

Ada Ávila Assunção^{a*} <https://orcid.org/0000-0003-2123-0422>

^a Universidade Federal de Minas Gerais, Programa de Pós-graduação em Saúde Pública, Faculdade de Medicina. Belo Horizonte, MG, Brazil.

* Editor-in-Chief of RBSO

Contact:

Ada Ávila Assunção

E-mail:

adavila@medicina.ufmg.br

Study on workers' health in the face of changes in work and employment: paths for a research agenda

Saúde dos trabalhadores em face das transformações do trabalho e emprego: caminhos para uma agenda de pesquisa

Since the 1980s, in Brazil and other countries, concepts and methods have been developed to address the issue of workers' health (WH), based on the study of the characteristics of the mode of production in society and specific work processes¹. It has been understood that being healthy, falling ill, recovering partially or completely, enjoying longevity, or dying prematurely are all expressions of life constantly related to both the activity performed by the working adult and the guarantees that their job provides them. This perspective, which underlies the links between the macrostructure and the health scenario at the collective and individual levels, is still highly relevant². In this Editorial, we will first discuss the evidence in WH related to the transformations underway in the first decades of the new millennium. Then, we will contemplate the need for different formulations and methodological improvements.

The scale and speed of economic and political transformations have had health consequences that have affected groups in and out of the workforce. Looking at the groups of employees included in the workforce, among numerous health outcomes, shift work was found to increase the risk of dementia³. Precarious work was found to increase the risk of stroke and possibly of myocardial infarction⁴. The risk of stroke was higher in the group of employees working long hours when compared to those working regular hours⁵. In several countries, a high burden of cardiovascular disease and depression has been attributed to exposure to psychosocial factors at work⁶.

A wide range of work scenarios do not involve a specific place to carry out activities, such as services guided by digital platforms, examples of which include passenger transport and product delivery⁷. In Brazil⁸ and other countries of the global South⁹, the proportion of workers in unstable employment situations has increased, along with that of workers who are unable to find a place in the production process. Therefore, it is not enough to study only groups of formally hired employees¹⁰. As for work processes, both in industry and agribusiness, archaic production and processes with high technological density coexist in the same territory. This situation is one of the consequences of the globalized economy under neoliberal ideas, whose model simultaneously preserves, intensifies, and overcomes both the employment relations and the labor risks identified in the 20th century⁹. Addressing this complex reality requires sensitivity and conceptual refinement, which justifies the inclusion of epistemic challenges in the research agenda.

Recent initiatives focused on the study of climate change point to the intensification of losses due to the physical exhaustion of workers in mining, steel and metallurgy, industrial wastewater treatment, among other sectors¹¹. Regarding chemical safety, methods to outline the risks of nanotechnology have provided new insights. For example, workers are at additional risk of exposure to nanoparticles when compared to the general population, since the production of these materials, whether accidental or not, is higher in workplaces than in other environments.

How to cite (Vancouver):

Assunção AA. Study on workers' health in the face of changes in work and employment: paths for a research agenda. Rev Bras Saúde Ocup [Internet]. 2024;49:eedf1. Available from: <https://doi.org/10.1590/2317-6369/00124en2024v49eedf1>



Qualitative research has been proposed as an evaluation method, based on the results of previous studies that have identified different risk ranges according to the tasks performed in the industry¹². This can be seen in innovative designs related to previous environmental assessment models.

The Global Burden of Disease Study (GBD) includes common occupational carcinogens such as arsenic, acids, benzene, beryllium, cadmium, chromium, diesel, formaldehyde, nickel, polycyclic aromatic hydrocarbons, passive smoking, silica, and trichloroethylene. In Brazil, these agents have stood out in the ranking of years lived with disability added to those not lived due to noncommunicable diseases (NCDs)¹³. The gaps in knowledge identified in this area aroused interest in the fields of biology, epidemiology, and ethnography, with the profiling of shared objects.

Research in economics and the sociology of work has identified, among other characteristics, gender inequalities in the structure of the labor market and in the distribution of the workforce according to sex in productive sectors¹⁴. Women are overrepresented in sectors characterized by prolonged sitting postures and by the need for continuous visual effort, whether on digital equipment or in industrial quality control situations. Knowledge of the impacts of these scenarios on health was disseminated in Brazil in the 1990s in a context of intense social debate, which culminated in the approval of specific regulations, notably Regulatory Norm n° 17, in which the gender-neutral approach predominates.

In the industrial era, we have observed a prevailing model focused on occupational medicine and the arsenal of the risk map. In counterpoint, advances in care models in the Brazilian Unified Health System (Sistema Único de Saúde [SUS]) have established public and universal lines of health care and surveillance programs based on the principles of the universal right to access and respect for human dignity¹⁵.

