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Contributions of Epidemiology to the study of the relationships between work and health: reflections on the thematic dossier and the challenges for the scientific field

Contribuições da Epidemiologia para o estudo das relações entre trabalho e saúde: reflexões sobre o dossiê temático e os desafios para o campo científico

In November 2021, the Brazilian Journal of Occupational Health (RBSO) issued a public call for article submissions for a thematic dossier titled *Contributions of Epidemiology to the Study of the Relationships Between Work and Health*¹. The objective of the call was to promote the dissemination of epidemiological studies and methods, aiming to expand knowledge about occupational risks and the health conditions of workers. It also aimed to contribute to the improvement of surveillance and prevention of work-related diseases and injuries, as well as the promotion of the working population's health.

In response to the call, 95 articles were submitted, of which 28 were sent for peer review. Among these, 16 were accepted for publication. Some of the published articles report studies that included workers from specific sectors, such as healthcare²⁻⁵, education^{6,7}, mining^{8,9}, and agriculture¹⁰. In addition to primary source studies, data from Brazilian national information systems were also explored, such as the National Health Survey (PNS)^{11,12}, the Mortality Information System (SIM), and the Information System for Notifiable Diseases (SINAN)^{13,14}. One article presented results from the Global Burden of Disease study¹⁵, whereas two articles derived from the Longitudinal Study of Adult Health (ELSA-Brazil)^{16,17}. Among the published articles, there are various types of epidemiological observational study designs, both descriptive and analytical. The topics studied include workplace accidents, non-communicable chronic diseases, mental health, oral health, and communicable diseases.

The articles also address barriers and challenges to conducting more robust analyses of the of workers' health in Brazil. They highlight limitations related to the use of secondary data in epidemiological studies due to issues with coverage and data quality in health information systems. Nevertheless, these studies were able to shed light on important issues, such as the one that described the profile of work-related accidents and fatalities among children and adolescents⁶. Given the relevance of the topic and the alarming results presented in the article, it received significant attention in the media from various regions of Brazil¹⁸⁻²².

This dossier provides a set of contributions to the production of knowledge in the field of health and work in Brazil, anchored in the use of Epidemiology. Recognizing the role of work in determining and influencing the health-disease process of workers has ethical, technical,

and legal implications that affect the organization and provision of health services for this broad segment of the population²³. Highlighting this role and emphasizing critical issues (structural or circumstantial) that weaken or hinder the health of populations in their work experiences has been the focus of RBSO. Epidemiology supports this mission as the science capable of developing, validating, or refuting a wide range of quantitative health analyses using its own methodological tools.

In addition to its essentially critical perspective aimed at safeguarding its scientific status, Epidemiology makes a significant contribution to health practices in Brazil, including those related to the health of workers. By incorporating instruments and frameworks from Brazilian Public Health and by providing technical and legal foundations as established in the 1988 Federal Constitution and regulated by the Organic Law on Health (LOS), the epidemiological framework contributes to health practices coordinated by the Unified Health System (SUS)²⁴. It is by its rationale—the so-called “epidemiological method”—that health indicators are produced, and risk and protection factors for health are identified, which can guide the formulation of well-founded public policies informed by scientific evidence²⁵.

As mentioned, the possibilities of using Epidemiology in the field of occupational health in Brazil are numerous and have played a prominent role throughout the many struggles for workers’ health. The dossier records a part of the current development of this use, with its theoretical, conceptual, methodological contributions, along with applications and practices, highlighting both its strengths and barriers. However, for these possibilities to become a reality, it is necessary to engage on a vigorous process of discussing and reflecting on the barriers and limitations faced, as well as considering alternatives for overcoming them. This is a necessary and beneficial debate.

Aspects related to the characteristics of the predominant epidemiological studies should be better identified and understood. It is worth noting that most studies conducted in the country still rely on single point-in-time data (cross-sectional studies) or the description of data from information systems. Local studies that evaluate specific categories of workers in well-defined geographic areas predominate. Meanwhile, longitudinal and intervention studies are rare, and multicenter or national-based studies are virtually nonexistent.

In this context, at least three problems can be identified. The first is the scarcity of funding for research in occupational health, with specific calls for proposals being rare. Researchers face difficulties in conducting more financially demanding investigations, such as cohort studies. The second problem involves limited access to work environments, which is almost a rule in corporate settings, whether private or public. Overcoming this type of barrier is crucial for advancing the production of more robust evidence with clearer practical implications. The third issue concerns the incorporation of research results into institutional programs and actions, despite the willingness of social actors in specific situations.

Within the agenda of activities to address the mentioned challenges, aiming at strengthening Epidemiology in Workers’ Health in Brazil, the dossier presents elements that justify: a) expanding the interface of interest and collaboration with other areas of knowledge and practices (Social Sciences, Biology, Economics, Social Services, Law, and Social Control, among others); b) improving the coverage and quality of information systems in the field of workers’ health; c) broadening the perspectives of using existing data with information technology and artificial intelligence tools; d) promoting interinstitutional partnerships with a focus on surveillance actions and multicenter studies; and e) developing and adapting study methods that can provide timely results, keeping pace with the rapid changes in the world of work^{26,27}.

One final noteworthy aspect is the affirmation of the role of work in the health-disease processes of populations and in the structuring of social health inequalities. In this sense, it is important to position work as a structural factor in the production and reproduction of social inequalities, providing both protection and vulnerability to the health of large populations²⁸. Epidemiology, with its ability to produce empirical evidence based on the quantification of the investigated events, has much to contribute. We hope that this dossier can encourage the use of epidemiological methods and inspire initiatives for new and innovative steps in building a work life that promotes health and meaning for all groups of workers.

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