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ORIGINAL ARTICLE

COMPLAINTS OF OSTEOMUSCULAR PROBLEMS IN ENHANCEMENT AND IMPROVEMENTS IN A TEACHING HOSPITAL QUEIXAS DE DISTÚRBIOS OSTEOMUSCULARES EM APRIMORANDOS E APERFEIÇOANDOS ATUANTES EM UM HOSPITAL DE ENSINO QUEJAS DE DISTURBIOS OSTEOMUSCULARES EN MEJORAMIENTOS Y PERFECCIONAMIENTOS ACTUANTES EN UN HOSPITAL DE ENSEÑANZA

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ABSTRACT

Objective: to verify the occurrence of musculoskeletal problems and the main factors associated with enhancement and improvement of different professions in the health area. **Method:** it is a cross - sectional, descriptive, population-based study of 104 professionals from different health areas of both genders, linked to the Enhancement and Improvement Program of a Medical School in the interior of São Paulo. The data were obtained by the Nordic Questionnaire of Musculoskeletal Symptoms QNSO. **Results:** there were 41.4% problems in the lumbar region; 33.9% problems in the hip and lower limbs and 30.1% problems in the dorsal region. The associations showed that most nurses (63.6%) and physiotherapists (65.38%) usually carry weight and feel low back pain. There was statistical significance between complaints of symptoms and working hours. There were 90.9% reporting some psychic complaint. **Conclusion:** the professional practice carried out in the enhancement, and improvement models had risk factors for osteomusculoskeletal disorders, especially among nurses and physiotherapists. **Descriptors:** LER-MSDs; Occupational Diseases; Ergonomics; Morbidity; Occupational Health.

RESUMO

Objetivo: verificar a ocorrência de problemas musculoesqueléticos e os principais fatores associados entre aprimorandos e aperfeiçoandos de diferentes profissões da área da saúde. **Método:** estudo transversal, descritivo, de base populacional, entre 104 profissionais de diferentes áreas da saúde, de ambos os sexos, ligados ao Programa de Aperfeiçoamento e Aprimoramento de uma Faculdade de Medicina do interior paulista. Os dados foram obtidos pelo Questionário Nórdico de Sintomas Osteomusculares QNSO. **Resultados:** 41,4% tinham problemas na região lombar; 33,9% problemas no quadril e nos membros inferiores e 30,1% problemas na região dorsal. As associações mostraram que a maioria dos enfermeiros (63,6%) e fisioterapeutas (65,38%) costuma carregar peso e sentir dor lombar. Houve significância estatística entre queixas de sintomas e horas de trabalho. 90,9% relataram alguma queixa psíquica. **Conclusão:** a prática profissional exercida nos moldes de aperfeiçoamento e aprimoramento apresenta fatores de risco para agravos ósteo-músculo-articulares, em especial, entre enfermeiros e fisioterapeutas. **Descritores:** LER-DORT; Doenças Ocupacionais; Ergonomia; Morbidade; Saúde do Trabalhador.

RESUMEN

Objetivo: verificar la ocurrencia de problemas musculo esqueléticos y los principales factores asociados entre mejoramiento y perfeccionamiento de diferentes profesiones del área de la salud. **Método:** estudio transversal, descriptivo, de base poblacional, entre 104 profesionales de diferentes áreas de la salud, de ambos sexos, ligados al Programa de Perfeccionamiento y Mejoramiento de una Facultad de Medicina del interior paulista. Los datos fueron obtenidos por el Cuestionario Nórdico de Síntomas Osteomusculares QNSO. **Resultados:** 41,4% tenían problemas en la región lumbar; 33,9% problemas en el cuadril y en los miembros inferiores y 30,1% problemas en la región dorsal. Las asociaciones mostraron que la mayoría de los enfermeros (63,6%) y fisioterapeutas (65,38%) acostumbran a cargar peso y sentir dolor lumbar. Hubo una significativa estadística entre quejas de síntomas y horas de trabajo. 90,9% relataron alguna queja psíquica. **Conclusión:** la práctica profesional ejercida en los moldes de perfeccionamiento y mejoramiento presenta factores de riesgo para problemas osteo-músculo-articulares, en especial, entre enfermeros y fisioterapeutas. **Descriptor:** LER-MSD; Enfermedades Profesionales; Ergonomía; La morbilidad; Salud Ocupacional.