Debates in the legal-labor field have been enlightening as to the level of satisfaction of these rights, but it has not yet been possible to incorporate this knowledge into the design of control techniques in work scenarios. This finding encourages original epistemological frameworks.

In Brazil, the discussion on WH emerged from the intertwining of union struggles, academic practices, and institutional contexts. This process integrated debates, values, and interests of social actors. Via multilateral collaborations, negotiations have been successful on several occasions, such as the recognition of Repetitive Strain Injuries in the 1980s and the ban of asbestos by the Federal Supreme Court in 2017. However, there are cases that have not yet overcome institutional barriers, such as vocal effects related to excessive use of the voice. In fact, to date, occupational diseases and typical fatal and non-fatal accidents at work have been considered the main indicators in the list of institutional measures. However, in our opinion, there is an urgent need to build valid arguments to support the construction of other indicators, especially methods for their operationalization. First and foremost, there has been a reduction in typical accident rates⁷. Secondly, male and female workers are part of a population in which there is an increasing prevalence of types of morbidity that are difficult to fit into the unicausal model that guided the creation of these classical indicators. For example, the prevalence of mental illness is disproportionately high among low-income populations, especially young people, because many mental illnesses emerge during this sensitive phase of the life cycle. There is evidence of unbearable negative psychological effects when long hours are combined with a fast pace and demands for attention to quality control or monitoring of processes, which is frequent for those who work as hypermarket cashiers or in assembly lines for car parts, where young people are overrepresented. Overall, these situations are associated with negative health behaviors, including alcohol consumption, smoking, high-calorie diets, sedentary lifestyle during leisure time, and others, which have been identified as the main risk factors for prevalent and disabling NCDs¹⁶. Numerous studies on these behaviors have been conducted in Brazil, without systematically considering occupational factors¹³.

The consideration of models to support the formulation of labor protection and prevention programs within the scope of public health is a challenge placed on the WH research agenda¹⁷. The results mentioned above are arguments for reflecting on strategies for sharing, disseminating, and applying scientific knowledge, which in turn are crucial for defining guidelines for methodological proposals. This step would facilitate the review and redefinition of occupational surveillance programs without discarding updates to current regulatory axes¹⁵. In this sense, it is important to stimulate a systematic reflection on: public policies in WH¹¹, considering the current profile of the workforce¹⁴; the concepts of occupational exposure¹⁷; the outdated methods of research and assessment of health

and work scenarios^{1,2}; the new perspectives on occupational safety^{17,18}; the macropolitical trends that determine employment^{8,14}; and the gaps in public planning⁹. Elements are likely to be produced to understand the links between work scenarios and gender, to protect workers from climate change, or to limit traditional methods of assessing hazardous exposure in the face of technological innovations in production processes and systems.

We recognize the complexity of making proposals to convert knowledge into conceptual approaches and developing complex models today. Given this reality, intellectual efforts will be necessary to adapt or go beyond constructs produced in a context that has already been overcome, thus privileging, as in the past, academic and social dialogue, especially considering that a quarter of this century has already passed.

