

## Special Issue

# Innovations in Biostatistics and Epidemiological Modelling for Tackling Global Disease Burden

### Message from the Guest Editor

The persistent and evolving challenge of accurately quantifying and addressing the global burden of diseases remains central to advancing public health, particularly amid growing inequalities, climate-related threats, and emerging epidemics. The exponential rise in large-scale health data—ranging from national surveys to routine health information systems and digital sources—offers new opportunities for disease monitoring and evaluation. Yet, these opportunities bring methodological complexities, especially when analyzing big data with numerous interrelated variables. Classical statistical models often fail to capture the complex, context-specific interactions between risk factors, socio-demographics, and geography. There is thus a pressing need for advanced tools such as Bayesian frameworks, spatial and spatiotemporal models, machine learning, and causal inference methods. This Special Issue will highlight innovations in biostatistics and epidemiology, focusing on applications in disease burden estimation, inequality assessment, and intervention evaluation, especially in LMICs where data gaps and health disparities are most pronounced.

### Guest Editor

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### Deadline for manuscript submissions

31 March 2026



## International Journal of Environmental Research and Public Health

an Open Access Journal  
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CiteScore 8.5  
Indexed in PubMed



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*International Journal of  
Environmental Research and  
Public Health*

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### Message from the Editor-in-Chief

Addressing the environmental and public health challenges requires engagement and collaboration among clinicians and public health researchers. Scientific discoveries and advances in this research field play a critical role in providing a rational basis for informed decision-making toward control and prevention of human diseases, especially the illnesses that are induced from environmental exposure to health hazards.

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