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RISK OF DEVELOPMENT OF INDUSTRIALLY RELATED DISEASES OF SEWER-MOTORISTS OF MODERN SEWING INDUSTRIES

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ABSTRACT

The conducted research established that the working conditions of seamstresses-motorists belong to class 3, 3rd degree of harmfulness, they can cause an occupational risk of developing diseases in workers. According to the “microclimate” factor, there is a likelihood of risk of developing general somatic pathologies of the respiratory system, circulatory system, digestion, skin, visual and auditory analyzers, musculoskeletal, genitourinary systems, blood disorders during the cold period of the year and the risk of injury to the fingers from -for sweaty palms during warm periods. a, sewing production, seamstresses-machine operators, occupational risk. According to the “noise” factor, professionally caused 2nd degree of hearing loss is possible with 40 years of experience, and according to the “vibration” factor, there is a risk of developing spasm of the blood vessels in the hands. According to the factor “severity of the labor process,” there is a likelihood of the formation of functional and pathological disorders of the muscles of the shoulder girdle. The intense nature of the work process of seamstresses-motorists indicates the likelihood of an occupational risk of developing neurotic disorders, hypertension and coronary heart disease.

Key words: occupational health, sewing production, seamstress-machine operators, occupational risk.

INTRODUCTION

In Uzbekistan, one of the most dynamically developing sectors of the economy is the textile industry, which demonstrates high rates of growth in production. In the structure of the textile industry, one of the first places is occupied by sewing production, where high-performance equipment, flow, automated lines operate [1]. The dynamics of modern socio-economic conditions

reflects the change in social and labor relations. At present, an employee is perceived as a subject of labor, capable of self-realization in the process of labor activity. In this regard, the protection of the health of personnel acquires special significance, determining not only the quality of labor capital, but also the productivity of employees. In this case, we are talking about the conditions and nature of work, their impact on human health and performance. According to experts, satisfaction with working conditions can act as an integrating indicator covering the entire variety of conditions in which a person's labor activity takes place [10]. Hazardous working conditions are determined by the presence of harmful or hazardous production factors, the impact of which throughout the working day creates a threat of serious occupational diseases. Here, a harmful production factor is understood as a factor either caused by the production environment or caused by the work activity itself, which negatively affects the health of the employee. With prolonged exposure, harmful production factors can contribute to the occurrence of occupational diseases, including causing a persistent or temporary decrease in performance [12].

Sewing production is one of those industries where labor differentiation is high with low energy costs, which does not allow such labor processes to be classified as heavy, but they require significant visual and psycho-emotional stress. Due to the radical technical re-equipment and introduction of progressive production methods, the study of working conditions in sewing industries, their impact on the functional state of the workers' body, the identification of production factors that can cause the development of work-related diseases, and the development of scientifically based preventive measures are currently acquiring urgent hygienic significance.

The purpose of the research is to study the working conditions of seamstresses and assess the professional risk of developing work-related diseases in them.

MATERIALS AND METHODS OF RESEARCH

The research was conducted at the Tashkent sewing joint venture "Tashteks". Working conditions were studied by traditional methods using a psychrometer, anemometer, aspirator, lux meter, noise meter in accordance with the requirements of the Sanitary Rules, Norms and Hygienic Standards of the Republic of Uzbekistan No. 0294-11 [4], 0069-24 [5], 0324-16 [7], 0325-16 [8], 0326-16 [9], building codes and regulations 2.01.05-19 [16].

Occupational risk was assessed in accordance with the Guidelines for assessing occupational risk to workers' health. Organizational and methodological foundations, principles and criteria for assessment. [14], as well as with the Methodological Guidelines for developing a model for predicting occupational risk

and preventive measures for workers' health [6], taking into account that occupational risk is divided into 7 categories: no risk, negligible (tolerable) risk, low (moderate) risk, medium (significant) risk, high (intolerable) risk, very high (intolerable) risk, extremely high risk and risk to life.

RESULTS AND DISCUSSION

The conducted research showed that at the surveyed sewing production, seamstresses-motorists perform conveyor sewing of products (T-shirts, tank tops, tracksuits). In total, 8-10 people are involved in one conveyor line (cell). During a shift, 1 cell produces from 600 to 800 pieces of products. It was established that the dust level at various workplaces of seamstresses-motorists fluctuated from 0.5 to 0.8 mg/m³, with average values of 0.75±0.02 mg/m³, i.e. did not exceed the hygienic regulations. The average shift air temperature in the cold observation period was equal to 17 ± 0.07 ° C, with a relative humidity of 50.1 ± 0.7% and mobility of 0.69 ± 0.05 m/s. During the warm observation period, the average shift air temperature was equal to 33.2±2.3 °C with a relative humidity of 35.2±2.2% and air mobility of 0.6±0.2 m/sec. The temperature index at the workplaces of seamstress motorists fluctuated from 30.1 to 30.7 °C, averaging 30.5±0.5 °C (the permissible level of the temperature index for category IIa work severity is 30.2°C), i.e. according to the temperature index, the working conditions of seamstress motorists during the warm period of the year belong to class 3, 1 degree of harm. In addition, seamstress motorists are exposed to general industrial noise up to 81-83 dB and general low-frequency vibration recorded on the cover of sewing tables, which exceeds the norms by 1-2 dB in vibration velocity. The lighting in the surveyed sewing shop is combined: natural through the side window transoms and general overhead lighting, made with fluorescent lamps at a height of 2 m 20 cm above the work tables. The illumination level fluctuated at different work places from 200 to 900 lux, the average level was equal to 520.8 ± 15.4 lux, the coefficient of natural lighting on average was equal to 7.4 ± 0.13%.