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INTRODUCTION

The in-service learning model is an element of the educational process present in courses for health professionals. Enhancements and improvements are defined as a modality of post-graduation education aimed at training for professional practice that integrates health services. The different programs offered to various professional categories are based on the principle of in-service training, under the direct supervision of qualified, full-time professionals, complementing university education in the specialty of interest of each professional category, relating the theory to specific practices.¹

During the training in the professional enhancement and improvement programs, many physical and emotional problems occur among professionals, interfering with their quality of life.^{2,3} The occurrence of musculoskeletal disorders, their factors of risk and its consequences are among the risks inherent in the work of these professionals.

First, it is important to understand their conceptualization to assess the complaints of musculoskeletal disorders. Musculoskeletal disorders consist of inflammatory diseases that affect the soft tissues, such as muscle, ligaments, joint capsules and aponeuroses. Myalgias, lumbago, fibromyalgia, cervicalgia, sinusitis, tendonitis, tenosytemonitis, epicondylitis, generating pain, loss of strength, tingling, fatigue and edema, affecting the daily aspects and the decrease of the income in work.⁴ In the beginning, there is relief with the nocturnal rest and the weekends, but gradually these pains become intense, even during the rest period, and may progress to a stage of disability.⁵

The work environment in health facilities under adverse physical, mechanical and psychic conditions is considered one of the main risk factors for the development of changes in the musculoskeletal system.^{6,7} The continuous and prolonged exposure of the body of such an environment favors the emergence of occupational diseases.⁸

The etiopathogenesis of musculoskeletal disorders is multifactorial, and among the main risk factors, there are: work organization (increased working hours, accelerated pace, shortage of workers); Environmental factors (inadequate furniture, insufficient lighting); Psychosocial factors and activities that involve vibrations, local pressures on the tissues, cold, inadequate postures, mechanical and static musculoskeletal load, repetitive movements and cognitive demands are factors that contextualize the risk of ergonomic

problems among health workers, favoring the onset of occupational diseases.^{9,10}

The consequences of musculoskeletal disorders include changes in daily activities, removal from work and significant financial losses due to workers compensation and medical expenses, as well as consequences for society.¹¹

Nurses, physiotherapists, psychologists, occupational therapists, and nutritionists are among health professionals with symptoms of musculoskeletal disorders, whose professional activity implies demands of the musculoskeletal system, repetitive upper limbs movements, maintenance of static and dynamic postures for prolonged time, and spinal overload movements. Understanding the nature of the activity and the work situation can be a route for improvement, as it reorganizes under new bases and becomes aware of the situation, preventing health problems.¹²

The tendency of this new reality is the greater growth of occupational diseases related to work (DORT), because in the health area intensification of work, with hypersolicitation of tendons, muscles, and joints of workers. Prevention is the best measure to prevent the DORT, highlighting in research that the way to minimize and prevent musculoskeletal disorders is the planning and replanning of the work situation that involves the physical environment and the activities performed.¹³

Therefore, this study aims to verify the occurrence of musculoskeletal problems and the main associated factors, among the enhancement and improvements of different professions in the health area.

METHOD

This is a cross-sectional, population-based study among the undergraduate and graduate students linked to a public higher education institution and a teaching hospital. This hospital represents a hospital - medical and assistance complex - indispensable for the care of the population of a region with 102 municipalities, estimated in one and a half million inhabitants. It is a reference in more than 55 specialties, offering medical care and other professional categories, in different specialties.

Besides the graduation in medicine and nursing, the teaching institution of this study offers postgraduate courses in Psychology and Health, Nursing and Health Sciences; postgraduate programs in the areas of physiotherapy, psychology, medicine and

other nursing; Program of enhancement and improvements in the areas of Nursing, Health Psychology, Physiotherapy, Nutrition, Hospital Pharmacy, Speech Therapy, Social Work, Occupational Therapy, Vectors Control, Dentistry and Library documentation and information in Health Sciences. Accreditation is done with the Administrative Development Foundation (FUNDAP) and Medical Residency programs in 54 specialties accredited by the National Commission of Medical Residency, linked to the Postgraduate Courses of the Medical School of São José do Rio Preto.

The participants of this study are all the enhancement and improvement professionals of the institutional teaching and service complex, who agreed to participate in the research, after being informed about their objectives and purpose.

