WORK ABILITY AND LOW BACK PAIN AMONG WORKERS FROM A PUBLIC HEALTH INSTITUTION

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ABSTRACT

This study investigated the association among low back pain and the work ability. A cross-sectional study was developed covering all workers from a public health institution (n=651). They answered a questionnaire on demographics, work, lifestyle characteristics and work ability. The evaluation of work ability was developed with the work ability index (WAI). An univariate logistic regression analysis was carried out having the presence of the studied disease as a dependent variable and showed association in relation to the following WAI items: low work ability in relation to physical demands of the work, high estimated work impairment due to diseases, high sickness absence, low own prognosis of work ability two years from now and poor mental resources. The presence of low back pain affected several aspects of the work ability.

Descriptors: Low back pain. Cross-sectional studies. Work capacity evaluation.

RESUMO

Este estudo investigou a associação entre dor lombar e a capacidade para o trabalho. Foi desenvolvido um estudo transversal abrangendo todos os trabalhadores de uma instituição pública de saúde (n=651). Eles responderam a um questionário sobre a capacidade para o trabalho e as características sócio-demográficas, de trabalho e de estilo de vida. A capacidade para o trabalho foi avaliada com o índice de capacidade para o trabalho (ICT). Uma análise de regressão logística univariada foi desenvolvida tendo a presença da doença estudada como variável dependente e mostrou associação em relação aos seguintes itens do ICT: baixa capacidade para o trabalho em relação às demandas físicas do trabalho, alto impedimento estimado ao trabalho devido a doenças, alta freqüência de ausência do trabalho por doença, baixo prognóstico da capacidade para o trabalho daqui a dois anos e recursos mentais reduzidos. A presença de dor lombar afetou vários aspectos relacionados à capacidade para o trabalho.

Descritores: Dor lombar. Estudos transversais. Avaliação da capacidade de trabalho.
Título: Capacidade para o trabalho e dor lombar entre trabalhadores de uma instituição pública de saúde.

RESUMEN

Este trabajo estudió la asociación entre el dolor de la región lumbar y la capacidad de trabajo. Fue desarrollado un estudio transversal con todos los trabajadores de una institución pública de salud (n=651). Los participantes respondieron a un instrumento de colecta de datos generales, ocupacionales y relativos al estilo de vida. La capacidad de trabajo foi evaluada con el Índice de Capacidad de Trabajo (ICT). Un análisis de regresión logística univariada fue desarrollado en presencia de la enfermedad estudiada como variablel dependienteye mostró asociación con relación a los siguientes items de ICT: baja capacidad de trabajo con relación a las demandas físicas del trabajo, alto impedimento estimado al trabajo debido a las enfermedades, alta frecuencia de ausencia del trabajo por enfermedad, bajo prognóstico de capacidad para el trabajo para dentro de dos años y disminución de los recursos mentales. La presencia del dolor lumbar afectó varios aspectos relacionados con la capacidad para el trabajo.

Descriptores: Dolor de la región lumbar. Estudios transversales. Evaluación de capacidad de trabajo.
Título: Capacidad para el trabajo y dolor de la región lumbar entre trabajadores de una institución pública de salud.

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INTRODUCTION

Musculoskeletal disorders had been investigated due to the fact that they constitute an important cause of absenteeism and disability among workers[1-3]. Researches concerning the relation among these diseases and work ability had been developed[4].

Low back pain is a common health problem and research concerning the development of instruments to evaluate it had been developed, validated and used in several countries[5]. For the same reason intervention programs to reduce the occurrence of low back pain had been developed[6,7].

This study has the objective to investigate the association between diagnosed low back pain and the work ability, the demographics, as well as work and lifestyle characteristics of workers from a public health institution.

METHODOLOGY

This is a cross-sectional study that investigated the factors associated with low back pain (LBP), work ability, work, life style and demographics characteristics among workers from a public health institution. The studied population was all the workers from the institution that were working during the data collect and that accepted to participate. The response rate was 89.4% (n=651).

All subjects completed a questionnaire concerning the demographics, work, and lifestyle characteristics and the work ability. The last one was evaluated through the Work Ability Index (WAI)[8]. This instrument covered seven items: the current work ability compared with the best in life, the work ability in relation to the job demands, the number of current diseases diagnosed by a physician, the estimated work impairment due to diseases, the occurrence of sick leave during the past 12 months, the person's own prognosis of work ability two years from now and the mental resources.

The presence of low back pain was verified by WAI item 3, the current disease diagnosed by a physician. The presence of low back pain included the positive answers to one or both questions concerning the presence of disorder of the lower back and sciatica (n=95).

