descriptive and retrospective analysis included mortality records (DATA_CAMAMA_2012-2023.csv) from all 32 Mexican states between 2012 and 2023. Analyzed variables included gender, age at death, state of residence, and cause of death. Cases with inconsistent or duplicate birth dates, or causes of death other than BC, were excluded. Statistical analysis included the Kolmogorov-Smirnov test for normality ($p<0.05$). Data are presented as median and interquartile range. Gender comparisons were performed using the Mann-Whitney U test ($p<0.001$). State-level analyses were conducted using the Kruskal-Wallis test with post-hoc Dunn and Bonferroni correction for multiple comparisons. A predictive model was constructed using $\ln(Yt) = \alpha + \beta t + \varepsilon t$, with validation $R^2 = 0.9989$, $p < 0.005$.

Results

A total of 83,444 cases were registered; the median age was 59 (49-70), and 99.32% were women. From 2012 to 2023, the mortality rate increased annually, from 16.2 to 20.6 per 100,000. Colima and Sonora had the highest mortality rates, 1.54 and 1.43 times the national rate, respectively. The north, northeast, northwest, and middle-west regions exhibited the highest mortality rates, with significant impact. The projected trend indicates a 22.7% increase in the estimation rate by 2030, corresponding to 10,875 new deaths.





Conclusions

This is the first nationwide analysis of BC mortality in Mexico. The mortality rate is steadily increasing, the opposity to mortality trends worldwide. Measures focused on early diagnosis and prompt treatment are imperative to reduce mortality. The impact that this results had on the Public Health Policies should be taken into account, like the National Cancer Plan and the National Health Plan.

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