The total number of enhancement (with FUNDAP scholarship) and improvement professionals (with a scholarship paid by the hospital institution) is 120 professionals, including all of the following areas: Nursing, Physical Therapy, Speech Therapy, Health Psychology, Social Work, Vector Control, Nutrition And Occupational Therapy.

For the data collection, the Nordic Questionnaire of Musculoskeletal Symptoms (QNSO) was translated and adapted to Portuguese, which allowed the evaluation of DORT symptoms and its relation to musculoskeletal morbidity, demographic, occupational variables and personal habits. This questionnaire is simple to apply, and the Portuguese version has been validated in Brazil.¹⁴ The version maintains the original structure, used internationally to standardize research on the subject, with simple and direct questions.¹⁵

The first part of the QNSO includes demographic data such as gender, age, education, specialty, the length of employment, other professional activities, regularity of physical activity, and other day-to-day activities during the past 12 months. The QNSO contains two parts, the first part having a human figure divided into nine anatomical regions: cervical, shoulders, arms, elbows, forearm, wrists/hands/fingers, dorsal region, lower back, hip/lower limbs. The participant identifies in this body map the presence of pain, discomfort or numbness in the regions indicated during the last 12 months. For symptomatic regions, the

participant indicates whether the symptoms are related to the work performed or not.

Before data collection, as a way of following the ethical precepts of research involving human beings, this project was presented for the appreciation of the Research Ethics Committee of FAMERP, under Protocol N° 3675/2011, approved with Opinion N° 160/2011.

The variables of sample characterization and the variables that contemplated the level of pain, tingling, and discomfort in various parts of the body according to the application of the Nordic questionnaire of musculoskeletal symptoms were collected to meet the objective of the study. The results of the study were expressed using Tables and Percentage Values. Statistical association tests were applied through the chi-square statistic evaluation, adopting a significance level of 0.05. The age of the respondents was compared with the levels of each of the items evaluated in the Nordic questionnaire of musculoskeletal symptoms using non-parametric statistical tests.

RESULTS

The results of the study are based on the analysis of 104 (86.6%) respondents. Table 1 shows the percentages referring to the characterization variables of the respondents evaluated in the study.

The results of Table 1 show that the majority of the respondents evaluated are female (93 - 89.42%); unmarried (101 - 97.12%); working in the hospital (90 - 86.54%); up to one year of occupation (82 - 78.9%); not working in another profession (66 - 63.5%); working eight hours a day (76 - 73.08%); non-smokers (100 - 96.15%); right-handers (97- 93.27%); not having other professional activity (94 - 90.38%); not considering the hospital furniture adequate (67 - 64.42%) and considering the HR as appropriate (57 - 54.81%).

It should be clarified that the minimum age verified was 20 years old and the maximum age was 35 years old. Respondents presented a mean of 23.59 years with a standard deviation of 2.22 years and a median of 23.00 years. The presence of four discrepant values (outliers) influencing the mean age was observed, being the ages of 28, 29, 34 and 35 years old. Age data did not follow a normal distribution.

Table 1. Percentages are referring to the characterization variables of the enhancement and improvement. São José do Rio Preto (SP), Brasil, 2015.

Variables	n	%
Gender	104	100
Male	11	10.58
Female	93	89.42
Marital status	104	100
Married	3	2.88
Single	101	97.12
Education	104	100
Superior	104	100
Specialization	104	100
Nurse	19	18.27
Physiotherapist	26	25.00
Other	35	33.65
Psychology	24	23.08
Acting place	104	100
Outpatient and others	14	13.46
HB	90	86.54
Working time in the profession	104	100
Up to 1 year	82	78.85
More than 1 year	22	21.15
Working in another profession	104	100
No	66	63.46
Yes	38	36.54
Working hours per day	104	100
6 hours	17	16.35
8 hours	76	73.08
More than 8 hours	11	10.58
Smoker	104	100
No	100	96.15
Yes	4	3.85
Right-handed, left-handed or ambidextrous	104	11.43
Ambidextrous	1	0.96
Left-handed	6	5.77
Right-handed	97	93.27
Having other professional activity	104	100
No	94	90.38
Yes	10	9.62
Considering having the appropriate hospital furniture	104	100
No	67	64.42
Yes	37	35.58
Considering the HR as appropriate	104	100
No	47	45.19
Yes	57	54.81

Regarding the percentages of the variables that characterize possible causes related to pain, discomfort or tingling in part of the body, it was observed that most respondents do not usually take weight (67 - 64.42%), and those who usually take weight, take it to 10 kg (14 - 56.00%), a fact that only occurs at work (29 - 80.56%).

