

# <sup>1</sup>Physical and postural aspects of teachers during work activity

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**Abstract:** Studies indicate that teachers constitute a professional segment, in which the work characteristics and the demands originating from the act of teaching, favor the emergence of sickness, concerning physical or emotional aspects. The present work aimed to describe physical and postural aspects during the working activity of teachers. A total of 120 elementary school teachers (1<sup>st</sup> to 8<sup>th</sup> grade) took part in the survey. For data collection, a questionnaire was applied: it included personal and occupational information, perception of discomfort and being off work; physical strength activities; posture at work and physical conditioning activities. The average age of teachers of the present sample corresponds to 35,8 years. In relation to activities which generate more physical strength, the answer *none of the activities* was predominant with 30 answers; followed by *writing on the board*, standing up during the period of classes, explanation of the subjects, class elaboration, correction of homework and others. The area of the body with higher amount of occurrences and prevalent discomfort referred to the lower limbs and spinal cord. These data inform the necessity of investing in prevention programs for the teachers, in order to develop strategies into the organizational context and interventions at the work environment.

Key-words: ergonomics, elementary school teachers, working conditions, postural aspects

## Introduction

The investigation on the impact of the professional work upon the daily life of the teachers, considering the physical and emotional aspects, constitutes an interesting subject of interest in the literature. According to Sampaio and Marin [1], the precarious conditions of the staff work is not a recent theme for the national reality.

Meleiro [2] demonstrates the devaluation of the teacher which comprises the academic universe, the media and the society in general.

Souza et al [3] consider that the work of the teachers, besides being devalued, there can be pointed: low social recognition, low salaries, demanding management, long work journey, deficient formation, adoption of inadequate postural aspects, excess of noise, classes with excessive amounts of students and accumulation of extra class homework. They also add the precarious infra structure, lack of human and material resources, resulting in work overload.

In this context, the educators face adverse situations in their workplace, such as: low salaries, lack of material and didactic resources, inexpressive participation in the institution planning and in the institutional politics and lack of security in the school environment [4].

Referring to the physical expressed manifestations due to sickness, a series of problems will be highlighted in a set of health problems, most common to teachers.

Referring to sickness in the vocal cords, the intense use of the voice as an working instrument has been appointed as a sickening factor for teachers. Smith et al [5], identified higher probability of voice problems, with 15% for teachers and 6% for other professionals. The authors highlight the presence of

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physical discomfort problems, considering that 20% of the teachers have already been away from work, at least for one day, due to voice problems.

Smith et al [6] studying the incidence of voice problems of teachers, according to gender, informed that they are more common in women, when compared to men (36% versus 26% respectively), for acute or chronic problems.

About complaints of the osseous muscular or muscle skeletal system, Oliveira [7] and Levy [8], identified in teachers who worked in Rio de Janeiro, complaints about pain in their legs, due to staying on their feet during classes. Following the same directions, Delcor et al [9], found in a study realized in Vitória da Conquista town, with 250 teachers (82,8% females), from private schools, identified the presence of pain, tingling and swelling in the legs and pain in the spinal cord. Carvalho and Alexandre [10], identified pain in the spinal cord and upper limbs.

In a study realized by Gasparini, Barreto and Assunção [11], about education professionals being away from work, in Belo Horizonte city, the psychic disorders constituted the most important reason for sick leave, followed by diseases referring to heart and lungs, osseous muscular system and conjunctive tissues.

The heart and lungs complaints may be related in part, to sedentary style of life, considering that a significant percentage of teachers do not perform physical conditioning activities, for example: walking, gymnastics and swimming; according to the study by Carvalho and Alexandre [10], in which (46,5%) did not perform regular physical activities. The chalk dust constitutes a factor for respiratory problems, as demonstrated by a study elaborated by Porto et al [12] in a research realized in Bahia state, from 1991 to 2001, they found chronic and allergic rhinitis, sinusitis, pharyngitis, besides muscle-skeletal problems, larynx and vocal cords diseases.

Prioste [13] identified among the most frequent problems related to stress upon teachers, heart and vascular diseases, as: labyrinthitis, pharyngitis, neurosis, fatigue, insomnia and nervousness.

Thus, data in literature demonstrate a set of problems which attack teachers and consequently justify the importance of investigating this theme.

## **Objectives**

To describe the physical and postural aspects concerning the work of elementary school teachers.

## **Methods**

### **Participants:**

A total of 120 teachers from the Municipal Elementary School (1<sup>st</sup> to 8<sup>th</sup> grade) of a town located in São Paulo state, took part in this study.

