

Work-Related Musculoskeletal Disorders Among Physiotherapists in Hellenic Armed Forces Hospitals

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Abstract

First reports go back to the 17th century when Ramazzini related for the first time this profession to musculoskeletal disorders. Focus on research and solution to this has been made only recently as it has become a problem with high costs due to lost labor hours and increased prevalence among the practitioners. The financial cost to the general population is high, both directly utilizing money spent and indirectly in the shape of lost manpower hours due to illness. The purpose of this pilot perspective study was to examine the levels of musculoskeletal pain in physiotherapists working in the Hellenic Armed Forces hospitals and research the risk factors. A three-page questionnaire consisting of close-ended questions was used. The collection of data was carried out by personal interviews using the PAPI method and took place from May of 2016 through January of 2017. Questionnaires were given to thirty-seven physiotherapists giving a response rate 54%. 85% of the participants reported pain in at least one anatomical range of their body during last year, with the most commonly affected were the upper and lower back, knees and neck. The study presents a statistically important correlation. Fitness and stress have an impact on musculoskeletal pain level as it was identified in this study. Understanding work risk factors which lead to occupational musculoskeletal injuries may help to take precautions and improve the quality of the healthcare system.

Keywords: Musculoskeletal Disorders; Occupational Diseases; Armed Forces' Hospitals; Risk Factor; Physiotherapists

Abbreviation

PAPI: Pen and Paper Personal Interviews

Introduction

Health care workers experience daily exposure to occupational hazards at their workplace and musculoskeletal pain is the most frequent complaint. Work-related Musculoskeletal Disorders (WMSDs) are some of the most common occupational disorders reported by the hospital workforce. Physiotherapists are an important occupational group of the healthcare system that contribute to the treatment and management of patients with various

health statuses during hospitalization at the hospital and therefore physiotherapists' work tasks may lead to WMSDs [1].

International literature has reported a high incidence of WMSDs among the working force in developed countries [2]. Data proves that WMSDs are among the most prevalent form of occupational disorders. Some authors have reported high rates of WMSDs in physiotherapists [3-6].

Physiotherapists which suffer from WMSDs continue to work despite the pain. More than 70% of them reported altering working activities and their daily habits, while 30% of them considered

leaving the profession [7]. WMSDs have become a major concern for employees, employers and governments because of their negative impact on the quality of life and productivity of the employees [3].

Only a few studies in international literature deal with WMSDs among physiotherapists in Greece and there is no evidence about physiotherapists who work in Hellenic Armed Forces hospitals.

Materials and Methods

The pilot study took place from May 2016 to January 2017 in the hospitals that are in the Attica region: the 401 General Military Hospital of Athens, the Navy Hospital of Athens, the 251 General Air Force Hospital and the 414 Military Hospital for Special Diseases. The sample was 37 physiotherapists which work at these hospitals full time. Physiotherapists which join the Armed Forces hospitals must pass educational and testing requirements of basic military training that ranges from four to forty-two weeks.

In total, 37 subjects were approached in person of which 20 participated and the remaining 15 subjects chose not to take part in the study, one subject was absent due to pregnancy leave and one other was on sick leave. The response rate was 54%.

The sample consisted of 60% women and 40% men. The average age was 40. The average BMI (Body Mass Index) was 24.9. The average duration of professional activity was 15 years.

The Nordic of the Musculoskeletal Symptoms Questionnaire (NMQ) was used during the PAPI (Paper and Pencil Interview) with each subject. The NMQs Antonopoulou M., *et al.* [8] (all questions), the Örebro Musculoskeletal Pain Questionnaire Linton., *et al.* [9], (five questions) and finally the author's questions, formulated to reflect Greek reality and considering ergonomic positioning and exercise levels of the subject.

More specifically, the NMQs were used integrally after obtaining permission from Antonopoulou M, Ekdahl C., Sgantzios M., Antonakis N. and Lionis C., who translated the questionnaire from Swedish to Greek in 2004. The five questions used from the ÖMPQ were translated by the author. The resulting amalgamated questionnaire comprised 47 questions and the average time to complete it was 10 minutes. At the end of the questionnaire, there was a section for comments and suggestions.

The statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) 20.

Results and Discussion

The results of the statistical analysis show that 85% of the sample mentioned pain in at least one part of their body area during the previous year.