Most of them routinely correct their body posture (63 - 60.58%), do not practice any physical activity (57 - 54.81%) and perform domestic activities and other activities on a daily basis (84 - 80.77%). Most respondents reported having no difficulty sleeping (83 - 79.81%), sleeping in the lateral decubitus position (44 - 45.83%) and not having pain when waking up (70 - 67.96%).

Most of the respondents who claimed to feel pain when they wake up0 claimed pain in the upper limbs (17 - 51.52%). Most patients did not receive any diagnosis during the last 12 months (92 - 88.46%) and presented some psychic complaints (60 - 57.69%), including:

anxiety and others (7 - 12.07%), other (16 - 27.59%), forgetfulness and difficulty of concentration (14 - 24.14%), irritability and others (10 - 17.24%) and worry and others (11 - 18.97%).

Table 2 shows the percentages of the evaluation of the Nordic questionnaire of musculoskeletal symptoms. The results show that rarely (36-34,62%) respondents had neck or cervical region problems, rarely (34-32.69%) presented problems in the shoulders, had no problems in the arms (62 - 60.19%), presented no problems in the elbows (84 - 80.77%), presented no problems in the forearms (74 - 71.15%), presented no problems in the wrists, hands and fingers (51 - 49.04%), presented problems in the lumbar region frequently (43 - 41.35%) and presented problems in the hip and lower limbs frequently (35 - 33.65%). The absence of problems in the dorsal region, as well as occurrence rare or frequently, was reported

by the same number of respondents (31 - 30.10%).

Table 2. Percentages of the variables of the Nordic questionnaire o osteomuscular symptoms of the enhancement and improvement. São Jos do Rio Preto (SP), Brazil, 2015.

Variables on musculoskeletal symptoms	n	%
Neck/Cervical region problems	104	100
Frequently	32	30,77
No	25	24,04
Rarely	36	34,62
Always	11	10,58
Problem in the shoulders	104	100
Frequently	28	26,92
No	33	31,72
Rarely	34	32,69
Always	9	8,65
Problems in the arms	103	100
Frequently	13	12,62
No	62	60,19
Rarely	25	24,27
Always	3	2,91
Problems in the elbows	104	100
Frequently	2	1,92
No	84	80,77
Rarely	18	17,31
Problems in the forearms	104	100
Frequently	8	7,69
No	74	71,15
Rarely	20	19,23
Always	2	1,92
Problems in the wrists/hands and fingers	104	100
Frequently	18	17,31
No	51	49,04
Rarely	31	29,81
Always	4	3,85
Problems in the dorsal region	103	100
Frequently	31	30,10
No	31	30,10
Rarely	31	30,10
Always	10	9,71
Problems in the lumbar region	104	100
Frequently	43	41,35
No	15	14,42
Rarely	35	33,65
Always	11	10,58
Problems in the hip and lower limbs	104	100
Frequently	35	33,65
No	26	25,00
Rarely	31	29,81
Always	12	11,54

Another issue evaluated in this research was the possibility that the reported symptoms are related to the activities that the respondents perform. There were 13 participants of the total of 103 respondents (12.62%) reporting that the symptoms in the dorsal, lumbar and lower limbs are linked to the activities performed, eight (7.77%) only linked to the lower limbs, 23 (22.33) related to the upper limbs, 18 (17.48%) to the dorsal and lumbar regions, 18 (17,48%) linked no symptoms to the activities and 23 (22.33%) linked all the symptoms to the activities.

The associations show that most nurses (12 - 63.16%) and physiotherapists (17 - 65.38%) usually carry weight, while for psychologists (22 - 91.67%) and other specialties such as nutritionists, occupational therapists, speech therapists and social workers (29 - 82.86%), the situation is the opposite. Also, weight-

bearing people experience more pain in the upper limbs (9 - 75.00%), while people who do not carry weight often experience more frequent lower limb pain (13 - 61.90%).

Another significant association shows that people who do not carry weight 26 (38.81%) rarely experience pain in the lower back, while people who carry weight 22 (59.46%) frequently experience pain in the lower back. The fact of carrying weight can be considered an aggravating factor in the occurrence of pains in the lumbar region.

