

HEALTH STATUS OF WORKERS WORKING IN COPPER PRODUCTION ENTERPRISES

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Abstract. *Health and illness are the product of the social environment under the influence of various conditions and factors. Health and illness are the product of human life activity, and the difference between them is the conditions that ensure this life activity. If such conditions are favorable for a person, for his life activity, for his feeling, this is health, but if it is limited, constricted, disturbed, disease will appear and lead to illness.*

Keywords: *mining industry, copper, age, length of service, health status, illness, harmful and dangerous working conditions, risk factors, temporary incapacity for work.*

According to the definition of the World Health Organization (WHO): "Health is not only the absence of disease and physical infirmity, but also the possession of a healthy physical, mental and social state. This definition is given in the WHO regulation adopted in 1948. (1,12,16)

Occupational health is understood as the ability of the human body to maintain compensatory and protective properties that ensure work under certain activity conditions (3,9,11).

Disease is the result of the complex impact of environmental factors (production, social, climatic, etc.) on a population of people who are different in terms of susceptibility to diseases. (21)

Occupational diseases are diseases caused by harmful production factors. According to the experts of the International Labor Organization, about 190,000 people in the Russian Federation are disabled every year due to poor working conditions (2,13). According to Russian doctors, since the 1930s, the number of registered occupational diseases in the Russian Federation has not been systematically assessed (14), so there is no objective picture of what is happening, and this makes it difficult to develop the appropriate state policy.

The authority of the international labor protection organization provides the following definition as an international standard: Occupational disease is a disease that develops because of the impact of risk factors related to work (ILO/ Recording and notification of occupational accidents and diseases. An ILO code of practice — Geneva: ILO, 1996)

However, work-related morbidity is not always easy to identify. In fact, many diseases can be related to working conditions. On the one hand, there are classic occupational diseases that are relatively easy to identify and are associated with one causative factor in nature. On the other hand, there are various occupational diseases that do not have a strong and clear connection with work, but the reason for this is related to many factors. Most of these diseases, whose etiology is multifactorial, can be associated with professional activity only under certain conditions.

There are general criteria for determining occupational diseases: exposure-injury relationship between the occurrence of a certain disease in a certain work environment or type of activity; exposure-injury relationships must be clearly defined based on clinical data, analysis of past and present occupational activities, and epidemiological data (7,9).

Illnesses associated with OD in workers cause huge economic losses. Working conditions can play an important role in forming the level and composition of the disease (8, 16; 17; 20; 31). Morbidity associated with working conditions is a part of morbidity that fills the "background" formed as a result of the influence of social, demographic and other factors common to the entire population. (4,5).

OSH-related illnesses and injuries are a direct result of unsatisfactory working conditions and occupational health and safety. In 2004, 11,019 occupational diseases and poisoning cases were registered in Russia (10,069 cases in 2003). In 2004, the incidence rate per 100 employees was 202.7 (185.2 in 2003). 94% of the total number of diseases associated with OSH are chronic, usually accompanied by loss of work ability and disability.

As part of chronic diseases, respiratory diseases (36-37%), including dust bronchitis (10-12%) and silicosis (9-10%) took the leading place; vibration disease (25-26%); musculoskeletal system diseases (10-12%); ear diseases (12%). In production, poisoning is caused mainly by carbon monoxide (8-15%), lead and its compounds (8-11%), mercury (7-8%), chlorine (7-9%), and 10-18 deaths are caused by poisoning every year are noted (22,24,25.).

The most common reasons leading to OSH: imperfection of technological processes; design flaws in machinery and equipment; violation of the reliable operation of complex and personal protective equipment and systems of workplaces, non-compliance with safety requirements, work and rest regimes.

In 1999, the data on the total number of cases of ODs in the regions and cities of the republic of Uzbekistan are as follows: Tashkent city - 2801, Tashkent - 2045, Fergana - 824, Samarkand - 751, Andijan - 414, Namangan, Bukhara - 313- 299, Syrdarya - 218, Republic of Karakalpakstan – 140, Khorezm – 134, Kashkadarya – 130, Navoi – 119, Surkhandarya – 116 and Jizzakh – 44.

