

abbreviated Curriculum Vitae

Yorghos Apostolopoulos, PhD

Occupational & Systems Epidemiologist | Population Health Scientist
yorghosapostolopoulos.org | yorghos@yorghosapostolopoulos.org

- Scientific Profile

I am an occupational and systems epidemiologist and population health scientist investigating how the organisation of working life shapes population health, ageing, and Human Functioning across the lifecourse. My research focuses on how Labour Systems generate and pattern multidomain exposures, how these exposures accumulate across working lives, and how they may contribute to health and functional trajectories.

My **current research programme centres on Systems Epidemiology of Working Life (SEWL)**, an emerging epidemiological science that I introduced and am developing to investigate the relationships between Labour Systems, Working-Life Exposure Systems, Biological Embodiment, and Human Functioning. SEWL builds on my earlier contributions to complex systems approaches to population health, the Working-Life-Exposome, and the Epidemiology of Working Life, integrating these with subsequent developments in Work-Structured Ageing, Exposure-System Science, and Functional Sustainability.

My overarching scientific objective is to explain how the organisation of working life shapes population health and to identify the exposure-generating processes and system-level intervention opportunities through which healthier working lives and sustained Human Functioning may be supported.

Following nearly three decades in U.S. academia, I am now based in Europe, where I am advancing an independent research programme combining conceptual and theoretical development, comparative and longitudinal epidemiology, methodological innovation, empirical investigation, and international scientific collaboration.

- Scientific Independence & Research Trajectory

My research trajectory spans occupational and environmental health, epidemiology, population health, social science, and complex systems, with a longstanding focus on multilevel determinants, interconnected exposures, and dynamic processes shaping health across populations and over time.

Earlier research on complex occupational and population-health problems highlighted the limitations of examining isolated risk factors. This led me to advance the integration of complex systems perspectives into population and occupational health research and to reconceptualise the Working-Life-Exposome as a multidomain framework for investigating exposures that co-occur, accumulate, and potentially interact across working lives. I subsequently introduced and developed the Epidemiology of Working Life, extending epidemiological inquiry to include the exposure systems generated and patterned across working lives and the broader societal arrangements that shape them.

Building on these contributions, I developed complementary conceptual and methodological frameworks concerning Work-Structured Ageing, Exposure-System Science, and Functional Sustainability, connecting exposure-generating systems, cumulative exposure histories, Biological Embodiment, and trajectories of Human Functioning across the lifecourse.

These successive and interconnected scientific contributions have converged within Systems Epidemiology of Working Life (SEWL), which provides the integrative scientific architecture for a new phase of comparative, longitudinal, biological, and computational research aimed at systematically investigating whether, how, and under what conditions Labour Systems and Working-Life Exposure Systems shape population health and Human Functioning.

- Current Positions & Affiliations

Founder and Scientific Lead, Independent Research Programme

Systems Epidemiology of Working Life (SEWL)

Athens, Greece

Adjunct Professor of Occupational and Environmental Health

Rocky Mountain Center for Occupational and Environmental Health

University of Utah School of Medicine

Salt Lake City, Utah, United States

- Education

PhD, Sociology — University of Connecticut, United States, 1994

MA, Kinesiology — University of Connecticut, United States, 1990

BSc, Exercise Science — University of Athens, Greece, 1987

- Independent Research Programme: Systems Epidemiology of Working Life

My current research programme investigates how the organisation of working life generates and patterns exposure systems and how these systems may shape population health, ageing, and Human Functioning across the lifecourse. Its central explanatory architecture connects:

Societal Organisation → Labour Systems → Exposure-Generating Processes → Working-Life Exposure Systems → Biological Embodiment and other pathways → Human Functioning → Functional Sustainability

Across the Lifecourse • Across Populations

The proposed **explanatory pathway** is directional but dynamic rather than strictly linear, incorporating prior health and functioning, selection processes, employment transitions, contextual modifiers, and feedback between working-life conditions and health trajectories.

The **programme** investigates how Labour Systems generate and pattern multidomain Working-Life Exposure Systems; how these exposures co-occur, accumulate, and potentially interact as they change across working lives; and how these cumulative and evolving exposure biographies may contribute through Biological Embodiment and other pathways to population health, ageing, and trajectories of Human Functioning.

Current empirical and methodological priorities include measurement and comparison of Labour Systems; reconstruction of working-life exposure biographies; identification of exposure-system phenotypes and trajectories; investigation of Biological Embodiment and work-structured ageing processes; operationalisation of Functional Sustainability; and assessment of how artificial intelligence, automation, and technological change reorganise exposure-generating processes.

Methodologically, the programme integrates longitudinal and lifecourse epidemiology, comparative and multilevel analysis, causal inference, systems and network approaches, exposome methods, and artificial intelligence and machine learning methods to characterise exposure-system configurations and trajectories, investigate their relationships with biological and functional outcomes, test explanatory propositions, and identify potentially modifiable system-level leverage points for prevention.