References

1. Lucchini RG, London L. Global occupational health: current challenges and the need for urgent action. *Ann Glob Health* [Internet]. 2014 [cited 2024 apr 11];80(4):251-6. Available from: <https://doi.org/10.1016/j.aogh.2014.09.006>
2. Peckham TK, Baker MG, Camp JE, Kaufman JD, Seixas NS. Creating a future for occupational health. *Ann Work Expo Health* [Internet]. 2017 [cited 2024 apr 11];61(1):3-15. Available from: <https://doi.org/10.1093/annweh/wxw011>
3. Gao Y, Fu X, Hu H, Li T, Yuan L, Zhang J, et al. Impact of shift work on dementia: a systematic review and dose-response meta-analysis. *Public Health* [Internet]. 2023 [cited 2024 apr 11];223:80-86. Available from: <https://doi.org/10.1016/j.puhe.2023.07.029>
4. Matilla-Santander N, Muntaner C, Kreshpaj B, Gunn V, Jonsson J, Kokkinen L, et al. Trajectories of precarious employment and the risk of myocardial infarction and stroke among middle-aged workers in Sweden: A register-based cohort study. *Lancet Reg Health Eur* [Internet]. 2022 [cited 2024 apr 11];15:100314. Available from : <https://doi.org/10.1016/j.lanepe.2022.100314>
5. Kivimäki M, Jokela M, Nyberg ST, Singh-Manoux A, Fransson EI, Alfredsson L, et al. Long working hours and risk of coronary heart disease and stroke: a systematic review and meta-analysis of published and unpublished data for 603,838 individuals. *Lancet* [Internet]. 2015 [cited 2024 apr 11];386(10005):1739-46. Available from: [https://doi.org/10.1016/s0140-6736\(15\)60295-1](https://doi.org/10.1016/s0140-6736(15)60295-1)
6. Sultan-Taieb H, Villeneuve T, Chastang JF, Niedhammer I. Burden of cardiovascular diseases and depression attributable to psychosocial work exposures in 28 European countries. *Eur J Public Health* [Internet]. 2022 [cited 2024 apr 11];32(4):586-92. Available from: <https://doi.org/10.1093/eurpub/ckac066>
7. European Agency for Safety and Health at Work. Occupational safety and health in Europe: state and trends 2023 [Internet]. Luxembourg: Publications Office of the European Union; 2023 [cited 2024 apr 11]. Available from: <https://osha.europa.eu/en/publications/occupational-safety-and-health-europe-state-and-trends-2023>
8. Manzano MC, Krein JD, Abilio LC. The dynamics of labour informality in Brazil, 2003-2019. *Global Labour J* [Internet]. 2021 [cited 2024 apr 11];12(3):227-43. Available from: <https://doi.org/10.15173/glj.v12i3.4434>
9. Daza GS, Ita MEM. Cambios y retos en las relaciones laborales. México 2018-2022. *Rev Ciencias Sociales* [Internet]. 2023 [cited 2024 apr 11];36(52):107-34. Available from: <https://doi.org/10.26489/rvs.v36i52.5>
10. Chiavegatto CV, Algranti E. Políticas públicas de saúde do trabalhador no Brasil: oportunidades e desafios. *Rev Bras Saúde Ocup* [Internet]. 2013 [cited 2024 apr 11];38(127):25-7. Available from: <https://doi.org/10.1590/S0303-76572013000100005>
11. Schulte PA, Bhattacharya A, Butler CR, Chun HK, Jacklitsch B, Jacobs T, et al. Advancing the framework for considering the effects of climate change on worker safety and health. *J Occup Environ Hyg* [Internet]. 2016 [cited 2024 apr 11];13(11):847-65. Available from: <https://doi.org/10.1080/15459624.2016.1179388>
12. Sousa M, Arezes P, Silva F. Occupational exposure to ultrafine particles in metal additive manufacturing: A qualitative and quantitative risk assessment. *Int J Environ Res Public Health* [Internet]. 2021 [cited 2024 apr 11];18(18):9788. Available from: <https://doi.org/10.3390/ijerph18189788>
13. Assunção AA, França EB. Years of life lost by CNCD attributed to occupational hazards in Brazil: GBD 2016 study. *Rev Saúde Pública* [Internet]. 2020 [cited 2024 apr 11];54:28. Available from: <https://doi.org/10.11606/S1518-8787.2020054001257>
14. Vaz DV, Botassio DC. Occupational feminization and pay: The case of Brazil. *Brazil Rev Econometrics* [Internet]. 2023 [cited 2024 apr 11];42(1):e0220221. Available from: <https://doi.org/10.12660/bre.v42n12022.85018>
15. Silva RH, Vasconcellos MA. Do poder das justificações às justificações de poder: A análise das controvérsias em torno da tramitação do projeto de lei da reforma trabalhista brasileira. *RDP* [Internet]. 2023 [cited 2024 apr 11];20(107):278-303. Available from: <https://doi.org/10.11117/rdp.v20i107.7267>

16. Assunção AA, Claro RM. Characteristics of work and employment related to leisure-time physical activity: Results of the National Health Survey, Brazil, 2013. *Ann Work Expo Health* [Internet]. 2022 [cited 2024 apr 11];66(1):102-12. Available from: <https://doi.org/10.1093/annweh/wxab061>
17. Hurtado SLB, Simonelli AP, Mininel VA, Esteves TV, Vilela RAG, Nascimento A. Políticas de Saúde do Trabalhador no Brasil: contradições históricas e possibilidades de desenvolvimento. *Cienc Saúde Colet* [Internet]. 2022 [cited 2024 apr 11];27(8):3091-102. Available from: <https://doi.org/10.1590/1413-81232022278.04942022>
18. Jackson-Filho JM. Perspectives of the new safety. *Rev Bras Saúde Ocup* [Internet]. 2022 [cited 2024 apr 11];47:e22. Available from: <https://doi.org/10.1590/2317-6369ed222pt2022v47e22>