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RESEARCH HIGHLIGHTS

Inaugural Issue Highlights: Journal of Population Health Dynamics

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Abstract
The Volume 1, Issue 1 of the Journal of Population Health Dynamics (JPHD) establishes a transdisciplinary framework bridging biomedical science, planetary health, and social equity. Covering dengue trends, air pollution and antibiotic sales, maternal anaemia, non-communicable disease disparities and child mortality, this inaugural issue advances global health research.

Key Points

- The inaugural issue of JPHD integrates biological, ecological, and equity perspectives to advance global health.
- Articles analyze multi-state dengue patterns, air pollution impacts, and maternal anaemia outcomes.
- Investigations assess chronic disease disparities and long-term child mortality determinants across India.
- The next issue arrives in January 2027 focusing entirely on vector-borne diseases.

Population health provides the quantitative, data-driven foundation that identifies risk factors, health disparities, and upstream social determinants of health to guide targeted public health interventions and policies [1]. By analyzing health outcomes across specific groups and collaborating across disciplines, population health models help pinpoint critical areas for public health engagement and prescribe evidence-based strategies that public health professionals can implement and scale up [2]. Integrating population health's analytical strengths with public health's community-wide implementation fosters health equity and builds more efficient, responsive healthcare systems [3].

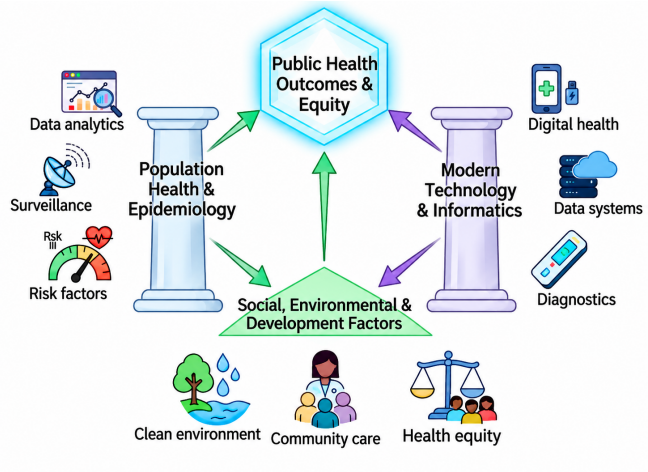


Figure 1. Conceptual framework illustrating the integration of population health and epidemiology with modern technology and informatics, supported by social, environmental, and developmental determinants, to achieve equitable public health outcomes.

The Journal of Population Health Dynamics (JPHD) is founded on the core motto of integrating biological, ecological, epidemiological, computational, and equity perspectives to bridge biomedical science, planetary health, and marginalized community healthcare (Figure 1). Dedicated to establishing a unified scientific paradigm for 21st century global health, Volume 1, Issue 1 sets a transformative tone for interdisciplinary research. In their foundational editorial, Das and Ranjit (2026) [4] articulate this vision by decoding the multi-scale complexity of population health through the convergence of evolution, epidemiology, and social equity, laying the vital conceptual groundwork for the diverse empirical studies featured throughout this inaugural volume.

Opening the research section, Shrivastava and Bhatu (2026) [5] present a five-state descriptive comparison of dengue trends (2021–2025) and map civil-society Information, Education, and Communication (IEC/SBCC) engagement across India's highest-burden states. They reveal that population-adjusted incidence reverses absolute burden rankings, placing Karnataka highest per-capita, and recommend a centrally coordinated NGO partnership framework to overcome current landscape fragmentation. Addressing respiratory health, Patnaik et al. (2026) [6] utilize a 35-month ecological time-series design to investigate the interplay between seasonal Influenza A(H3N2) surges, severe ambient air pollution, and retail antibiotic sales in India. Their negative binomial regression reveals a strong synergistic interaction, showing that severe air pollution significantly amplifies antibiotic sales spikes during viral waves and emphasizing the urgent need for active antimicrobial stewardship. Focusing on maternal and child health, Londe et al. (2026) [7] conduct a prospective cohort study in Central India examining infant neurodevelopmental outcomes at six months via the Denver Developmental Screening Test-II (DDST-II) across maternal severe versus moderate anaemia groups. Finding no statistically significant domain-level differences at this early developmental stage, the authors highlight the necessity of longer-term follow-up and comprehensive nutritional tracking. Noolvi et al. (2026) [8] analyze NFHS-5 data to compare self-reported non-communicable disease (NCD) prevalence among women aged 15–49 in Aspirational Districts (AD) versus Non-Aspirational Districts (NAD). While crude NCD reporting is lower in ADs due to existing diagnostic and screening gaps, multivariable models highlight persistent positive wealth gradients and distinct regional divergences, underscoring the necessity of expanding routine NCD screening into developmental priority districts. Finally, Hallad and Golandaj (2026) [9] evaluate long-term trends and determinants of neonatal, infant, and under-five mortality across Southern India using five rounds of NFHS data spanning 1992 to 2021. While documenting substantial overall survival improvements over three decades, their Cox proportional hazards models identify persistent socioeconomic inequalities and highlight multiple births as an extreme risk factor, calling for targeted, equity-oriented maternal and child health interventions. An integrated and convergent summary of these six published papers in the Volume 1, Issue 1 of JPHD is presented in Figure 2.

