



## Relationships of Health Problems, Emotional Exhaustion and Self-Efficacy with Work Capacity in Primary Education Workers

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### Abstract

*During the periodic medical check-up, in employees from 3 schools, through a survey-type study based on a questionnaire that included socio-demographic variables (gender, type of residence, age, duration as an employee in the unit, level of studies), emotional exhaustion, perceived self-efficacy, presence of musculoskeletal disorders and work capacity. The work ability index allows scoring both work capacity and the presence of various health conditions, including musculoskeletal disorders. There are numerous differences according to the monitored variables, between school units. However, in all 3 schools, work capacity is negatively correlated with emotional exhaustion ( $p1 < 0.001$ ;  $p2 < 0.001$ ;  $p3 < 0.001$ ) and with musculoskeletal disorders ( $p1 < 0.001$ ;  $p2 < 0.001$ ;  $p3 = 0.018$ ) and at the same time it is positively correlated with perceived self-efficacy ( $p1 < 0.001$ ,  $p2 = 0.011$ ;  $p3 = 0.002$ ). The presence of musculoskeletal disorders is only correlated in one school with emotional exhaustion and, respectively, with perceived self-efficacy. In contrast, emotional exhaustion is correlated with perceived self-efficacy in all schools.*

*The results emphasize the importance of preventing musculoskeletal disorders due to the costs related to both temporary work incapacity in workers with such disorders and those related to the decrease in work capacity of workers who are working.*

**Keywords:** health, burnout, self-efficacy, work capacity, primary education

### 1. Introduction

Work capacity has been defined as the ability of a worker to perform work tasks, in relation to the particular requirements of the job, the worker's mental resources and his/her state of health [1]. Work capacity has been defined as the worker's ability to perform the required work tasks and to fully meet the requirements of the job [2]. Work capacity also means the balance between the worker's personal resources and the demands of the job [3].

The assessment of work capacity from the worker's point of view depends on objective data (e.g. sick leave) but also on subjective perceptions. In the worker's self-esteem, confidence in one's own capabilities as a frequent result of life experiences and the belief that life events have a determinism that also relates to the worker's "free will" (i.e. they can be influenced by the individual's will) are aspects that belong to the fundamental appreciation of one's own person, being expressed and operationalized by variables such as self-efficacy [4]. Due to the aging of the workforce, a multidisciplinary European project was carried out over a period of over 10 years, which aimed to maintain work capacity in older people. As a result of this project, the perceived work capacity of the worker is an operationalized concept that was operationalized through a questionnaire called the Work Ability Index (abbreviated with WAI) [5].

WAI has 7 components that each track several axes that influence work capacity as follows:

- Current work capacity compared to the best ever;
- Work capacity in relation to the tasks resulting from the job requirements;
- Number of current conditions presumed by the worker or diagnosed by a doctor;
- Current work capacity resulting from the conditions suffered by the worker;
- Temporary work incapacity in the last 12 months;
- Self-forecast of work capacity in the current job due to health condition over 2 years;
- Mental resources in relation to work tasks.



By summing the scores obtained on the 7 axes, the WAI results with a range of values between 7-49. Currently, the WAI is a valid, reliable instrument with high internal consistency, which can be applied in any field of activity, and is useful especially due to its low costs and ease of use (de Zwart B, Frings-Dresen M., 2002) [6]

The axis that scores the number of current conditions presumed by the worker or diagnosed by a doctor has 51 items, of which 6 items include musculoskeletal conditions (**Table 1**).

**Table 1.** Items representing musculoskeletal conditions within the WAI

the item number within the axis representing the worker's current illnesses	Item
05.	Cervico-dorsal involvement (in the upper half of the back or cervical spine) with repeated pain
0.6	Lumbar involvement (in the lower half of the back, with repeated pain)
0.7.	Back pain radiating (associated) into the lower limb (sciatica)
0.8.	Limb involvement (arm, leg, upper or lower limb) with pain
0.9	. Rheumatoid arthritis
10.	Other musculoskeletal disorder (specify)

Within the WAI other groups of conditions are scored by items as follows:

