

Method Two types of examples are taken up, on the one hand the concepts job demand control models and the effort reward imbalance models, on the other hand single factors such as quantitative demands and quality of leadership. Through these examples we take up issues regarding conceptual definitions and measurements of psychosocial working conditions.

Results In social epidemiological research, we find that most psychosocial models and single factors are poorly defined.

Discussion The conceptual precision of models and single factors dealing with psychosocial working conditions should be improved. Research funding – being scarce – has had a focus on empirical results, i.e. the association between psychosocial factors and health, and not on theory and methods. The emerging emphasis on also interventions highlights this conceptual deficit even more.

8189663 THE JANUS FACE OF BURNOUT: MILD COMPLAINTS VERSUS DISORDER

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Burnout has two faces. On one side are mild, subclinical symptoms such as fatigue, irritability, and concentration problems—common among employees and requiring preventive action. On the other side is clinical burnout: a severe, disabling condition that requires diagnosis and treatment.

Most epidemiological research focuses on mild symptoms, often using inappropriate tools. This has led to inconsistent prevalence rates—ranging, for example, from 0% to 85% in studies on physician burnout.¹ Clinical burnout remains under-researched due to the absence of universally accepted diagnostic criteria. Although burnout is listed in ICD-11 as an ‘occupational phenomenon,’ it is not formally recognized as a medical disorder.

In this presentation, I pursue two aims. First, I introduce the Burnout Assessment Tool (BAT), a validated self-report instrument with established clinical cut-offs. Cross-national research using the BAT shows that rates of mild burnout symptoms vary considerably—from 6.6% in Finland to 25.7% in Japan.

Second, I propose diagnostic criteria for clinical burnout. These criteria build on national experiences in Sweden and The Netherlands. Sweden introduced diagnostic criteria for Stress-related Exhaustion Disorder (SED) in 2003. The Netherlands developed criteria for stress-related disorders, including burnout, in 2000. By combining these approaches, I propose a three-phase diagnostic model that distinguishes (1) early risk, (2) advanced risk, and (3) clinical burnout. This framework helps to bridge the gap between mild complaints and diagnosable disorder.

Using the BAT for identifying early symptoms and applying consistent diagnostic criteria for clinical burnout can improve the accuracy of epidemiological research and support more effective prevention and intervention strategies.

REFERENCE

1. Rotenstein LS Torre M Ramos MA Rosales RC Guille C Sen S Mata DA. Prevalence of burnout among physicians a systematic review. *JAMA* 2018;**320**:1131–50.

Monday 14:00-15:30 Minisymposium The Forgotten History of Occupational Epidemiology

8245376 INTRODUCTION TO THE MINI-SYMPOSIUM: THE FORGOTTEN HISTORY OF OCCUPATIONAL EPIDEMIOLOGY

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The ICOH Scientific Committee on the History of the Prevention of Occupational and Environmental Diseases is the convener of this symposium. The history of occupational epidemiology is being obscured. This process is accelerated through the publication of new findings that ignore a wealth of past knowledge, either through unintentional omission or even intentional insistence on only citing the most recent publications in the field. We do this at our own risk, undermining the foundations for a better understanding of outcomes in the context of changing exposures.

Moreover, this missed history also provides a vital context for investigating new, innovative and effective interventions to prevent occupational disease. While the core of occupational epidemiology is to understand the relationship between workplace exposures and health outcomes, often this requires astute clinicians and epidemiologists to identify and document these associations. This is particularly so for previously undescribed relationships in the working environment. The history of occupational epidemiology has an abundance of stories of missed relationships and evidence of the recognition of sentinel cases and events that have proven to be the turning point in occupational health. These historical events provide epidemiologists with the understanding of the methods used to unearth these relationships, engaging with the scientific community to understand health effects and initiate sophisticated epidemiological research.

In this mini-symposium, we will present sentinel occupational illness outbreaks from an historical perspective; the challenges of introducing work-related topics in the emerging discipline of public health; present brief biographies of leaders in early occupational epidemiology and examine access and lack of access to working populations in the 19th, 20th and 21st centuries, and how this has shaped occupational epidemiology currently. Speakers will provide evidence as to why understanding the history of epidemiology is critical to preventing work-related diseases in the 21st century.

8282294 WHAT PALEOEPIDEMIOLOGY CAN OFFER TO THE STUDY OF OCCUPATIONAL AND ENVIRONMENTAL DISEASES

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Objective To explore how paleoepidemiological approaches – defined as the use of historical sources and early medical

statistics to investigate patterns of health and disease in past populations – can provide insights into the relationship between work, environment, and health, using historical mortality data from early 1800s Milan as a case study.