The body areas in pain, as they appear in the questionnaire, provided by the answers given. Feeling of pain in body areas during last year and last week are quite similar, therefore symptoms that last more than six months consider subjects have some chronic pain. Of that sample, 35% has reported upper and lower back pain, 30% reported knee pain, 25% neck pain, 20% wrists and hands pain, 15% shoulders pain, 15% hip pain, 10% elbow pain and 5% ankles and feet pain during the last year. During last seven days, the percentages are different, 40% has reported upper back pain and 25% has reported lower back pain, 20% knee pain, 40% neck pain, 20% wrists and hands pain, 15% shoulders pain, 20% hip pain, 5% elbow pain and 5% ankles and feet (Figure 1).

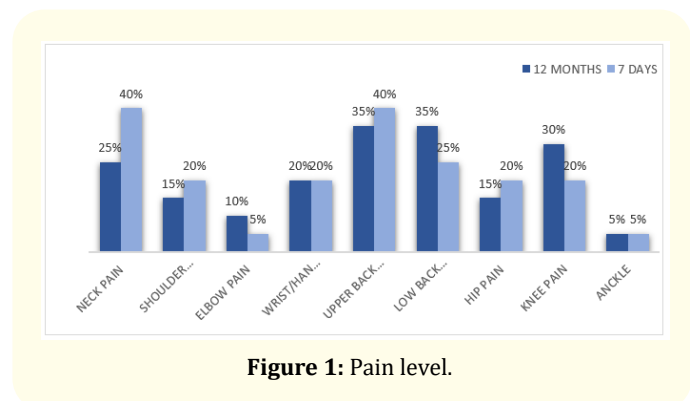


Figure 1: Pain level.

Regarding the feasibility of assuming ergonomically correct positions most of the subjects reported that they use their body in ergonomic position while working, a big part of them mentioned at least one part of their body that is in pain. The ergonomically correct positioning is in direct proportion to the absence of musculoskeletal pain in international literature, but there are no significant differences were found in this study [10].

Gender and pain

Women reported pain in 91.6% of the cases whereas men in only 75% during the last 12 months (Figure 2).

A statistically significant relationship between musculoskeletal pain and gender was found to be ($p < 0,05$) 87.5% for women that reported that they had neck pain during last week while 58.3% of men reported that they did not have neck pain (Table 1).

Figure 2: Correlation between pain and gender.

Correlation between neck pain and gender during the last Seven Days		Gender	
		Men	Women
No	Population	7	5
	%	58,3%	41,7%
Yes	Population	1	7
	%	12,5%	87,5%
P value = 0.040			

Table 1

Exercise

The summary table of the sample charting exercise habits shows that 65% exercise while 35% don't (Table 2).

Of those who exercise, 50% report medium intensity exercise and 45% low impact exercise.

With regards to the frequency of exercise, 30% exercised once a week, 40% exercised twice weekly, 15% exercised three times a week and 15% daily (Table 2).

Exercise						
Yes		No				
65%		35%				
Intensity of Exercise			Frequency of Exercise			
High	Medium	Low	1 time a Week	2 times a Week	3 times a Week	Every day
5%	50%	45%	30%	40%	15%	15%

Table 2

One other point worth noticing was that 50% of the sample, report good physical condition exercising or not (Table 3).

Physical Condition					Total
Bad	Average	Good	Very Good	Excellent	
5%	35%	50%	5%	5%	100%

Table 3

The question here is to what extent there is a correlation between exercise and the appearance of work-related musculoskeletal discomfort.

The study does show a statistically significant correlation ($p < 0,05$), especially regarding the appearance of neck pain, upper back pain and elbow pain (Table 4).

Musculoskeletal pain on body areas	Yes	No	Exercise		P value
			Population	%	
Neck pain - 12 Months	No	Population	12	3	0,015
			80,0%	20,0%	
	Yes	Population	1	4	
			20,0%	80,0%	
Neck pain - 7 Days	No	Population	10	2	0,035
			83,3%	16,7%	
	Yes	Population	3	5	
			37,5%	62,5%	
Upper Back pain - 7 Days	No	Population	10	2	0,035
			83,3%	16,7%	
	Yes	Population	3	5	
			37,5%	62,5%	
Elbow pain - 12 Months	No	Population	13	5	0,042
			72,2%	27,8%	
	Yes	Population	0	2	
			0,0%	100,0%	

Table 4

Subjects which exercise reported that did not suffer from neck pain 80% of the time and elbow pain 72,2% of the time during last year. Also, 83% did not suffer from neck pain while 72,2% did not suffer back pain during last week.

