

WORKERS' PERCEPTIONS OF WORK OVERLOAD AND UPPER LIMB MUSCULOSKELETAL DISORDERS AND LOW BACK PAIN. IMPLICATIONS FOR PREVENTION AND MEDICAL RECOVERY IN SCHOOLS

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Abstract

During the annual periodic medical check-up, workers from 3 school units voluntarily completed a questionnaire that included the following:

-their perception of the demands and risks present at work was assessed through a questionnaire adapted to the legislation (occupational risk factors identification sheet).

-- Socio-demographic variables: age, length of employment in the unit, biological gender, domicile,

- functional limitations caused by low back pain (Roland-Morris Disability Questionnaire) and those of the upper limb (The Disabilities of the Arm, Shoulder, and Hand (DASH))

The following results are present in all 3 schools:

-The score on the DASH questionnaire is positively associated with the Roland-Morris Disability Questionnaire score ($p1=0.001$; $p2=0.001$; $p3=0.021$);

-The perception of the presence of neuropsychic stress is associated with that of the presence of disturbing noise at work ($p1<0.0001$; $p2=0.011$; $p3=0.005$);

-While the proportion of workers who perceive osteo-musculo-articular overload at work in the 3 schools is between 0.1 (one tenth) and 0.16, the proportion of workers who report functional limitations is over half of the workers. There is no correlation between the presence of functional limitations and the presence of overload at the level of the locomotor apparatus. Noise in school, even if is intermittent, is associated with increased stress in workers.

The data presented show that workers do not perceive the positions (sitting or standing) of the locomotor apparatus as overload of the locomotor apparatus. At the same time, the increased proportion of the presence of functional limitations caused by upper limb disorders is noted. Preventive actions are required to raise awareness among workers about overexertion present at the workplace as a recuperative treatment for workers with locomotor apparatus disorders to prevent their aggravation.

