

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

The manuscript "Cancer Mortality Among Women in the European Union: A Comprehensive Analysis of Economic, Social, and Health Factors" addresses an important public health issue by examining the association between gender inequality indicators and cancer mortality among women across European Union countries. The topic is highly relevant and aligns well with current global health priorities, particularly those related to health equity and the United Nations Sustainable Development Goals. The study benefits from a multi-disciplinary approach integrating epidemiology, socioeconomic analysis, and health policy perspectives.

The manuscript demonstrates several strengths. The use of panel data covering 27 EU countries over multiple years provides broad geographic representation and enhances the generalizability of findings. The application of both Pooled Ordinary Least Squares and Quantile Regression models strengthens the statistical robustness and allows the exploration of heterogeneity across mortality distributions. The inclusion of a wide range of variables addressing socioeconomic, environmental, behavioral, and political determinants provides a comprehensive analytical framework. The discussion section offers thoughtful interpretations and policy implications that contribute to the literature on gender-sensitive public health interventions.

However, several methodological and interpretational limitations should be addressed to improve scientific rigor. First, the study relies on aggregated country-level data, which may introduce ecological fallacy and limits causal interpretation at the individual level. Second, the use of pooled OLS may not sufficiently control for unobserved country-specific heterogeneity, and fixed-effects or random-effects

panel models could provide stronger inference. Third, several findings, such as the positive association between higher education, healthcare expenditure, or cancer screening rates and increased cancer mortality, require more cautious interpretation and deeper analytical justification, as they contradict well-established epidemiological evidence and may reflect reverse causality, reporting bias, or confounding variables. Additionally, the manuscript would benefit from clearer justification of variable selection, discussion of potential multicollinearity among gender inequality indicators, and further sensitivity analyses. Some sections of the discussion include speculative explanations that should be supported by stronger empirical evidence or referenced literature.

Declarations

Potential competing interests: No potential competing interests to declare.