Data on general diseases related to OD according to nosological forms: diseases of respiratory organs (1700), diseases of the ear and mastoid process (1200), vibration disease (1006), pesticides (925), brucellosis (350), skin diseases (325), industrial poisoning shows the spread of toxic substances (mercury, lead, organic solvents, etc.) (370) and others. (30,33).

The importance of certain factors which is negatively affecting the health status of workers varies by gender and age. The contribution of environmental factors to the development of these negative effects largely depends on the age of the studied population, the nature of the disease and the nosological form of the disease, as well as professional activity. Each age period is characterized by the predominance of certain factors, the change of some factors to others. The same factors, their same levels and intensity contribute differently to the development of diseases in different age groups

Thus, the health status of older workers is more negative than that of younger workers, their functional abilities or physical capabilities often decrease, and it is accompanied by a decrease in resistance to external stressful situations (17,23).

Research in Finland has shown that the frequency of chronic diseases increases in parallel with the aging of workers, and many of these diseases have a negative impact on performance.

A study conducted in the United States shows that morbidity from the main causes (cancer, heart disease, diabetes, arterial hypertension, and atherosclerosis) is increasing, while among the elderly, the incidence of skin diseases, diseases of the organs of vision and hearing, and many orthopedic problems is decreasing. (29).

The primary production group leads in terms of the number of cases and loss of work days associated with OSH, followed by equipment repairers, lifters, drillers, and grinders (16).

For the main trades of workers (metallurgy, crushing and grinding), the number of OD cases is much higher than in the conditional control group, which allows us to conclude that the factors of the production environment have a certain influence depending on the age of the workers(15,16).

In the world, research on a systematic approach to the health and risk factors management of mining workers is being carried out in the following priority areas, including the justification of the positive and negative effects of the factors characterizing the working conditions of underground mine workers on the health status and work ability; developing a method of determining occupational diseases among workers and temporary loss of working capacity, the level and composition of morbidity; improving the assessment of occupational hazards and working conditions affecting workers (17,18).

Many scientific studies have shown that the incidence of OD remains particularly high among underground miners, with a growth rate of 2.09 from 2006 to 2015. The rate of occupational disease among underground workers is 4 times higher than among those who work in open pit mining. The main types of occupational pathology registered in these enterprises are physical factors (vibration disease, neuritis of the auditory nerve), dust (pneumoconiosis, dust bronchitis), as well as diseases associated with overstrain of certain organs and systems. In recent years, the number of overexertion-related illnesses has been increasing, especially among open-pit mine workers.

Thus, a comparison of the literature data on the study of the working conditions of workers working in copper production enterprises with the prevalence of disease by disease classes and their levels may be pathogenetically related to the factors of the working environment.

At the same time, there is almost no literature data on the study of the impact of working social factors on morbidity. The authors often focused on the effect of physical and chemical factors. However, they took little or only partial account of the whole complex of various risk factors in the environment. Most scientific research data does not cover the effects of climate conditions. This dissertation work was undertaken to provide the information needed to develop health promotion interventions for workers, taking into account the impact of the entire set of risk factors.

In the literature, the state of non-specific morbidity of developing workers under the influence of various production and professional factors and methods of study are widely covered (12).

CONCLUSION

A comparison of the data of the studied scientific literature on the study of the working conditions of workers working in copper production enterprises with the prevalence of disease by disease classes and their levels may be pathogenetically related to the factors of the working environment.

The authors often focused on the effect of physical and chemical factors. Most scientific research data does not cover the effects of climate conditions. Collective, complex scientific works have not been conducted to connect the whole set of risk factors with production conditions and lifestyle of workers.

It is possible to improve the level of health of workers, their working and living conditions and recreation, creating safe and optimal working conditions, and scientific solutions to the problems that have arisen.

Taking into account the above, a comprehensive study of the health risk factors of mining workers (related to production and lifestyle) and, based on them, development of scientifically based recommendations aimed at improving the health of workers, reducing cases and days of incapacity for work, occupational diseases, and preventing risk factors prompted to exit.

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