Keywords: musculoskeletal disorders, medical recovery, schools, perceptions

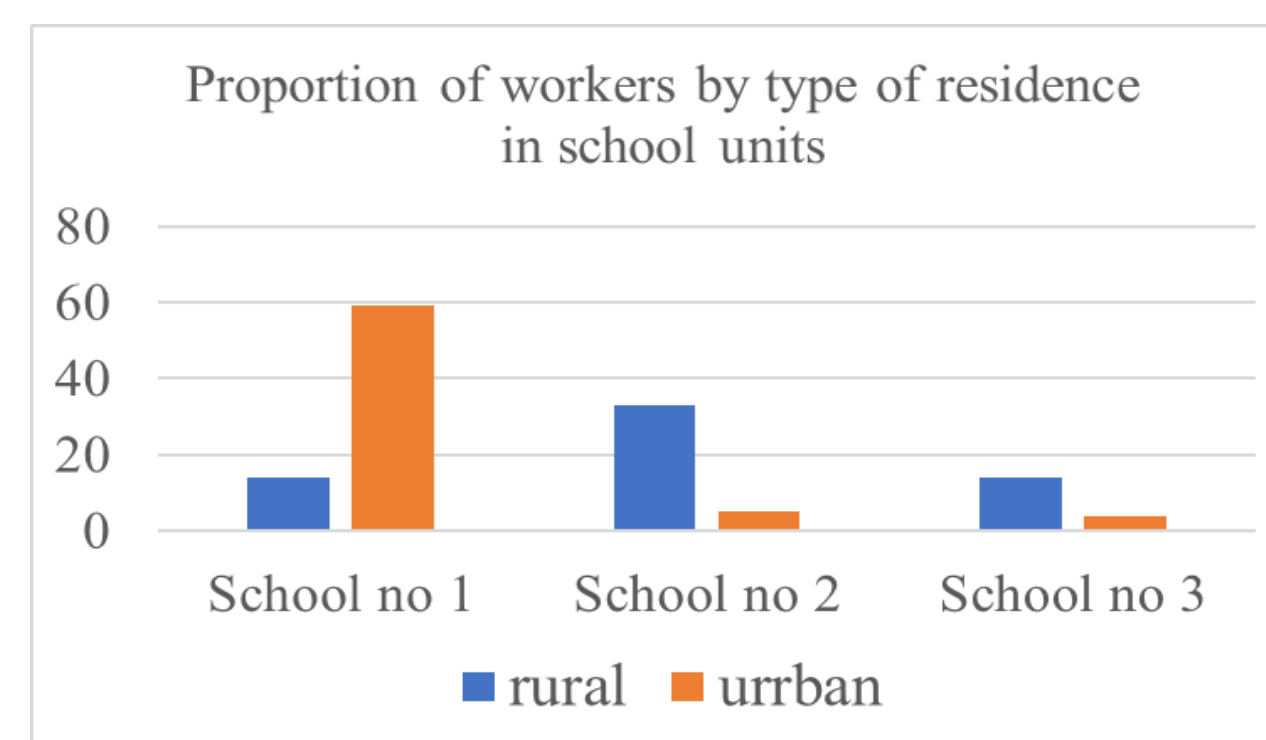