- **European Research Positioning**

Europe provides a particularly valuable setting for SEWL because cross-national variation in employment relations, working-time arrangements, occupational protections, worker representation, technological governance, welfare institutions, and social protection creates empirical leverage for investigating how different institutional and regulatory arrangements shape Labour Systems and the Working-Life Exposure Systems they generate.

Combined with longitudinal population studies, workforce surveys, administrative registers, biological and functional data, and established research infrastructures, this variation provides opportunities for comparative and longitudinal investigation of whether, how, and under what conditions different forms of working-life organisation contribute to differences in exposures, health, ageing, and functional trajectories.

My European research agenda therefore centres on comparative testing of SEWL propositions across populations, Labour Systems, datasets, occupational settings, and historical periods. A longer-term objective is to establish and lead a distributed European and international research programme linking complementary populations, data resources, methods, and scientific expertise to support cumulative empirical testing, replication, and refinement of SEWL.

- **Major Scientific Contributions**

- **Systems Approaches to Population and Occupational Health.** Advanced the integration of complex systems science, epidemiology, network perspectives, and population health to examine interconnected, multilevel, and dynamic processes shaping occupational and population health, extending epidemiological inquiry beyond predominantly isolated risk-factor explanations.
- **Working-Life-Exposome.** Reconceptualised and advanced the Working-Life-Exposome as a multidomain framework for investigating exposures that co-occur, accumulate, and potentially interact across working lives, linking occupational hazards with the broader social, economic, organisational, and technological conditions mediated through working life.
- **Epidemiology of Working Life.** Introduced and developed the Epidemiology of Working Life as an epidemiological approach that shifts inquiry beyond individual hazards and workplaces toward the exposure-generating systems and cumulative exposure histories that structure working life as a population-health process.

- **Occupational Applications and Workforce Health.** Developed and applied systems-oriented epidemiological and Working-Life-Exposome approaches to commercial driving, military and readiness-dependent work, firefighting, and other complex occupational settings, with emerging applications in maritime work. These applications examine how occupational exposure systems may contribute to health, safety, Human Functioning, work ability, workforce participation, and premature workforce exit.
- **Work-Structured Ageing.** Introduced and am developing Work-Structured Ageing as a framework examining how Labour Systems generate and pattern Working-Life Exposure Systems whose cumulative and evolving histories may contribute, through Biological Embodiment and other pathways, to differences in ageing processes and trajectories of Human Functioning across the lifecourse.
- **Exposure-System Science.** Introduced and am developing Exposure-System Science as a conceptual and methodological approach that shifts the analytical focus from exposures considered individually to the systems that generate, organise, and pattern them, and to the processes through which exposure configurations emerge and change over time.
- **Functional Sustainability.** Introduced and am developing Functional Sustainability as a longitudinal construct concerning the capacity to maintain, adapt, or recover Human Functioning and participation under changing demands and circumstances across the lifecourse, extending population-health inquiry beyond health status measured at isolated points in time toward the conditions that support sustained functioning and participation.
- **Systems Epidemiology of Working Life (SEWL).** Introduced and am developing Systems Epidemiology of Working Life (SEWL) as an integrative epidemiological science connecting Labour Systems, Working-Life Exposure Systems, Biological Embodiment, and Human Functioning within a common explanatory and research architecture, generating testable propositions concerning how the organisation of working life may shape population health and functional trajectories.
- Selected **SEWL-Centred Research Outputs**

Published

- Exposure-system science: **An integrative framework for investigating exposure generation and population health across the lifecourse.** *Journal of Epidemiology & Community Health*, 2026.
- The firefighting working-life-exposome: From single hazards to systems-level health, resilience, and readiness. *American Journal of Industrial Medicine*, 2026.
- *The military working-life-exposome: A systems-level framework for predictive military health research and operational readiness.* *Journal of Occupational & Environmental Medicine*, 2026.
- Work-structured aging: A framework linking labor systems, exposure systems, and aging trajectories. *Journal of Epidemiology & Community Health*, 2026.
- *The Epidemiology of Working Life: Reorganizing occupational health science around work-structured exposure systems.* *American Journal of Industrial Medicine*, 2026.
- *The syndemic attrition crisis of European truck drivers: A systems-AI framework to transform research and policy.* *American Journal of Industrial Medicine*, 2026.
- A blueprint for a new commercial driving epidemiology: An emerging paradigm grounded in integrative exposome and network epistemologies. *American Journal of Industrial Medicine*, 2025.
- The indispensable whole of work and population health: How the working life exposome can advance empirical research, policy, and action. *Scandinavian Journal of Work, Environment & Health*, 2024.
- *Complex Systems and Population Health: A Primer.* Oxford University Press, 2020.

Under Review

- Functional sustainability: A population-health outcome framework for sustaining human functioning across the lifecourse. *Nature Aging*.
- Systems Epidemiology of Working Life: Understanding how labor systems shape health, aging, human functioning, and functional sustainability across the lifecourse. *Social Science & Medicine*.

