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Preliminary results of a study about musculoskeletal disorders in physiotherapists

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ABSTRACT

Physiotherapy is a healthcare profession associated with a high prevalence of musculoskeletal disorders (MSD). In this study we consider two types of MSD. First, Work Related MSD (WRMSD) resulting, among other, from repetitive movements, high exertion or maintaining inadequate postures; second, injuries that occur suddenly or abruptly as a result of a work accident. The objective of this work was to analyze the prevalence of MSD in physiotherapists in the last 12 months. The study involved 41 physical rehabilitation clinics. The instrument used for data collection was a questionnaire. The results indicate that, in our sample, 72.5% of physiotherapists already had some kind of MSD in the last 12 months. The most affected body region was the lower back and the most commonly cited causal activity of MSD was working in the same posture for long periods of time. The data analysis seems to indicate that these characteristics and the nature of the work activities of physiotherapists are associated with the onset of MSD.

Keywords: Work related musculoskeletal disorders; work accident; physiotherapy; healthcare.

1. INTRODUCTION

The first type of MSD considered in this study was Work Related Musculoskeletal Disorders (WRMSD). These conditions involve a number of inflammatory and degenerative diseases of the musculoskeletal system resulting from the cumulative effects of multiple occupational risk factors, over a period of time (Dias and Nunes, 2012). The risk factors can be subdivided into three groups: physical, psychosocial and individual (Nunes, 2006). The symptoms are the first signs that something is wrong in the human body and may differ from person to person. The types of symptoms associated with WRMSD are localized or radiating pain, localized fatigue, discomfort, pain, edema, tingling sensation, loss of strength, joint stiffness, loss of coordination, and even skin discoloration (Nunes, 2006). The 2nd type of MSD considered in this work result from work accidents. A work accident is a discrete occurrence in the course of work (at the place and working time) leading to direct or indirect personal injury, functional disorder or disease resulting in reduced working capacity or death (Portuguese Parliament, 2009).

Taking into account various international studies (Glover, 2002) there is evidence that physiotherapists with less than 30 years, as well as in the first 4 to 5 years of professional activity, are more likely to contract some kind of MSD. The prevalence of MSD can reach 90%. The most affected body regions are the lower back and wrist/hand, and the 4 main causes of injury are transferring and/or lifting patients, the insufficient number of breaks during the working hours and the excessive number of patients cared per day.

In Portugal the studies of the prevalence of MSD in physiotherapists are scarce. Therefore, it is desirable to undertake investigations in this area, to know the Portuguese panorama of the existence of MSD within the community of physiotherapists. The central objective of this paper is to present the preliminary results of a study about the prevalence of MSD in physiotherapists' community. The complete study can be found in Torres (2014).

2. MATERIALS AND METHODS

The methodology used in this study included the design and the application of a questionnaire. The questionnaire design involved an iterative process, starting with an initial version based on studies of Holder *et al.* (1999) and Cromie, Robertson and Best (2000). A 2nd version was produced based on a review performed by a physician. A 3rd and 4th (final) versions were obtained after the inputs of two groups of physiotherapists. The target population for this study is physiotherapists working in Portugal (mainland) and with a minimum of 2 years of professional experience in healthcare.

The questionnaire has 22 questions, which are divided into personal questions (age and sex), professional questions (years of professional experience in physical therapy, number of weekly hours of direct contact with patients, type of therapy practiced, techniques used, number of patients cared per day) and musculoskeletal disorders related questions (e.g.: body affected regions and type of MSD).

The questionnaires were administered to physiotherapists (either paper-based, by email or using the "Survio" platform) during the period since December 2013 to February 2014. The sample consisted of all physiotherapists from the 41 physical rehabilitation clinics surveyed which accepted replying to the questionnaire. Data collected were processed using the SPSS v.20 software. Descriptive analysis was used for determining relative and absolute frequencies.

3. RESULTS AND DISCUSSION

3.1. Results

A total of 227 physiotherapists answered the questionnaire and 211 questionnaires were considered valid for the study. Within this sample, 61% were female (n = 129). Regarding age, 36% of physiotherapists were less than 30 years old (most in the range from 26 to 30 years), and there was a smaller number of physiotherapists older than 56 years (Fig.1). As to tenure as physiotherapists, the sample ranged from 2 to 37 years and reached the highest frequency (28.9%) at the interval from 5 to 9 years (Fig.2). Regarding the number of weekly hours of direct contact with patients, the sample ranged from 6 to 66 hours and most physiotherapists (66.8%) worked between 31 and 40 hours per week (Fig.3). A portion of 42.5% (n = 153) suffered some kind of MSD in the last 12 months, out of which 60.8% (n = 93) were female.

Most of the injured female physiotherapists (31.2%) were 26 to 30 years old, while most injured males (28.3%) were 36 to 40 years old. Within the group of injured physiotherapists, most female (34.4%) worked for 5 to 9 years as physiotherapist, while most males (30%) worked for 15 to 19 years. Among injured physiotherapists, 71.6% worked between 31 and 40 hours per week in direct contact with patients.

The most affected body regions were the lower back (32.8%), neck and wrist/hand (16.6%), and shoulder (16.2%). There was no MSD reported in the thighs area (Fig. 4).