### **Instruments:**

For data collection, a questionnaire was applied in order to find out the perception of teachers about occupational risk factors present in their work, concerning the following aspects: a) personal information; b) occupational data (profession, formation, work time in the function); c) perception of teachers about discomfort and being off work; d) follow up frequency with specialized professionals; e) main activities of physical tiring; f) postures and positioning of the staff work; g) realization of physical activities conditioning.

## **Data collection procedures**

The procedures for data collection were:

Contact with the Municipal Education Secretary, with teaching institutions, to present the objectives of this research and require authorization for accessing the teaching institutions;

Contact with the participants and schedule of time and most convenient place to the participant and realization of interviews.

The project was submitted and approved by the Research Ethics Committee and approved according to n° 226/ 2006.

### Treatment procedures and data analyses

For the instrument analyses in the research, the descriptive statistics was selected, with presentation of the scores obtained from the questions required by the instrument.

The results were organized into Figures and Tables.

### Results and discussion

The average age and time in that function, for the teachers is 35,8 years and 11,7 years of work time.

Referring to marital status, there is a prevalence of married teachers (77/64,2%), singles (28 – 23,3%) and separated (14 – 11,7%).

In a study realized by Unesco [14], about the profile of Brazilian teachers, it shows that 55,1% are married and 28,3%, single.

In relation to gender, 118 participants were females and just 02 males. These data are in accordance to the findings of Batista and Codo [15], when affirmed that the profession of teacher is predominantly performed by women. In a study realized by Unesco [14], with Brazilian teachers, it was observed that 81,3% are women and 18,6% are men, and most of the teachers work in the elementary school. This tendency of females predominance is also revealed in international studies, as for Howard and Johnson [16], realized in Australia, Friedman [17] in Israel, Brenninkmeijer, Vanyperen and Buunk [18] in Holland, and Bauer et al [19] in Germany, which point the prevalence of female teachers.

### Perception of teachers about the physical efforts during activities

Among the activities realized by the teachers, it was required the identification of activities which requested more physical efforts.

For most teachers, the answer *no physical* activity, as physical tiring cause, was predominant, with 30 occurrences. Among the one which pointed specific activities as responsible for physical tiring, it can be pointed postural aspects, as *writing on the board* (17) correction of homework (10), standing up for a long time. For explaining the subject (12) and class preparation; class preparation and homework correction (10), were also significantly pointed as physical tiring factors.

### Perception of teachers about physical discomfort

Concerning this question, it was investigated the perception of the teachers in relation to complaints in different parts of the body (head, upper and lower parts of the spinal cord, cervical, upper limbs and lower limbs).

The area of the body with higher incidence of occurrences referred to upper limbs (170), considering that pain was the most prevalent, with 84 manifestations. The second complaint refers to lower limbs (138) and again, pain is the most prevalent complaint (82). Referring to pain, the areas of the head, neck and spinal cord, the results are very close, with 75, 72 and 66 occurrences. Concerning symptoms, pain was the predominant answer with 303 occurrences, followed by the sensations of heaviness, with 91 occurrences.

The complaints about upper limbs (shoulder, elbow, arm, wrist and hands) are related to movements as writing on the board, in which the shoulder is elevated, due to the position of the board, and the repetition of the movements constitutes a characteristic of the activity of teachers. When correcting homework of the students, the repetition of the movement of the hands and wrist, associated to incorrect posture (up, down, sideways), creates attrition among the tendons, ligaments and osseous structures and when combined to repetitive movements, may cause tenosynovitis [20].

Levy [8] reported some complaints of teachers about standing up, in inadequate position, for a long time.

Standing up causes overload to the sustentation structures of the body, increasing the weight over the lumbar sacral region (lower part of the spinal cord), causing some problems in the spinal cord as, for example disk herniation.

Pain in the spinal cord may be related to standing up for long periods, for having inadequate postures, as inclining the trunk forward, turning the body sideways; or the combination of these movements, or sitting incorrectly – or also the type of the chair in which the professional is sitting.

These factors, favor the onset of pathologies in the spine discs and low back pain According to Braccialli and Vilarta [21], the biomechanical structure of the spinal cord was not built to stand into the same position for long periods of time.

The association of standing up with movements of the spinal cord (inclination of trunk rotation during work) may cause an increase of the internal pressure of the spinal cord disc and lead to strong pain and paralysis [22].

