

Study assesses multimorbidity in nickel industry workers and recommends how to prevent it

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Credit: Russian Foundation for Basic Research

A RUDN University doctor named the reasons why nickel industry workers may develop several chronic diseases at once. The authors analyzed long-term data, identified the main risk factors, and suggested how to improve the situation. [The results](#) were published in the

International Journal of Circumpolar Health.

Multimorbidity is a condition in which a patient simultaneously has two or more [chronic diseases](#) that are not related to each other. Industrial workers exposed to [hazardous substances](#) generally have an increased risk of multimorbidity. It reduces the standard of living of industrial workers and increases the risk of disability and premature death. A RUDN doctor analyzed 15 years of data on occupational diseases among [nickel](#) industry workers to assess the extent of multimorbidity and its main causes.

"The health of production workers is one of the most important indicators of social well-being. The quality and standard of living is assessed, among other things, by the number of people with occupational diseases. However, multimorbidity has not yet attracted the attention of occupational medicine doctors and occupational safety specialists. Therefore, we set a goal to obtain data on the development, prevalence, and nature of occupational multimorbidity among workers in the nickel industry," said Denis Vinnikov, MD, Professor of the Department of Biochemistry, RUDN University.

Doctors took data from the register of diagnosed occupational diseases from 2007 to 2021 in two regions of Russia. The register included data on all cases of diagnosed occupational diseases. In Russia, the list of such diagnoses includes 800 diseases. Of these, nickel compounds can cause about 15.

During the study period, a quarter of nickel industry workers with diagnosed occupational diseases showed multimorbidity. Of these, 14.9% suffered simultaneously from two chronic diseases, 5% were diagnosed with three diseases at once, four—in 3.4%, and five—in 2.5%. Just under 1% of workers suffered from six chronic diseases simultaneously. The number of diagnoses during this time increased

threefold.

The most common diseases were the respiratory system and the musculoskeletal system. They occurred in 31.5% and 23% of workers, respectively. RUDN University doctors and colleagues from St. Petersburg also identified the most likely causes of multimorbidity among workers in the nickel industry. That is many years of work in a dangerous position, poor quality of clinical examination, and outdated production equipment.

"Occupational multimorbidity occurs due to a combination of occupational risk factors, outdated technologies, and working conditions. To prevent multimorbidity, it is necessary to improve working conditions and improve the quality of regular medical examinations. It is also important not to exceed the recommended period of employment in hazardous industries. The employee's willingness to extend employment cannot be justified, because this worsens his health," said Vinnikov.

More information: Sergei Syurin et al, Occupational multimorbidity in the nickel industry workers, *International Journal of Circumpolar Health* (2023). [DOI: 10.1080/22423982.2023.2231618](https://doi.org/10.1080/22423982.2023.2231618)

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