Empirical Research in Progress and Planned

- **Work-structured exposure systems, syndemic health burden, and intention to leave among European truck drivers: Findings from the EWCS 2024.** Target journal: *Scandinavian Journal of Work, Environment & Health*. Advanced manuscript

development.

- **Working-life trajectories and functional ageing among older Europeans: Longitudinal evidence from the SHARE study.** Target journal: *Journal of Epidemiology & Community Health*. Study design and analytical preparation.
- **Labour systems and working-life exposure systems across Europe: A comparative multilevel analysis of the EWCS.** Target journal: *European Journal of Public Health*. Planned empirical study.

Conference Contributions

- **Work-structured exposure systems and reduced work ability among European truck drivers: Health-burden profiles from the 2024 EWCS.** Fifth Hellenic Conference on Occupational Health and Safety, Athens, Greece, November 2026; accepted.
- **From hazard control to work-structured exposure systems: Implications of the Epidemiology of Working Life for occupational safety and prevention.** Fifth Hellenic Conference on Occupational Health and Safety, Athens, Greece, November 2026; accepted.
- Preventing health-driven attrition in the European truck driver workforce—Why drivers leave and what prevention can do. ISSA-BG Verkehr Symposium, Hamburg, Germany, 2026; presented.

Funding, Research Leadership & Collaboration

Across my academic career, I have secured more than US\$3 million in competitively funded research, including projects supported by the National Institutes of Health, the Centers for Disease Control and Prevention, and other public and institutional funders. I have served as principal investigator, co-investigator, and senior scientific collaborator, contributing to research conceptualisation, scientific direction, interdisciplinary integration, and project implementation. As Co-Principal Investigator of the recent NIH-funded project *Delineating Hispanic Immigrant Lodging and Foodservice Workers' Allostatic Load Syndemic Disparities* (2018–2023), I provided scientific leadership in research on syndemic disparities in health burden and biological stress processes among immigrant workers in the southeastern United States.

Over the course of nearly three decades in U.S. academia, I established and led interdisciplinary research collaborations spanning epidemiology, occupational and environmental health, public health, social science, systems science, and computational research. These collaborations have connected academic institutions, government agencies, occupational health programmes, industry and workforce partners, and international research networks.

I am now developing the European and international partnerships, methodological capabilities, and research infrastructure needed to establish SEWL as an integrated research programme. This effort focuses on connecting complementary population cohorts, occupational datasets, institutional contexts, biological measurements, and computational approaches to support comparative, longitudinal, multilevel, and systems-oriented epidemiological research.

Future Scientific Frontiers & European Research Agenda

The next phase of SEWL will move from conceptual development and initial applications toward systematic comparative, longitudinal, biological, and computational investigation. The programme will combine longitudinal population studies, workforce surveys, administrative registers, biological and functional measurement, and emerging digital data with lifecourse epidemiology, comparative and multilevel analysis, causal inference, exposome methods, systems and network approaches, and artificial intelligence and machine learning. Several **scientific frontiers** are particularly important:

- **Labour-System Measurement.** Developing and evaluating approaches to characterise Labour Systems and the institutional, economic, organisational, technological, regulatory, and social arrangements through which exposure-generating processes operate.
- **Working-Life Exposure Biographies.** Developing methods to reconstruct individual and population-level histories of cumulative, changing, and potentially interacting exposures across working lives, extending beyond cross-sectional and occupation-specific measures.
- **Exposure-System Phenotypes and Trajectories.** Identifying recurring multidomain exposure configurations, transitions between configurations, and their longitudinal trajectories, investigating their associations with Biological Embodiment, health, and Human Functioning.
- **Biological Embodiment.** Examining whether and how Working-Life Exposure Systems and exposure biographies become biologically embodied, including the biological processes and pathways potentially linking exposure histories to subsequent health and Human Functioning.

- [Work-Structured Ageing](#). Investigating how Labour Systems and Working-Life Exposure Systems may contribute to heterogeneity in biological ageing and trajectories of multidimensional Human Functioning across adulthood and later life.
- [Functional Sustainability](#). Developing and testing conceptual frameworks, measurement strategies, and longitudinal analytical approaches for investigating the capacity to maintain, adapt, or recover Human Functioning and participation under changing demands and circumstances.
- [Artificial Intelligence, Automation, and Technological Change](#). Investigating technological transformation not simply as an occupational exposure, but as a potential driver of Labour-System reorganisation, new exposure-generating processes, and changing distributions of working-life exposures.

Together, these directions define the transition from conceptual and methodological development toward systematic empirical investigation and testing of the mechanisms, pathways, and conditions through which Labour Systems generate Working-Life Exposure Systems and may shape health, Human Functioning, and Functional Sustainability across the lifecourse.

- [Research Metrics & Scientific Profiles](#)

Peer-reviewed publications: 120+

Citations: 8,200+

h-index: 48

[Google Scholar](#): [Yorghos Apostolopoulos](#) (<= Clickable hyperlink)

[ORCID](#): [0000-0002-8295-5577](#) (<= Clickable hyperlink)

Metrics current as of November 2026.