Referring to the correlation between spinal pain and sitting posture, according to Coury [23], that posture may cause an increase of pressure in the interior of the spinal disc, flattening on the lumbar arch, pain in the low back region and disk herniation.

Carvalho and Alexandre [10] analysed teachers of elementary school and found the occurrence of osseous muscular symptoms, mainly in the low back spine (63,1%) thoracic (62,4%) cervical (59,2%), shoulders (58,0%), wrists and hands (43,9%).

### **Perception of teachers about discomfort and being off work**

Most of the teachers reported that the discomforts did not lead to being off work, with answers which ranged from 80 to 95%. When manifested, the main body region, pointed as responsible for being off work, was the spinal cord.

A research realized by Santos [24], about escaping strategies and facing the adversities of the profession as teachers, the author observed that being away from the activity as a teacher, constitutes a defense strategy, for them, before the daily adversities (internal and external pressures from the management staff; pressure in relation to school calendar for students' grades; non participation of parents concerning the school, low interest of students referring to school subjects, lack of pedagogical material and mainly for the low salaries, so teachers present a doctor prescription to be off work.

In a study realized by Gasparini, Barreto and Assunção [11], in Belo Horizonte city, about data for being absent of municipal employees, the teachers represented 84% work sick leave, being predominant the psychic disorders (15%), respiratory system diseases (12%), osseous muscular diseases and conjunctive system.

### **Follow up frequency with specialized professional**

The necessity of searching for specialized professional follow up (doctor, physiotherapist, psychologist, acupuncturist, physical instructor) was also investigated, concerning the teachers. En relation to searching for professional follow up, it was observed that most teachers (65 / 54,2%) did not search for any kind of specialized aid. The attendance to medical assistance was predominant, presenting 48 occurrences, followed by physiotherapist assistance, with 19 indications.

### **Postures and positioning during work activity**

The study of the main positioning adopted by teachers work activity, was the object of this research. Referring to postures adopted, the activities which use lower limbs (standing, walking, standing on one of the feet, standing with the trunk bending forward, standing with bent knees and crouched, was predominant, totaling 239 occurrences (67,5%), highlighting the standing up posture, with 107 indications. The prevalence of the positions which involve the lower limbs is in accordance with the discomfort presented in this area of the body, with 138 manifestations.

Standing up posture, was pointed as physical risk factor, by Delcor et al [9], for teachers of private elementary schools, in Vitória da Conquista town, considering that 47,5% informed about pain and tingling in their legs, 10,8% swelling in their legs, 51,4% spinal cord pain.

A research realized by Oliveira [7], with teachers of elementary school, in Duque de Caxias town, 73,33% of the teachers informed they stand up for a long period, 90% move all the time inside the

classroom and 6,66% keep sitting. Ferreira [25], identified in a study comprising teachers from Rio de Janeiro city, the act of standing up for 87% of the classrooms studied.

### Physical conditioning activities of the teachers

Practice of physical conditioning activities, as the practiced modality, also constituted an investigation subject. Data reveal that most of the teachers (66/55%) do not have any regular physical activity. Walking, was the main practiced activity by most of the teachers, with 45 occurrences, followed by gymnastics (12), stretching (7), hydro gymnastics (5) and swimming, with 3 indications.

Carvalho and Alexandre [10], in a research with teachers, identified that more than half of them practiced physical activities, and walking was the most common. On the other side, the authors informed that 46,5% of the teachers did not practice physical activity, due to lack of time, double work journey, or economical factors.

### Conclusions

In general, the teachers who participated of this research manifested some complaints and symptoms in different parts of the body, which may be associated to postures adopted during work activity requiring greater efforts. The activities, realized by teachers which involve greater physical efforts, the fact of writing of the board is the most evident, with 17 manifestations, explanation of the subject (12), class elaboration (11) and homework correction (10). Those complaints are related to manifestations of the teachers concerning upper limbs, with 170 indications.

The complaints and overload in lower limbs, which were manifested with 138 occurrences, are associated to postures adopted during the work journey, in which the activities that involve the use of lower limbs comprised 239 occurrences. Those data are also present among activities the most physical tiring activities, in which standing up, obtained 170 indications.

This combination of activities, which involve physical tiring, adoption of postures which favor the onset of diseases, expressed by a set of discomforts, manifested mainly in upper and lower limbs, become aggravated because most of the teachers (55%) do not practice any regular physical activity.

These data inform the necessity of investing in prevention and intervention programs for the teachers, in order to develop strategies into the organizational context, as a way of investing in the health of the teachers and also the students, consequently benefiting the scholastic institutions.

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