

Peer Review

Review of: "Cancer Mortality Among Women in the European Union: A Comprehensive Analysis of Economic, Social, and Health Factors"

Hany Akeel Al-hussaniy¹

1. University of Baghdad, Iraq

This study provides a comprehensive and ambitious macro-level investigation of determinants of cancer mortality among women across European Union countries, integrating socioeconomic, environmental, healthcare, lifestyle, and political representation variables using panel econometric techniques. The use of pooled OLS combined with quantile regression strengthens robustness and allows examination of heterogeneity across mortality distributions, while the multi-country dataset enhances policy relevance and cross-national comparability. The study also contributes by integrating gender inequality indicators with environmental and healthcare access variables, offering a multidisciplinary public health perspective. However, several methodological and interpretative issues should be addressed to improve scientific validity and causal interpretability. First, reliance on pooled OLS without fixed-effects or random-effects panel modeling risks omitted variable bias and fails to control for unobserved country-specific heterogeneity and temporal structural differences across EU healthcare systems. Second, the ecological design limits causal inference and introduces potential ecological fallacy when linking macro-level education or lifestyle indicators to individual cancer mortality outcomes. Third, several counterintuitive findings (e.g., positive associations between education, screening, healthcare expenditure, and mortality) require stronger sensitivity analyses, lagged variable testing, and potential mediation modeling to avoid spurious correlations or reverse causality. Additionally, the study would benefit from addressing multicollinearity among governance and socioeconomic indicators more rigorously and providing clearer justification for variable operationalization, particularly composite gender equality proxies. The discussion should also adopt a more cautious interpretation of policy implications and acknowledge structural differences between cancer incidence and mortality drivers,

including treatment accessibility, survival improvements, and demographic aging. Finally, future research incorporating longitudinal fixed-effects models, instrumental variable approaches, and stratified cancer-type analyses would significantly strengthen the reliability, generalizability, and translational public health relevance of the findings.

Declarations

Potential competing interests: No potential competing interests to declare.