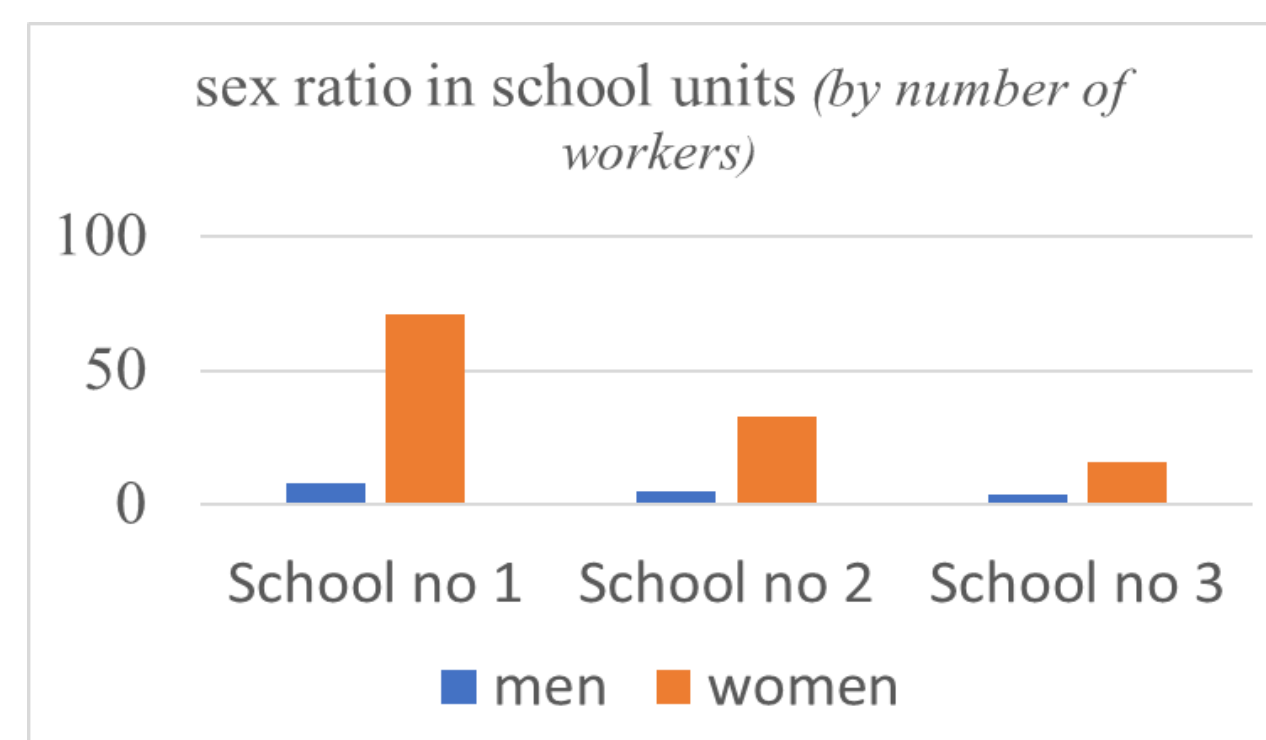
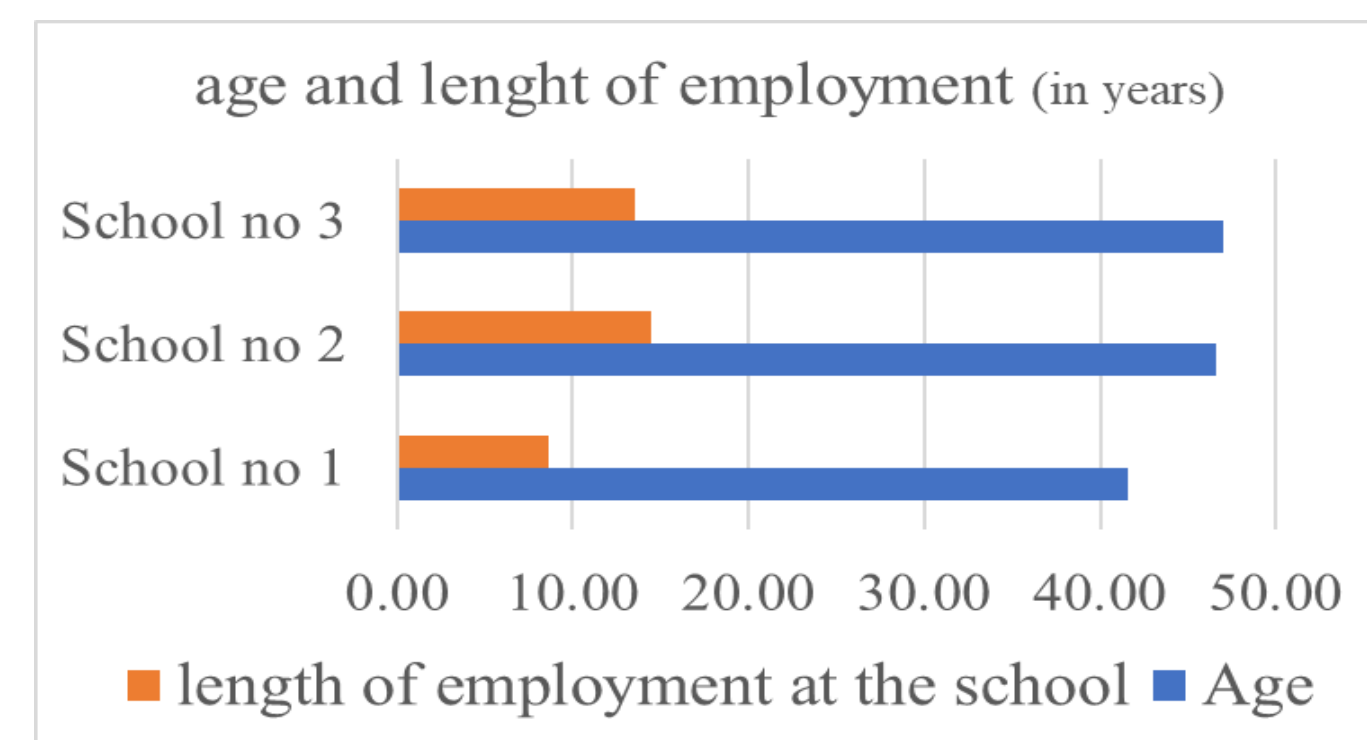
Introduction