The work of sewing machine operators is performed in a forced working position - "sitting", and the performance of production operations is accompanied by stereotypical working movements of more than 6,000 per shift with a local load on the muscles of the hands and fingers. The work process is characterized by a tense nature with a high level of concentration and vision throughout the shift, monotony with monotonous, frequently repeated movements of the hands and forearms, emotional stress associated with the degree of responsibility for the quality of the manufactured products and depending on the complexity of the product.

Based on the combination of production factors (microclimate, noise, vibration, severity and intensity of the work process) [4], the working conditions of sewing machine operators belong to class 3 of 3 degrees of harmfulness (Table 1).

Table 1.

Class of working conditions of sewing machine operators by degree of harmfulness and danger

Production factors	Harmful sub-stances in the air of the working area	Noise	Vibration	Microclimate		Lighting	The severity of the work process	Intensity of the work process	Overall assessment of working conditions
				Cold season of the year	Warm period of the year				
Class of working conditions	2	3.1	3.1	33.1	3.1	2	3.2	3.3	3.3

The data obtained during the study and assessment of working conditions of sewing machine operators indicate a possible professional risk of deterioration of their health [5].

According to the indicators of air dustiness, sewing machine operators work in optimal conditions. The dust level does not exceed the MAC. There is no professional risk of developing work-related diseases from this factor.

Working conditions according to the indicator "microclimate" in the cold period of the year belong to class 3, degree 1, the level of professional risk is low (moderate), the category of evidence is -2 (suspected). Exposure to low air temperature can increase the risk of developing general somatic pathology of the respiratory system, circulatory system, digestion, skin, visual and auditory analyzers, musculoskeletal, genitourinary systems, blood disorders [2]. During the warm period of the year, working conditions according to the “microclimate” indicator are classified as class 3, level 1, professional risk is classified as low (moderate), category of evidence is 2 (suspected), there is a risk of finger injuries due to sweaty palms [15].

The occupational risk for noise in the workplace of seamstress motorists is low (tolerable), the category of evidence is 2 (suspected). With 40 years of experience, they may have occupationally conditioned 2nd degree of hearing loss [3]. In terms of vibration, the working conditions of seamstress motorists belong to class 3 of 1st degree of harm, the occupational risk for the "vibration" factor for seamstress motorists is low (moderate), the category of evidence is 2 "suspected" [3]. Exposure to vibration can lead to spasms of the blood vessels of the hands, due to which blood supply may be disrupted, skin sensitivity may decrease, salt

deposits may accumulate in the joints, and their mobility may decrease. According to the production factor "severity of the work process", the occupational risk for seamstress motorists is average (significant), which is due to the presence of stereotypical work movements during production operations. The contribution of this indicator to the development of neuromuscular pathology of the shoulder girdle is 45.2%, it is possible to predict the probability of developing functional and pathological disorders of the muscles of the shoulder girdle [17]. The work of sewing machine operators is of a stressful nature, which is due to the concentration of attention and vision at a high speed of work and the aggravating effect of monotony and forced pace of work. The working conditions for the factor "stress of work processes" for sewing machine operators belong to class 3 of 3rd degree of harm. The level of professional risk for stress is high (unbearable) for them, there is a probability of developing neurotic disorders (in 61.4 - 70.3% of workers), hypertension (in 22.7 - 26.9% of workers) and ischemic heart disease (in 9.0 - 10.8% of workers) [11].

The research materials formed the basis for the development of methodological recommendations “Measures to improve working conditions in sewing industries”, which were approved by the coordinating expert commission of the Research Institute of Sanitation, Hygiene and Occupational Diseases of the Ministry of Health of the Republic of Uzbekistan and transferred for implementation to the Centers of State Sanitary and Epidemiological Surveillance, to the departments of labor protection and safety engineering of sewing enterprises, to the hygiene departments of medical universities.

CONCLUSION

1. Working conditions of seamstresses-motorists belong to class 3, 3rd degree of harm, they can cause professional risk of developing diseases in working women.

2. According to the "microclimate" factor, there is a risk of developing general somatic pathology of the respiratory system, circulatory system, digestion, skin, visual and auditory analyzers, musculoskeletal, genitourinary systems, blood disorders in the cold season and the risk of getting finger injuries due to sweaty palms in the warm period.

3. According to the noise factor, professionally caused 2nd degree of hearing loss is possible with 40 years of experience, and according to the vibration factor, there is a risk of developing vascular spasm of the hands.

4. According to the "severity of the work process" factor, there is a probability of developing functional and pathological disorders of the shoulder girdle muscles.

5. The intense nature of the work process of seamstresses indicates the likelihood of a professional risk of developing neurotic disorders, hypertension and ischemic heart disease.

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