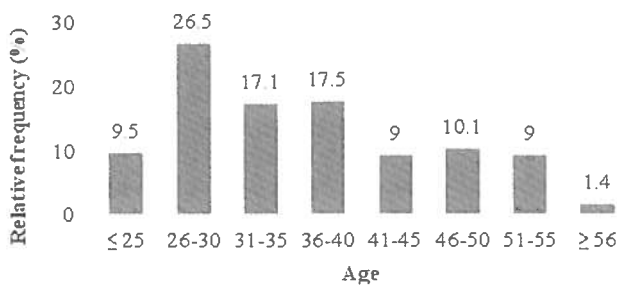


Figure 1- Relative frequency of sample by age



Figure 2 – Relative frequency of sample by years of work

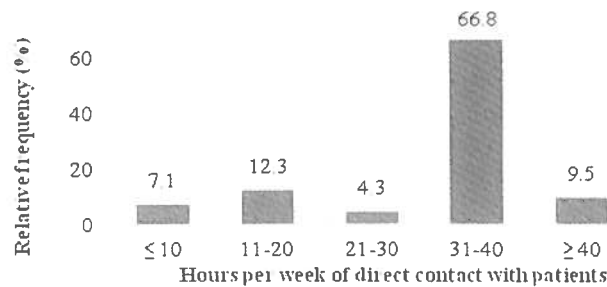


Figure 3 – Relative frequency of sample by hours per week

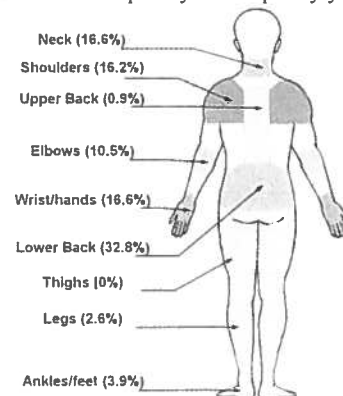


Figure 4 - Relative frequency of affected body regions

The main causal activities of MSD identified by injured physiotherapists (Table 1) were: working in the same position for a long period of time (related with the static posture risk factor); performing repetitive movements (related with the repetition risk factor); working in inappropriate/uncomfortable positions (related with the awkward posture risk factor); and taking care of a large number of patients per day (related *e.g.* with the duration and repetition risk factors).

Table 1 – Relative frequency of MSD causal activity

MSD Causal activity	%
Working in the same position for a long period of time	12.3
Performing repetitive movements/tasks	12.0
Working in inappropriate/uncomfortable positions	10.9
Taking care of a large number of patients per day	10.4
Reacting to patients' sudden movements	9.9
Lifting patients	9.7
Transferring patients	9.2
Keep working, even when tired	9.1
Working with the torso bended or twisted	9.0
Instructing patients	7.5

3.2. Discussion

The results of this study show a high prevalence of MSD in the last 12 months among the physiotherapists sample, which is consistent with the studies of Nordin *et al.* (2011) and Buddhadev and Kotecha (2012).

The population of this study was predominantly female, as also observed in the study of Rozenfeld *et al.* (2010).

The majority of the observed injured physiotherapists worked between 31 and 40 hours per week, while on a study of Holder *et al.* (1999) the prevalence of injury was greater in physiotherapists who worked between 41 and 50 hours per week.

In this sample, the highest portion of injured female physiotherapists (34.4%) had between 5 and 9 years of work as physiotherapists, while 30% of males had between 15 and 19 years tenure. No studies were found addressing this difference between genders. In the found studies (Rozenfeld *et al.* (2010); Adegoke *et al.* (2008)), 45% of the sample had some kind of injury in the first 5 years as a physiotherapist, while for this study, this same portion was 14.7%.

Most of the injured female physiotherapists (31.2%) were 26 to 30 years old, while in the case of males (28.3%) most of the injured physiotherapists were 36 to 40 years old. No other scientific studies were found addressing these differences between gender and age groups.

In the present study, there was no MSD reported in the thighs area. This is consistent with other studies (Bork *et al.* (1996); Salik and Ozcan (2004); Alrowayeh *et al.* (2010); Rozenfeld *et al.* (2010)).

It was evidenced by this study that the anatomical regions most affected by injury were the lower back, the neck and the wrist/hand. This is consistent with the findings of Campo *et al.* (2008) and West and Gardner (2001).

Finally, the most cited MSD causal activities were static postures, repetition, awkward postures and taking care of a high number of patients per day. These findings are identical to the results of other studies (Bork *et al.* (1996), Salik and Ozcan (2004); Glover *et al.* (2005); Adegoke *et al.* (2008); Rozenfeld *et al.* (2010); Buddhadev and Kotecha (2012)).

4. CONCLUSIONS

The results showed that the respondent physiotherapists are subject to physical loads due to the physical exertion resulting from the interactions with patients, materials and workplace equipment. The results pointed out that physiotherapy is a profession with risk for the onset of MSD, mainly due to the exposure of the physiotherapists to treat patients in the same position for a long period of time and by performing repetitive movements. This study was conducted in an attempt to draw attention to a possible problem inherent in the profession of physiotherapists, because, as health professionals, they cannot neglect their own health for the healthcare of their patients.

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