American Journal of Non-Communicable Diseases

Volume 1
Issue 2 *Supplement*

Article 2

2024

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Recommended Citation

Pérez Bedoya, Juan Pablo; Perez Aguirre, Carlos Andres; Barengo, Noel C.; and Diaz, Paula Andrea (2024) "Effect of age, period, and birth cohort on diabetes mellitus mortality rate in Colombia, 1983-2022. An analytical cross-sectional study," *American Journal of Non-Communicable Diseases*: Vol. 1: Iss. 2, Article 2.
DOI: 10.25148/ajncd.1.2.1
Available at: https://digitalcommons.fiu.edu/ajncd/vol1/iss2/2

AJNCD | American Journal of Non-Communicable Diseases

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Abstract

Effect of age, period, and birth cohort on diabetes mellitus mortality rate in Colombia, 1983-2022. An analytical cross-sectional study

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Received: 9/1/2024; Accepted: 10/1/2024; Published: 11/6/2024

Objective: To estimate the contributions of the effects of age, period, and birth cohort on the trend in the mortality rate due to Diabetes Mellitus (DM) in Colombia during the years 1983-2022. **Methods:** Analytical observational study, with pooled cross-sectional data, using mortality records and population projections from the National Department of Statistics. The count of deaths due to DM for each age group, period and cohort was organized in quinquennia. A multiple quasi-Poisson model was applied using the intrinsic estimator method with collapsing intention. The mortality rate ratio (MRR) of each age group, period, and cohort compared to the overall average rate was reported, along with the 95% confidence interval (CI). **Results:** A total of 234,117 DM-related deaths were recorded. In general, mortality due to DM increased with age. The lowest mortality was observed in the 5-9 years age group (MRR 0.04; 95% CI 0.03 to 0.06), while the highest occurred in the 85 years and older age group (MRR 18.49; 95% CI 16.88 to 20.25). Regarding the cohort effect, a lower MRR was found as cohorts got younger, with an MRR of 1.58 (95% CI 1.42 to 1.77) for the 1898-1902 cohort and 0.11 (95% CI 0.05 to 0.25) for the 2018-2022 cohort. At the period level, MRR increased between 1983-2002, stabilized between 2003-2007, and decreased between 2008-2017. However, between 2018 and 2022, a further increase was recorded. **Conclusion:** Public health actions should ensure healthy aging, continuous control of diabetes complications, and health care awareness in new generations.

Keywords: aging; glucose metabolism disorders; survival; cohort