In conclusion, integrating population health with modern technologies; such as health informatics, digital surveillance, and data analytics—and broader development efforts across social, economic, environmental, and infrastructure sectors enables public health systems to move from reactive, disease-specific responses to proactive, equity-oriented action [1,10]. By pairing population-level analytics on upstream determinants and disparities with digital health tools and multi-sectoral development, public health practitioners can better target high-risk groups,

allocate resources efficiently, and strengthen health systems to achieve sustainable population health outcomes [10,11]. Keeping these aspects into consideration, the Volume 1, Issue 2 of the Journal of Population Health Dynamics will be published in January 2027, specially dedicated to “Vector Borne Diseases”.

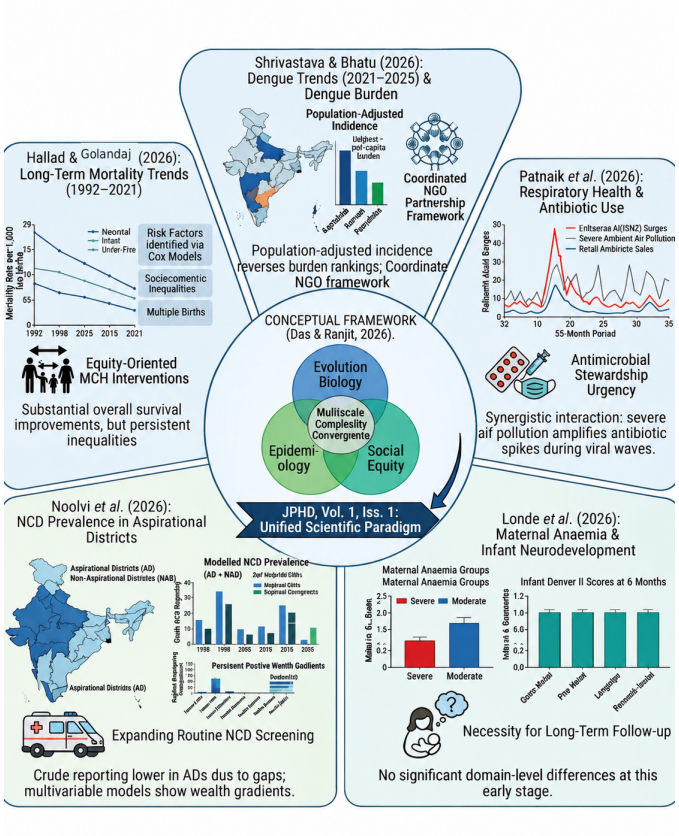


Figure 2. Multisectoral population health dynamics in India, integrating empirical evidence from the inaugural issue of JPHD across dengue epidemiology, mortality trends, respiratory health and antimicrobial use, NCD prevalence, maternal anaemia, and infant neurodevelopment. The central conceptual framework illustrates the convergence of evolutionary biology, epidemiology, and social equity within a unified population health paradigm.

Declarations

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Generative Ai (Claude ai) to improve language and readability. After using this tool, the authors thoroughly reviewed and edited the content as needed and took full responsibility for the final content of the publication.

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Conflict of interest

The authors declare no conflict of interest.

Ethics approval

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Consent to participate

Not applicable.

Consent for publication

Not applicable. This manuscript does not contain identifiable individual-level data or images.

Availability of data and material

Not applicable.

Code availability

Not applicable.

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Authors’ contributions

Kinjal Nayak: Data analysis, Methodology, Writing – original manuscript draft, Writing – review and editing. Anushrita: Data curation, Data collation and Formal analysis. Sweta Bhan: Formal analysis, Writing – review and editing, and Yusuff Adebayo Adebisi: Methodology, Formal analysis. Arvind Kavishwar: Conceptualization, Methodology, Data curation, Formal analysis, Writing – review and editing.

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