The research project was approved by the Ethics Committee of Federal University of São Carlos, protocol number 42, 2001. All subjects who participated in this study were asked to provide written consent.

A descriptive analysis was prepared using Epi-Info version 6.04d. An univariate and a multivariate logistic regression analysis was carried out using Statistical Analysis System (SAS) version 8.2, and the dependent variable was the presence of the studied diseases, low back pain.

RESULTS

The age of the subjects varied between 20 and 69 years. The mean age was 43.2 (10.6) years for women and 49.0 (10.7) for men. The women comprised 63.7% of the studied population. The low back pain prevalence was 13.6% (32) among men and 15.2% (63) among women. Table 1 shows the association between the studied disease and some demographic, work and lifestyle characteristics disease.

The prevalence rates of LBP increased with the age and the descriptive analysis showed association ($p<0.05$) between the presence of the studied disease and the age group.

The prevalence of disease decreased with the increase of the educational level, and it was more frequent in the category "eight years".

The work characteristics associated with the LBP were the type of the work (physical>mixed> mental), the longer duration of the work at the institution, the work sector Laundry (45.3%), the previous job maid (28.8%) and the current occupations auxiliary service (38.9%). There were no differences in the prevalence of disease between the subjects that have other job or not, independent of the time spent weekly in the other job.

Among the lifestyle characteristics, only the body mass index was associated with low back pain. There were no differences in the distribution of the studied disease in relation to do housework activities, the practice and duration of physical exercise and to have leisure activities.

In relation to the work ability index the mean value was 35.2 (SD6.6) among the subjects with low back pain and 41.9 (SD4.0) among the others, p value <0.0001.

The current work ability compared with the lifetime best, that varies from 0 to 10, was 7.8 (SD1.7) among the workers with LBP and was 8.4 (SD1.2) among the workers without the disease, p value 0.0003 (Mann Whitney).

Table 1 – Low back pain and demographic, work and lifestyle characteristics. São Carlos, SP, 2009.

Variable	Low back pain				P-value
	Yes (n=95)		No (n=556)		
	N	%	N	%	
Age group					
20-34	6	5.0	113	95.0	0.0118
35-44	22	12.8	150	87.2	
45-54	39	17.2	188	82.8	
55-69	28	21.0	105	79.0	
Education*					
4	34	18.1	154	81.9	0.098471
8	21	21.4	77	78.6	
11	32	12.0	235	88.0	
Undergraduate c.	8	8.2	90	91.8	
Work demand					
Physical	45	20.4	175	79.6	0.0672
Mental	11	8.9	113	91.1	
Physical/mental	39	12.7	268	87.3	
Time of work at Institution*					
Until 10 years	27	9.5	257	90.5	0.00457
11-20	20	12.4	141	87.6	
Over than 20	48	23.3	158	76.7	
Body index mass†					
Normal (≤24.9)	32	9.9	290	90.1	0.0286
Overweight (≥25≤29.9)	39	17.4	185	82.6	
Obesity (≥30)	19	23.2	63	76.8	
Smoking habits					
Yes	53	17.8	245	82.2	0.0762
No	42	11.9	311	88.1	

* In years; † Missing data: 23.

The work ability items associated with LBP (Table 2) were: work ability in relation to the physical demands of the job (p=<0.0001), estimated work impairment due to diseases (p=<0.0001), sick leave (p=0.0467), own prognosis of work ability two years from now (p=<0.0001) and the three questions concerning the mental resources: to be able to enjoy the daily activities (p=0.0333), be able to be active and alert (p=0.0038) and be able to be full of hope for the future (p=0.0119).

In the work ability index category "poor work ability" there were 76.5 of subjects with low back pain.

The univariate logistic regression analysis (Table 3) was carried out using the presence of low back pain as a dependent variable and association was found in relation to the age group (>45 years old), the type of work demand (physical worse than mental), the longer duration of the work at institution and the body index mass (>24.9) was found. The presence of low back pain were associated with the following items of WAI: low work ability in relation to physical demands of the work, high estimated work impairment due to diseases, high sickness absence, low own prognosis of work ability two years from now and poor mental resources.

Table 2 – Low back pain and work ability index items. São Carlos, SP, 2009.