- injuries (back, upper and lower limbs, other body parts) items 1-4;
- cardiovascular diseases (hypertension, coronary artery disease, heart thrombosis or myocardial infarction, heart failure, other cardiovascular diseases), items 11-15;
- respiratory diseases (acute respiratory infections, chronic bronchitis, chronic sinusitis, bronchial asthma, pulmonary emphysema, pulmonary tuberculosis, other respiratory diseases), items 16-22;
- psychiatric disorders (mental illnesses or severe or mild problems), items 23-24;
- neurological or sensory disorders (hearing, eye, neurological problems, other neurological or sensory diseases), items 25-28;
- digestive diseases (biliary lithiasis or damage, liver or pancreatic diseases, gastric or duodenal ulcer, gastritis or duodenitis, colitis or colon irritation, other digestive diseases), items 29-34;
- genitourinary diseases (urinary infections, kidney diseases, genital diseases, other genitourinary diseases), items 35-38;
- dermatological diseases (allergies, eczema, allergic rashes, other skin diseases), items 39-41
- tumors (benign, malignant), items 42-43;
- endocrine and metabolic diseases/diseases (obesity, diabetes, goiter or other thyroid diseases, other endocrine or metabolic diseases) items 44-47;
- hematological diseases or diseases (anemia, other hematological diseases), items 48-49.
- congenital malformations (item 50);
- other diseases or conditions (item 51).

Musculoskeletal disorders are one of the main causes of costs for businesses and organizations through the reduction and even temporary loss of work capacity, through health insurance costs or compensation [7]. For teachers, emotional exhaustion, burnout syndrome is one of the main particular manifestations of stress, resulting from human interrelation, from cognitive and emotional involvement in teaching activities with students. The assessment of burnout syndrome can be operationalized through validated questionnaires [8]. Emotional exhaustion can reduce emotional involvement, the feeling of perceived self-efficacy and work capacity of workers in the field of education.

## 2. Objectives

To evaluate the presence of significant associations between work capacity with health problems, emotional exhaustion and self-efficacy in pre-university education workers.

## 3. Material And Method

During the periodic medical check-up, workers from 3 school units were given a questionnaire to complete, which included the following variables:



- Individual data: biological gender, type of residence, age, length of employment in the unit, level of education. The level of education was rated on a Likert-type scale in 4 levels (between the minimum level 1-secondary school and the maximum 4-higher education);
- Perceived self-efficacy of the worker [9],
- Burnout syndrome [10].

At the same time, additional variables were created from the WAI items to monitor the group of workers' conditions, as follows: "No. of injuries" (items 1-4), "No. of musculoskeletal disorders" (items 4-10), "No. of cardiovascular diseases" (items 11-15), "No. of respiratory diseases" (items 16-22), "No. of mental disorders" (items 23-24), "No. of neurological or sensory disorders" (items 25-28), "No. of digestive disorders" (items 29-34), "No. of genitourinary disorders" (items 35-38), "No. of dermatological diseases" (items 39-41), "No. of tumors" (items 42-43), "No. of endocrine and metabolic disorders" (items 44-47). For each worker, the value of these variables results from the summation of the number of diseases mentioned by the worker in the respective group. For example, the variable "musculoskeletal diseases" has a value resulting from the summation of the number of items in the range 5-10 within the axis representing the worker's current diseases within the WAI.

Data analysis was performed using EXCEL 2010 and SPSS v. 16.0 programs and the following statistical tests: ANOVA and Mann –Whitney (U). Correlations between questionnaire variables were monitored using the Spearman correlation coefficient.

#### 4. Results

In school unit no. 1 out of 93 participants, 82 workers completed the questionnaires received. In school unit no. 2 out of 98 participants, 59 responded to the questionnaires received. In school unit no. 3 out of 90 participants, 74 responded to the questionnaires received.

School unit no. 1 and school unit no. 2 are high schools located in urban areas. School unit no. 3 is a middle school located in rural areas.

In school units, the percentage of male workers is respectively: 39% in school no. 1, 28% in school no. 2 and 15% in school no. 3.

The ratio between the number of workers residing in urban areas and those residing in rural areas is in the 3 schools respectively:

- 5/4 in school no. 1;
- 24/1 in school no. 2;
- 5.25 in school no. 3;

The average values of the parameters monitored by administering the questionnaires in the 2 school units are shown in the following table (**Table 2**).