Table 3 shows the association between musculoskeletal symptoms in the neck about working hours.

It is interesting to note that people who work 6 hours a day reported frequent pain or no neck pain. People who work eight hours a day reported having neck pain rarely, and people who work more than eight hours a day

have reported having neck pain. The higher of neck pain.
the daily workload, the greater the likelihood

Table 3. Percentage distribution of symptoms in the neck about working hours, between enhancement and improvement. São José do Rio Preto (SP), Brazil, 2015.

Neck	Working hours			Total
	6 hours	8 hours	More than 8 hours	
Frequently	6 (35.29%)	24 (31.58%)	2 (18.18%)	32 (30.77%)
No	6 (35.29%)	18 (23.68%)	1 (9.09%)	25 (24.04%)
Rarely	4 (23.53%)	29 (38.16%)	3 (27.27%)	36 (34.62%)
Always	1 (5.88%)	5 (6.58%)	5 (45.45%)	11 (10.58%)
Total	17 (16.35%)	76 (73.08%)	11 (10.58%)	104 (100%)
p-value			0,048	

Table 4 shows the association between musculoskeletal symptoms in the lumbar region about working hours. hours have reported frequent low back pain. The higher the daily workload, the greater the incidence of pain in the lower back.

People who work six hours a day rarely complain of low back pain, but people who work eight hours a day or more than eight

Table 4. Percentage distribution of symptoms in the lumbar region about working hour between enhancement and improvement. São José do Rio Preto (SP), Brazil, 2015.

Lumbar region	Working hours			Total
	6 hours	8 hours	More than 8 hours	
Frequently	6 (35.29%)	30 (39.47%)	7 (63.64%)	43 (41.35%)
No	1 (5.88%)	14 (18.42%)	0 (0.00%)	15 (14.42%)
Rarely	10 (58.82%)	23 (30.26%)	2 (18.18%)	35 (33.65%)
Always	0 (0.00%)	9 (11.84%)	2 (18.18%)	11 (10.58%)
Total	17 (16.35%)	76 (73.08%)	11 (10.58%)	104 (100%)
Valor-p			0,025	

Table 5 shows the association between musculoskeletal symptoms in the hips and lower limbs and difficulties in bedtime about working hours. frequent pains in the wrists, hands, and fingers, and psychologists rarely experience pain in these places, as opposed to nurses and professionals from other specialties who claimed they did not feel any pain at these places.

People who work six hours a day have reported no pain in the hips or lower limbs. However, people who work 8 hours a day rarely or frequently have pain in this region, and people with more than eight hours of work a day have reported pain in this region. The higher the workload per day, the greater the incidence of pain in the hip and lower limbs region.

It was verified that the professional category that presented the highest percentage of frequent complaints and rare complaints of forearm pain was the physiotherapist, while the other specialties had a higher percentage for non-occurrence of forearm pain. Physiotherapists also reported

As the hours of work increase, the higher the difficulties found at bedtime. People who work six hours a day do not experience difficulties at bedtime (17 - 100%), while five (45.45%) people who work more than eight hours a day find difficulties at bedtime. Respondents who had trouble in sleeping reported psychic complaints (17 - 80.95%). A smaller number of people who do not experience difficulties at bedtime reported psychic complaints (43 - 51.81%). Perhaps the difficulty at bedtime may be linked to the occurrence of psychic complaints and longer working hours.

Table 5. Percentage distribution of symptoms in the hips and lower limbs about working hours and daily working hours about difficulties at bedtime, between enhancement and improvement. São José do Rio Preto (SP), Brasil, 2015.

Hips and lower limbs	Working hours			Total
	6 hours	8 hours	More than 8 hours	
Frequently	4 (23.53%)	27 (35.53%)	4 (36.36%)	35 (33.65%)
No	8 (47.06%)	17 (22.37%)	1 (9.09%)	26 (25.00%)
Rarely	3 (17.65%)	27 (35.53%)	1 (9.09%)	31 (29.81%)
Always	2 (11.76%)	5 (6.58%)	5 (45.45%)	12 (11.54%)
Total	17 (16.35%)	76 (73.08%)	11 (10.58%)	104 (100%)
p-value	0.009			
Working hours	Difficulty at bedtime		Total	
	No	Yes		
6 hours	17 (100%)	0 (0.00%)	17 (16.35%)	
8 hours	60 (78.95%)	16 (21.05%)	76 (73.08%)	
More than 8 hours	6 (54.55%)	5 (45.45%)	11 (10.58%)	
Total	83 (79.81%)	21 (20.19%)	104 (100%)	
p-value	0.004			