Variable	Low back pain				P-value
	Yes (n=95)		No (n=556)		
	N	%	N	%	
Work ability in relation to the physical demands of the work					
Excellent	16	7.9	185	92.1	<0.0001
Good	37	11.9	274	88.1	
Moderate	31	26.5	86	73.5	
Very poor/poor	11	50.0	11	50.0	
Estimated work impairment due to diseases					
There is no hindrance	25	6.2	380	93.8	<0.0001
Causes some symptoms	19	19.2	80	80.8	
I must sometimes change my work methods	30	27.8	78	72.2	
Often change my work methods	11	50.0	11	50.0	
I am able only for part time work/I am entirely unable to work	10	58.8	7	41.2	
Sick leave					
None at all	66	13.0	443	87.0	0.0467
Until 15 days	18	19.3	75	80.7	
16-24 days	5	35.7	9	64.3	
25-99 days/100-365 days	6	17.1	29	82.9	
Own prognosis of work ability two years from now					
Relatively certain	52	9.9	473	90.1	<0.0001
Not certain	31	33.0	63	67.0	
Unlikely	12	37.5	20	62.5	
Be able to enjoy daily tasks					
Always	49	12.5	344	87.5	
Rather often	30	15.2	167	84.8	
Sometimes/rather seldom/never	16	26.2	45	73.8	
Be able to be active and alert					
Always	50	12.5	350	87.5	0.0333
Rather often	33	15.3	183	84.7	
Sometimes/rather seldom/never	12	34.3	22	65.7	
Be able to be full of hope for the Future					
Continuously	39	11.4	302	88.6	0.0119
Rather often	28	15.8	149	84.2	
Sometimes	17	17.5	80	82.5	
Rather seldom/never	11	30.5	25	69.5	

Table 3 – Univariate logistic regression analysis of demographics, work, lifestyle and work ability index items in relation to the presence of low back pain: odds ratio (OR) and confidence intervals (CI). São Carlos, SP, 2009.

Variable	OR	CI
Age group	3.9	1.6-9.5
Type of work demand	2.6	1.3-5.3
Time of work at institution	4.3	1.2-14.7
Body mass index	1.9	1.1-3.1
Work ability in relation to physical demands	4.1	2.1-8.0
Estimated work impairment due to diseases	3.6	1.8-6.8
Sick leave last year	3.7	1.2-11.4
Own prognosis of work ability to years from now	4.4	2.6-7.5
Be able to enjoy the daily activities	2.2	1.1-4.6
Be able to be active and alert	3.0	1.3-6.9
Be able to be full of hope for the future	3.4	1.5-7.4

The multiple logistic regression analysis showed association between the low back pain and the longer duration of the work at institution (OR 6.5, CI 1.4-30.1), the body index mass >24.9 (OR 2.3, CI 1.3-4.2) and the high estimated work impairment due to diseases (OR 4.0, CI 1.9-8.4).

DISCUSSION

Musculoskeletal disorders have a multifactorial nature and personal factors are part of it. Examples of these kind of factors are age, gender, smoking, body mass index (obesity), socioeconomic status, physical activity, muscle strength and medical history[9-12]. Others related factors indicated by the literature[13] are psychosocial factors and factors related to the work, as the workplace requirements and workplace organizational factors. The work ability is affected for several of these factors, too[4,8,14].

In this study association was found among low back pain presence and the age group (older worst than young), and the work ability in relation to the physical demands of the work too. The concept of ageing workers[15] show that at age 45 and over the work ability in relation to the physical demands of the work decreases faster than before this age. This study showed an association between musculoskeletal disease and age over 44 years and the longer duration of the work at institution. The relationship between age and some specific factors are well established. For example, the prevalence of back pain increases with age[16,17].

A survey in 15 countries in European Union found prevalence of 40% of musculoskeletal symptoms related to their work[15] among the workers 45 years old and over.

Studies have demonstrated the impact of physical load on disability due to back pain among workers with exposure to physical load.

Other aspects associated to the studied disease were the estimated work impairment due to diseases and the sick leave[18]. Disability due to back pain was identified as a prognostic factor for recurrent back pain and future sickness absence due to the same disease[19].

Aspects of the daily life, such as housework and sports, may present physical stresses to the musculoskeletal system[16]. However, we did not find associations between low back pain, housework physical and leisure time activities.

The musculoskeletal disorders have a marked deleterious effect on quality of life. The physical function is predominantly affected, but mental and social domains also impaired[20].

More epidemiologic research, including longitudinal one, is needed to better understand the impact of interactions between risk factors to establish preventive strategies.

Reducing specific risk factors of low back pain is an important target to improve the work ability and the quality of life of the workers.

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Recebido em: 10/12/2008
Aprovado em: 05/05/2009