In Romania, about 40% of workers perceive musculoskeletal ailments as their main work-related ailment (de Kok J. et al., 2019).

Two categories of favoring and risk factors are blamed for the occurrence and exacerbation of these diseases in workers: organizational risk factors and physical risk factors. Physical risk factors are represented by prolonged and forced positions, repetitive movements, handling of weights, mechanical vibrations transmitted to the human body in the work environment and unfavorable microclimate (air currents, temperature, humidity). Organizational risk factors are mainly extended working hours and alternating shifts, workloads that require an increased pace of work, high-level stressors such as those represented by low autonomy, intimidation, harassment and discrimination at work (EU - OSHA, n.d.).

Results

School no. 1 is located in an urban area and schools no. 2 and no. 3 are located in a rural area.



The following results are present in all 3 schools:

-The score on the DASH questionnaire is positively associated with the Roland-Morris Disability Questionnaire score ($p1=0.001$; $p2=0.001$; $p3=0.021$);

-The perception of the presence of neuropsychic stress is associated with that of the presence of disturbing noise at work ($p1<0.0001$; $p2=0.011$; $p3=0.005$);

-While the proportion of workers who perceive osteo-musculo-articular overload at work in the 3 schools is between 0.1 (one tenth) and 0.16, the proportion of workers who report functional limitations is over half of the workers.

There is no correlation between the presence of functional limitations and the perception of presence of overload at the level of the locomotor apparatus.

Noise in school, even if is intermittent, is associated with increased stress in workers.

The proportion of workers (out of the number of respondents) who report the respective or the presence of the risk factor or overload (the number 1 representing a percentage of 100%) in the 3 schools is as follows:

	Orthostatic Working Position	Sitting Working Position	Bending Working Position	Mixed	Forced Working Position	Visual Overstrain	Auditory Overstrain	Neuropsychic Stress	Disturbing Chemical Substances	Disturbing Noise	Microclimate	Dust	Radiation
	0.91	0.34	0.16		0.48	0.08	0.19	0.40	0.50	0.01	0.38	0.05	0.08
	1.00	0.50	0.03	0.03	0.44	0.14	0.47	0.22	0.33	0.08	0.17	0.06	0.19
	0.85	0.55		0.10	0.25	0.05	0.35	0.35	0.30		0.15	0.05	0.15

School unit	Overstrain of the Locomotor System	Spine	Upper Limbs	Lower Limbs	Other	Manual Handling of Weights	Lifting	Lowering	Pushing	Pulling	Carrying	Moving
School no 1		0.11	0.06	0.01	0.08		0.13	0.14	0.05	0.06	0.03	0.01
School no 2		0.14	0.14	0.06	0.06		0.17	0.08		0.08	0.06	0.06
School no 3		0.10		0.05	0.15		0.05	0.05		0.05	0.05	0.05

References

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Methodology

During the annual periodic medical check-up, workers from 3 school units voluntarily completed a questionnaire that included the following:

-- Socio-demographic variables: age, length of employment in the unit, biological gender, type of residence,

-their perception of the demands and risks present at work was assessed through a questionnaire adapted to the legislation (occupational risk factors identification sheet).

A questionnaire adapted from the Worksheet for the identification of occupational risk factors that monitors workers' perception of workplace risks and overloads was used(Government of Romania, Decision no. 1169 /2011);

-The presence of dysfunctions of the upper limb through the DASH questionnaire, The Disabilities of the Arm, Shoulder and Hand Questionnaire (Nerys W., 2014) having a 5-step Likert score with 30 items and which monitors the ability to perform some activities, as well as the symptomatology of the last weeks, having in addition 2 additional modules with 4 items each. These modules are, respectively, the work mode (scores the influence on the ability to work with the upper limb) and the sports/arts module (scores the effect on playing a sport or performing an artistic activity with the upper limb);

-The Roland Morris questionnaire (Roland Morris Low Back Pain and Disability Questionnaire, notated RM) which, through 24 items, scores the difficulties in performing certain activities as a result of the presence of lumbar pain symptoms (Burbridge, C. and all., 2020).

Conclusion

The data presented show that workers do not perceive the positions (sitting or standing) of the locomotor apparatus as overload of the locomotor apparatus.

At the same time, the increased proportion of the presence of functional limitations caused by upper limb disorders is noted.

In school workers, dysfunctions of the upper limb is associated with low back pain.

The proportion of workers with musculoskeletal disorders is significantly higher compared to the proportion of those who perceive the presence of musculoskeletal overload at work.

Workers who carry out physical effort at work and perceive its presence, as well as perceive forced positions and handling weights, do not significantly associate dysfunctions of the upper limb or low back. It is worth noting the need for workers in pre-university education schools to benefit from recovery services based on the relatively high rate of musculoskeletal disorders.

Preventive actions are required to raise awareness among workers about overexertion present at the workplace as a recuperative treatment for workers with locomotor apparatus disorders to prevent their aggravation.