



Research Article

WORK - RELATED MUSCULOSKELETAL DISORDERS AMONG CALL CENTER EMPLOYEES

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ABSTRACT

An analytically cross-sectional study was conducted to evaluate the presence of work related musculoskeletal disorders among call-centre employees. Two hundred and twenty seven employees selected at random formed the sample for the investigation. A self—reporting questionnaire was used to collect data on the practice of physical exercise, the presence of pain during or soon after the work schedule and the adoption of preventive measures related to clinical activities. Results were analysed. The χ^2 test was used to identify associations between variables. The presence of pain during or after clinical work was reported by 76.2 per cent respondents. Statistically significant differences were found between gender and the occurrence of pain. Pain was present during work ($C=0.006$) and imposed limitations on work routine ($P=0.011$). The high percentage of pain reported by call center employees suggest reviewing work conditions in call centers in order to reduce employees' exposure to risk factors for developing musculoskeletal disorders.

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INTRODUCTION

Call centers are a rapidly growing industry in many countries. Call center operators spend most of their time transacting business via phones fitted with earpieces, usually supported by computers and possibly using catalogue holders for ease of access of reference materials, calculators and other accessories¹. Call center employees generally deal with incoming customer calls, with the workers providing customer calls, sales activities or market surveys on prospecting for new clients. The work is more repetitive, lacked autonomy and a structural work/rest schedule. These employees are often under stress due to call time pressures, need to process the customers call with in a specific number of seconds. Awkward postures and repetitive movement of wrist is unavoidable few studies have examined the multiple health risks that call center workers face in relation to job stress in the workplace^{2,3}. Stress, fatigue and some types of psychological depression could also trigger pain even if no lesion was present. There are many more pathologies included in the Work Related Musculoskeletal Disorders (WMSD) group, such as synovitis, bursitis, tendinitis, tenosynovitis, carpal tunnel syndrome, Guyon's canal syndrome and cubital tunnel syndrome⁴.

An interaction of several factors is necessary to unleash these pathologies, mainly the ones related to the absence of ergonomic orientation or lack of attention in its use, such as anatomical and physiological fatigue due to physical/muscular strain, wrong working posture, repetitive movements, improperly designed work stations and long work hours⁵. Call center employees are often exposed to risks inherent to static work. Therefore, the assessment of call center employees' knowledge about WMSD pathologies may highlight characteristics of the pain observed in this group and how the lack of attention to prophylactic actions can increase ergonomic risks hidden in their occupational activity.

METHODOLOGY

This analytical cross-sectional study was carried out in Hyderabad and Secunderabad of Telangana. The sample comprised of 227 call center employees. A self-reporting questionnaire with twenty closed questions was developed based on the pattern of work-related injuries. The key concepts were related to the presence or absence of pain; its intensity; reasons for pain to get worse; its persistence while resting on at night; the practice of physical exercise; the adoption of preventive measures, the presence of pain during work or soon after work, the characterization, anatomical localization, consequences of the pain and whether the respondents had already experienced some pathology related to WMSD.

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Furthermore, there were questions about the use of drugs to control pain and other therapies like acupuncture and physiotherapy. The validity of the questionnaire was tested in a pilot study. Test-retest reliability was established by making thirty employees who participated in the study to 80 through the interview second time. This second interview was conducted at least one month after the first one and presented the call center employees with the same questions used in the first interview. The analysis of data obtained in this way showed a high consistency in the call center employees' responses.

RESULTS

Out of the total 227 call center employees participated in the study, Ninety four (41.9%) of the sample were female and 132 (58.1%) were male. The age of the participants ranged from nineteen to forty four years and the median age was twenty-two years. When questioned about WMSD, 176 employees (77.5%) reported that they were unaware of its meaning.

Among the forty-two subjects (18.5%) who indicated that they knew what WMSD meant, only eleven (4.8%) defined it correctly. One hundred and twenty three employees (54.2%) indicated that they had not taken a course. However, 193 participants (85%) reported that they had received some guidance in relation to ergonomic measures to be followed in office work station forty-two students (18.5%) including sixteen males (38.1%) and twenty-six females (61.9%) reported that they had already been diagnosed with WMSD such as spondylagia, bursitis and tendinitis. The presence of pain or fatigue during or soon after attending to duty was mentioned by 173 (76.2%) call-center employees. Fisher's exact test showed statistically significant differences between gender and the occurrence of pain, the diagnosis of WMSD and the type of lesions diagnosed is shown in Table.1. When asked about the anatomical localization of the pain, 119 participants (52%) answered that they had felt pain in more than one body region. Four per cent, 5 per cent and 7 per cent reported pain in the cervical, dorsal and lumbar regions, respectively.

Table 1. Characterization of pain and WMSD diagnosis, according to age

Variables	Young Adult 19 to 23 years		Adult 24 to 44 years		Total group	
	N	%	N	%	N	%
Characteristics of pain (P=0.814)						
Slight	56	35.4	23	33.3	79	34.8
Moderate	58	36.7	16	23.2	74	32.6
Strong	4	2.5	4	5.8	8	3.5
Did not answer	7	4.4	5	7.2	12	5.3
Do not feel pain	33	20.9	21	30.4	54	23.8
Diagnosis of WMSD (P=0.976)						
Yes	31	19.6	11	15.9	42	18.5
No	122	77.2	57	82.6	179	78.9
Did not answer	5	3.2	1	1.4	6	2.6
Diagnosis of lesions (P=0.998)						
Tendinitis	9	5.7	1	1.4	10	4.4
Bursitis	2	1.3	-	-	2	0.9
Synovitis	1	0.6	1	1.4	2	0.9
Back Pain	19	12.0	11	15.9	30	13.20
Others	2	1.3	-	-	2	0.9
Did not hour lesions	125	79.1	56	81.2	181	79.7