**Table 2.** Average values of the parameters monitored by administering the questionnaires in the 2 school units

	Age	Duration as an employee in the unit	BMI (Body mass Index)	Self-efficacy	Level of Studies	Burnout score	WAI
School no. 1	47.02	14.11	26.45	33.25	3.49	43.51	43.20
School no. 2	43.14	14.86	24.64	32.02	3.93	46.09	42.82
School no. 3	43.42	13.71	25.55	31.58	3.51	46.45	42.27

Between the 3 school units there are significant differences (ANOVA) according to the following variables:

- the highest proportion of female workers is present in school no. 3 compared to the lowest proportion present in school no. 1 ( $p=0.010$ );
- in school no. 2 there is the highest proportion of workers with residence in an urban environment compared to the lowest proportion present in school no. 3 ( $p<0.001$ );
- the oldest age is for workers in school no. 1, and the youngest for workers in school no. 2 ( $p=0.021$ ),
- the highest level of education is, on average, for workers in school no. 2, and the lowest for those in school no. 1 ( $p=0.003$ );



-the workers with the highest value of the variable NrOMS are those in school no. 3, in school no. 2 this variable has the lowest value ( $p < 0.001$ ).

The following table presents, depending on the school unit, the number of workers who mentioned the presence of even one disease from the mentioned disease groups (**Table 3**).

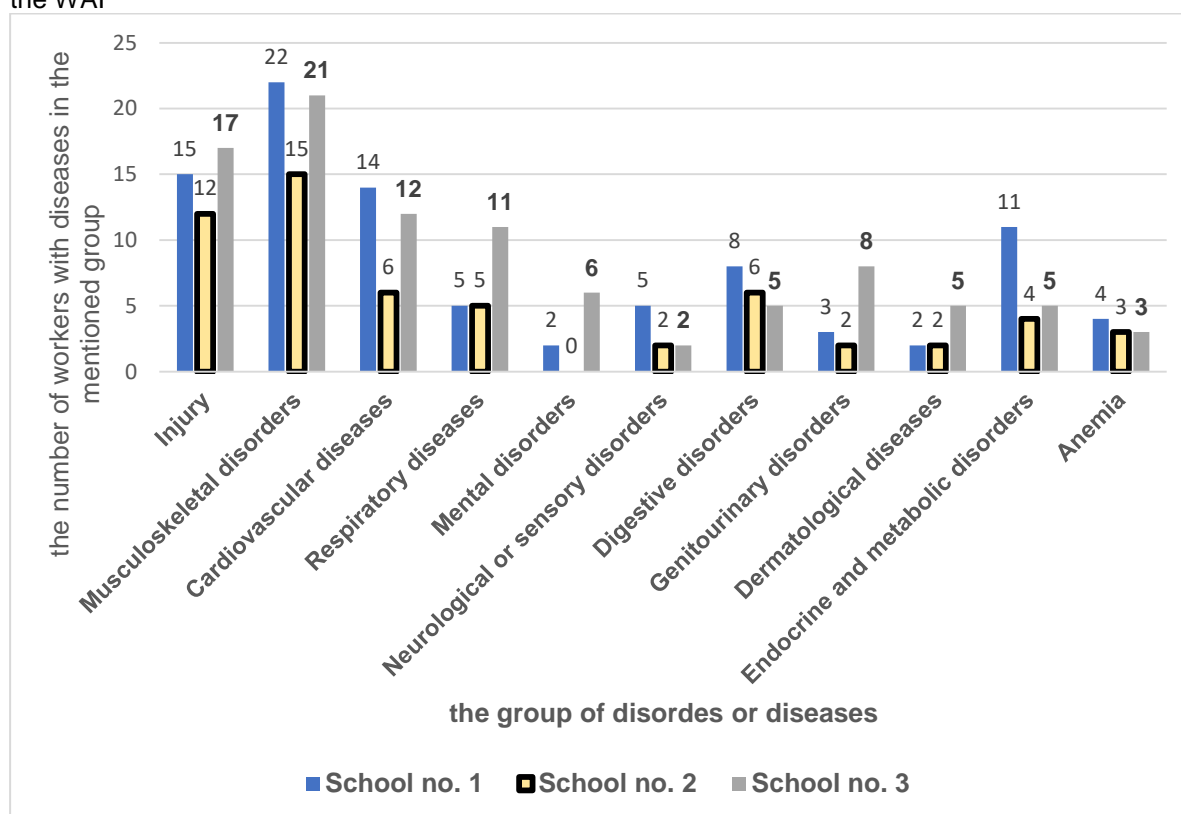
It is worth mentioning that among the hematological disorders, the only one mentioned by the workers was anemia.