Material and Methods This contribution revisits the pioneering work of Giuseppe Ferrario (1802–1870), founder of the ‘Accademia Fisiologica-Statistica di Milano’ and an early advocate of using parish death registers—including occupation—to study population health. Drawing on Ferrario’s methodology, a recent paleoepidemiological investigation analyzed more than 18,000 death records from Milan (1816–1822), coding age, sex, causes of death, and occupational status. This allowed us to examine the occupational and environmental determinants of mortality in an early 19th-century urban context.

Results Preliminary findings confirm a strong correlation between certain occupations and specific causes of death. Among seamstresses, for example, 30% of deaths were attributed to tuberculosis, as compared to 22% among the other workers (p -value < .001). This pattern appears linked to confined working conditions. Other occupational clusters—such as artisans, innkeepers, and healthcare professionals—displayed recognizable mortality patterns. The analysis also revealed seasonal peaks in mortality, particularly during winter months, suggesting the interaction of occupational exposure with climatic factors. The availability of meteorological and economic variables further enabled an ecological analysis of health risks.

Conclusion Paleoepidemiology offers a powerful lens to investigate occupational and environmental health in historical contexts, revealing patterns that remain relevant for contemporary research. By recovering and analyzing forgotten or underused data sources, it strengthens our ability to trace the long-term impact of work and environment on health – especially where modern records are lacking. The work of Giuseppe Ferrario exemplifies how early epidemiological practices can inform today’s efforts to understand and prevent occupational disease.

8287664 WORK-RELATED TOPICS WHEN THE DISCIPLINE OF PUBLIC HEALTH WAS EMERGING

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Objective To understand how work-related hazards contributed to the emergence of public health as a formal discipline.

Material and Methods A review of historical literature was conducted and key conditions summarised.

Results The industrial revolution of the 18th and 19th centuries transformed working conditions. Workers were exposed to hazardous conditions including physical and chemical dangers, exploitation (especially of children) and unsanitary conditions with subsequent development of respiratory (and other) occupational diseases. In the UK, lawyer Edwin Chadwick’s Health Report (1842) documented links between occupational factors, poverty and health and led to introduction of the Public Health Act 1848. Medical literature evolved from case reports into descriptive occupational cohorts, with convincing patterns even absent formal statistical tools.

Such examples include pneumoconiosis, which was described in coal miners in the 16th century, but which by the 19th century had been linked to coal dust inhalation. Miners’ ‘phthisis’ was prevalent and likely represented silico-

tuberculosis—two conditions that even now are difficult to disentangle. The high mortality amongst miners led to employment of some of the UK’s earliest occupational physicians.

In the Sheffield cutlery factories, metal grinders developed ‘Grinder’s Asthma’ – now known to be silicosis from high-speed grinding using sandstone or gritstone wheels – with high mortality from respiratory failure. In 1819, Sir Arnold Knight observed that almost no grinders lived beyond 50 years; subsequent analyses demonstrated their excess mortality compared to that of the general population.

In 1832 Charles Thackrah identified ‘shoddy fever’ in textile workers who developed respiratory disease from inhalation of cotton and other dusts. Later called lyssinosis, perhaps mistakenly from ‘lyssa’, before being renamed byssinosis (from byssus from the fibres from which it arises).

Conclusion Early observations of work-related lung disease laid the foundations for the plethora of occupational diseases more generally that we see today and the discipline of occupational medicine.

8230810 BRIEF BIOGRAPHIES OF LEADERS IN EARLY OCCUPATIONAL EPIDEMIOLOGY

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Objective The biographical details of leaders in the field can help retrieve key parts of the neglected history of occupational epidemiology

Material and Methods The history of occupational epidemiology was reviewed from a biomedical and a historiographic perspective. Persons were considered leaders in the field if they carried out investigations among working groups, identifying risk factors or interventions to prevent or ameliorate adverse health outcomes and whose work influenced practice and policy. Shared biographical attributes among these figures were explored for general insights they provide.

Results The biographies of six persons spanning three centuries are considered: James Lind (1716–1794); Louis-René Villerme (1782–1863); Alice Hamilton (1869–1970); Austin Bradford Hill (1897–1991); Alice Stewart (1906–2002); Archie Cochrane (1909–1988). All made important contributions in occupational epidemiology. Lind’s work as a Naval physician concerned ‘sea scurvy,’ a life-threatening occupational disease among sailors, carrying out what is arguably the first clinical trial for any disease. Villerme is a founder of modern demography whose work on the health of textile workers was central to his oeuvre. Hamilton’s survey research methods among rayon workers set a new benchmark. Hill, remembered for his work on smoking, started off studying industrial fatigue. Stewart’s work on clinical radiation exposure eclipses appreciation of her study of nuclear industry workers. Cochrane, closing the circle with Lind, is renowned for promoting clinical trials, but this was rooted in his experience in pneumoconiosis research. All championed marginalized populations, a shared link to occupational epidemiology.

Conclusion Occupational epidemiology owes a great debt to these figures, whose contributions warrant an integrated consideration to inform our own work and our training of future practitioners in the field.

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