Note P- Value for χ^2 test: P>0.05. Percentages may not total 100% because of rounding

Table 2. Intensity, frequency and perception of pain according to gender variable

Variables	Male		Female		Total group	
	N	%	N	%	N	%
Intensity of pain (P=0.543)						
Slight	33	34.7	46	34.8	79	34.8
Moderate	25	26.3	49	37.1	74	32.6
Strong	2	2.1	6	4.5	8	3.5
Did not answer	7	7.4	5	3.8	12	5.3
Do not feel pain	28	29.5	26	19.7	54	23.8
Frequency of pain (P=0.832)						
Rarely feel pain	30	31.6	31	23.5	61	26.9
Monthly	9	9.5	19	14.4	28	12.3
Weekly	13	13.7	39	29.5	52	22.9
Daily	5	5.3	8	6.1	13	5.7
Did not answer	10	10.5	9	6.8	19	8.4
Do not feel pain	28	29.5	26	19.7	54	23.8
Perception of pain (P=0.383)						
Fatigue or slight pain without irradiation	51	53.7	81	61.4	132	58.1
Persistent and more intense pain, persisting paraesthesia	7	7.4	17	12.9	24	10.6
Persistent and strong pain with irradiation and productivity reduction	1	1.1	1	0.8	2	0.9
Strong and continuous pain with intense and incapacitating suffering	-	-	2	1.5	2	0.9
Did not answer	8	8.4	5	3.8	13	5.7
Do not feel pain	28	29.5	26	19.7	54	23.8

Table 3. Time and place pain was felt and caused limitations according to gender

Variables	Male		Female		Total group	
	N	%	N	%	N	%
Feel pain (P=0.037)						
At work, ceasing at night, without sleep disturbance	44	46.3	83	62.9	127	55.9
During work, persisting at night causing sleep disturbance	5	5.3	9	6.8	14	6.2
Pain even at rest with sleep disturbance	1	1.1	6	4.5	7	3.1
Did not answer	17	17.9	8	6.1	25	11.0
Do not feel pain	28	29.5	26	19.7	54	23.8
The pain causes limitations (P=0.041)						
At work	20	21.1	38	28.8	58	25.6
At leisure time	2	2.1	4	3.0	6	2.6
At daily routine	2	2.1	19	14.4	21	9.3
Even at rest	2	2.1	2	1.5	4	1.8
In all of the above options	2	2.1	3	2.3	5	2.2
In more than one of the above options	4	4.2	3	2.3	7	3.1
Did not answer	33	34.7	30	22.7	63	27.8
Does not cause	28	29.5	26	19.7	54	23.8

Shoulders (2%), wrists (2%), hands (2%), legs (1%) and other body regions were also named as locations of pain of the participants who reported pain, 132 (76.3%) did not seek medical assistance. Pain occurred often during the employees work time ($\chi^2=14.62$; $P=0.006$), causing limitations in their work routine ($\chi^2=19.71$; $P=0.011$). In addition to differences between genders, Table 2 and 3 characterize pain according to intensity, frequency, perception and the occurrence of physical limitations. One hundred and forty-six call center employees (64.3%) reported taking preventive actions against the occurrence of WMSD. The more frequent preventive actions were correct working posture (14.1%), utilization of adequate furniture and ergonomic equipment (3.1%), pauses during the work day (2.2%), muscular relaxation techniques (1.8%) and a combination of two or more of these preventive measures (41%). The regular practice of physical exercise (walking, jogging, using exercise equipment for cardiovascular conditioning, weight fitting etc.) was reported by 118 participants (52%). Body-building and walking/running was the most frequently mentioned forms of exercise at 20.3 per cent and 16.7 per cent respectively. When the occurrence of pain was evaluated among those who reported regular exercise, it was observed that eighty-eight (74.6%) reported pain during or soon after their work. However, there were no statistically significant differences between the practices of pain in this study ($\chi^2=2.494$; $P=0.287$).

DISCUSSION

Musculoskeletal disorders are some of the most important work-related problems currently reported⁶. Occupational diseases have not only physical, psychological and social consequences but also economic⁷ and security impacts when they reach a level of severity that directly affects more capacity, causing absences and early retirement. In the present study, a high percentage of call center employees reported pain or fatigue during or soon after work. This weekly slight/moderate pain was mostly related to fatigue, stopped at night, did not disturb sleep and did not radiate to other areas of the body. However, this pain contributed to limitations at work and daily routine. It was observed that the employees knowledge of WMSD was precarious, however, many know ledged they had received some guidance in relation to ergonomics, which aims to adopt the individual to his or her work environment.

Regarding anatomical distribution of pain, it was observed that spondylalgia predominated over appendicular pain. Overall, the presence of pain was detected in more than one body region at a time. In spite of the pain complaint, most of the participants reported that they did not seek medical care to have either the pain evaluated or its causes diagnosed. The occurrence of WMSD was higher among female than the male employees and there were statistically significant differences. The regular practice of physical exercise is one strategy for prevention of WMSD. Call center workers were found to have an increased risk of developing musculoskeletal disorders and more painful or persistent conditions. The findings of the study highlight the need for educational programs to employees to reduce the incidence of WMSD with in the profession.

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