DISCUSSION

As verified by historical and cultural aspects related to health professions, it was observed the prevalence of women acting in the functions of enhancement and improvement. There was also a greater predisposition to musculoskeletal injuries in women. Some studies show that these lesions can be explained by the double working hours (professional and domestic), less ability to convert glycogen to useful energy, fewer muscle fibers and to perform repetitive activities that require greater workability.⁵

In this study, the complaints of musculoskeletal symptoms were high in health professionals, highlighting the area of nursing and physiotherapy, with greater complaints, being close to those described in the literature.^{16,17} The lumbar region, hip and lower limbs and the dorsal region were the most cited by these professionals among the pain locations.

It is also possible to verify that people who do not feel difficulty sleeping also do not feel pain when waking up (61 - 74.39%), while people who experience difficulties to sleep also feel pain when waking up (12 - 57,14%). Thus, the fact that the person feels difficulty sleeping can presume the occurrence of pain upon waking up.

The results showed that 10 (90.91%) people who work more than eight hours a day presented some psychic complaint. The same occurred with people who worked six hours a day (12 - 70.59%) and a lower percentage of people who worked eight hours a day (38 - 50.00%). This situation makes it possible to assume that the occurrence of psychic complaints is linked to the longer working day.

Significant factors for the occurrence of musculoskeletal disorders were: high working hours, taking weight, inadequate furniture and inadequate postures, a fact that has also been identified in other studies.^{6,7,18}

Also, the health care reality of university hospitals is a serious aggravating factor for the health of workers. Overcrowding generates work overload for professionals, both from the quantitative point of view and the severity of the patients' clinical situation since the presence of severe patients in noncritical and semi-critical units is increasingly frequent. With this, the level of emotional and physical tension promotes or aggravates the organic disorders.

Another complaint that was highlighted by physiotherapists is a pain in the forearm, wrists, hands and fingers. According to the literature, the cause is associated with incorrect techniques, lack of observance regarding ergonomic aspects and the execution of low-amplitude, fast and repetitive movements.¹⁷

In the daily work, it is observed a greater demand for the youngest in the activities that demand greater physical effort within the group of workers, for example, weight lifting, maintenance of the body in physically uncomfortable positions and to travel long distances. Perhaps this situation explains, in part, the greater reference for pain in the vertebral and lower limbs in this group of workers.

In this study, subjects who work more than eight hours a day had more complaints in the neck, lower back, hips and lower limbs, in contrast to those who work six hours a day, who complain less pain. Other studies have also verified this relationship between working hours and musculoskeletal disorders.

Another important factor considered in the study was the psychosocial disorders, suffering significant interferences about the work organization. The results showed that 57.69% have some psychic complaint, and as the workday increases, the percentage of complaints increases as well. The high percentages may be evidenced by complaints such as discouragement and difficulty concentrating - which were referred more often by the workers studied.

The literature shows that excessive dedication to professional activities interferes negatively with the time available for rest and leisure.¹⁹

According to Normative Instruction nº 98/2003, the cognitive demands of work are risk factors and may play an important role in the occurrence of musculoskeletal disorders, either by increasing muscle tension or by causing a more widespread reaction to stress.

The results of the study point to the need to implement strategies that educate students and teachers about the risk of the profession to prevent physical and mental limitations resulting from these organic disorders in newly trained professionals and at the productive age. However, discussions and research are still needed to identify the state of professional satisfaction, variables involved and their relationship with the influence of the trajectory of training and the stage of professional development²¹, as well as changes in the educational and work practices to which the professionals evaluated.

CONCLUSION

The nurses and physiotherapists were the professionals with the most complaints of musculoskeletal disorders, especially the injuries to the vertebral and lower limbs. Also, working more than eight hours a day and carrying weights were aggravating factors of musculoskeletal system problems.

Important information has been revealed of musculoskeletal morbidities that compromise the quality of life of the students and improve the study, especially in the areas of nursing and physiotherapy, offering subsidies for proposing and implementing educational measures in this context.

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