**Table 3.** Frequency of disease groups in workers, by school unit

the group of disorders or diseases	Injury	Musculoskeletal disorders	Cardiovascular diseases	Respiratory diseases	Mental disorders	Neurological or sensory disorders	Digestive disorders	Genitourinary disorders	Dermatological diseases	Endocrine and metabolic disorders	Anemia
School no. 1	15	22	14	5	2	5	8	3	2	11	4
School no. 2	12	15	6	5	0	2	6	2	2	4	3
School no. 3	17	21	12	11	6	2	5	8	5	5	3

The most frequent disorders (group of disorders most frequently mentioned) are the musculoskeletal ones (**Figure 1**).

**Figure 1.** Frequency of diseases in workers from the 3 schools according to the disease groups within the WAI



The significant correlations between the variables monitored in the 2 school units are as follows:

In school unit no. 1:

- Age correlates positively with seniority in the unit ( $p < 0.001$ ) and negatively with WAI ( $p = 0.047$ );
- Seniority in the Unit correlates negatively with "No. of injuries" ( $p = 0.027$ ) and with burnout ( $p = 0.007$ );
- Self-efficacy correlates negatively with Burnout ( $p < 0.001$ ) and positively with WAI ( $p < 0.001$ );
- Burnout correlates negatively with WAI ( $p < 0.001$ ) and positively with NrOMS ( $p = 0.021$ );





WAI correlates negatively with "No. of musculoskeletal disorders" ( $p < 0.001$ ).

In school unit no. 2:

Age is positively correlated with seniority in the unit ( $p = 0.004$ ) and negatively with Education Level ( $p = 0.009$ );

Self-efficacy is negatively correlated with Burnout ( $p = 0.002$ ) and positively correlated with WAI ( $p = 0.011$ );

Burnout is negatively correlated with WAI ( $p < 0.001$ );

WAI is negatively correlated with "No. of musculoskeletal disorders" ( $p < 0.001$ ).

In school unit no. 3:

-Age is positively correlated with seniority in the unit ( $p < 0.001$ ) and negatively with Education Level ( $p = 0.021$ ) and with WAI ( $p = 0.019$ ),

Self-efficacy is negatively correlated with Burnout ( $p < 0.001$ ) and positively correlated with WAI ( $p = 0.002$ ),

Education Level is positively correlated with WAI ( $p = 0.046$ ),

Burnout is negatively correlated with WAI ( $p < 0.001$ ),

WAI is negatively correlated with "No. of musculoskeletal disorders" ( $p = 0.018$ ) and with "No. of injuries" ( $p = 0.011$ ).

## 5. Conclusions

Among workers in all 3 schools, musculoskeletal disorders are the most common.

In all 3 schools, only musculoskeletal disorders are significantly associated with reduced work capacity. In comparison, injuries are associated with reduced work capacity only in 2 schools. The other types of disorders do not show significant associations with reduced work capacity.

Work capacity is significantly associated with Self-efficacy, Burnout and musculoskeletal disorders in all 3 schools.

The fact that Self-efficacy and Burnout are not correlated with musculoskeletal disorders suggests that they influence work capacity through a mechanism, at least partially, different from the one through which musculoskeletal disorders influence work capacity. This fact is also supported by the (negative) association between emotional exhaustion and perceived self-efficacy, present in all 3 schools, showing a direct link between these variables.

Although disabling, musculoskeletal disorders do not significantly influence the feeling of perceived self-efficacy or emotional exhaustion.

Teaching activity does not involve physical strain. Musculoskeletal strain is frequently static, involving prolonged sitting or bending positions. However, these static strains are not imposed by a specific schedule or time interval, as workers can freely adopt the desired, comfortable working positions during the activity, sitting or standing, bending or upright.

The results emphasize the importance of preventing musculoskeletal disorders due to the costs related to both temporary work incapacity in workers with such disorders and those related to the decrease in work capacity of workers who are working.

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