Mental state

Subjects were asked regarding (a) workload, (b) anxiety, (c) feeling of sadness and (d) satisfaction from their work to associate these job factors to MSDs. The perspective percentages were:

- 50% of the subjects defined their job almost heavy, 30% no heavy and 20% extremely heavy.
- 40% of the sample reported feeling quite stressed, 20% very stressed and the rest 40% of them not stressed at all
- 85% of the subjects reported no feelings of sadness
- Regarding job satisfaction, 55% are quite satisfied with their job and 30% are not satisfied.

A statistically significant relationship between musculoskeletal pain and anxiety was found ($p < 0,05$) (Table 5). There is a positive correlation between MSDs and anxiety, particularly regarding neck pain and shoulder pain during last week and lower back pain during last year. Subjects felt very stressed reported 50% neck pain and 75% shoulder pain last week. Subjects felt quite stressed reported 85,7% lower back pain.

Musculoskeletal pain on body areas			Anxiety			P value
			Very			
Neck pain - 7 Days	No	Population	6	6	0	0,024
		%	50,0%	50,0%	0,0%	
	Yes	Population	2	2	4	
		%	25,0%	25,0%	50,0%	
Shoulders pain - 7 Days	No	Population	8	7	1	0,007
		%	50,0%	43,8%	6,2%	
	Yes	Population	0	1	3	
		%	0,0%	25,0%	75,0%	
Lower Back pain - 12 Months	No	Population	7	2	4	0,008
		%	53,8%	15,4%	30,8%	
	Yes	Population	1	6	0	
		%	14,3%	85,7%	0,0%	

Table 5

The study shows evidence of a high percentage of musculoskeletal pain. In comparing our results to international literature, no differences can be discerned.

Associating gender with WMSDs, study shows a statistically significant correlation ($p = 0,04$) between gender and the appearance of neck pain. Women have reported musculoskeletal pain more than men in some international studies because of gender-related biological differences that define body strength [1]. Besides some studies mention that women are influenced by biological changes associated with pregnancy [11].

There is also a plethora of researches that agree with the notion that physical exercise has a preventive role [12]. Physiotherapists' work activities include repeatedly overloading of their body for a prolonged period to care for patients. Exercise helps strengthen the body. Being in good physical condition contributes to the pre-

vention of WMSDs and improves mental health. The study shows a statically significant correlation ($p = 0,035$) between neck pain, upper back pain during last week and exercise. Associating exercise with neck pain and elbow pain there is also statistically significant correlation ($p = 0,015$ and $p = 0,042$ respectively).

Regarding anxiety, a study shows a statistically significant correlation with neck pain during last week ($p = 0,024$), shoulder pain during last week ($p = 0,007$) and lower back pain during last year ($p = 0,008$). Musculoskeletal pain in the lower back and upper extremities has also been linked to job stress in many studies it the global literature [13-15].

Conclusion

The purpose of this perspective survey is to determine possible job risk factors that affect the physiotherapists of the Hellenic Armed Forces' hospitals, particularly regarding WMSDs. Convenience sampling was used with physiotherapists which were working in the Attica region.

It appears that although physiotherapists know about the ergonomic position and musculoskeletal injuries, this does not, however, prevent them from WMSDs. A good physical condition is a preventing factor of WMSDs, while job stress increases the appearance of WMSDs. Planning prevention strategies for WMSDs are needed.

There were no data for WMSDs in physiotherapists which work in Hellenic Armed Forces' hospitals before. Additional studies are recommended that will examine more Hellenic Armed forces' hospitals to take the indication of evidence.

Discussions about physiotherapists' occupational health in several hospital settings are also recommended. Future studies may take in consider workload (number of patients, shifts, office work etc), the available equipment for physical therapy treatment and the emotional status (burnout, job satisfaction, depression) of physiotherapist in their working environment.

Occupational hazards should be investigated because work interferes with the health and the quality of life of the employees. Preventing occupational diseases help employees' work ability. And it has a benefit on their productivity as well.

Conflict of Interest

We have no financial relationships to disclose.

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