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Work-Related Musculoskeletal Disorders and Risk Factors among Physiotherapists : A Cross-Sectional Study

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Abstract - Physiotherapists, like many other groups, might be vulnerable to WRMSD in a variety of settings. Since research is often conducted in isolated communities or workplaces, there is a dearth of studies that assess WRMSD among Saudi physiotherapists. The purpose of this research was to examine the incidence of WRMSD among Saudi physiotherapists practicing in a variety of clinics and hospitals throughout the country. This research is important because it raises consciousness of WRMSD among physiotherapists, leading to the implementation of preventative measures and the use of ergonomic tools in a variety of practice settings. The participants in this cross-sectional research filled out online questionnaires that asked them about their personal and professional backgrounds and exposure to potential health risks at work. Purposeful sampling was used to recruit 385 physiotherapists. We employed descriptive statistics to assess WRMSD prevalence, and the Chi-Square test to identify associations between WRMSD and potential risk variables.

Keywords - WRMSDs, Physiotherapists, Saudi, risk factors, variations.–

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INTRODUCTION

Physiotherapists face a serious occupational health problem in the form of work-related musculoskeletal diseases (WRMSDs). Pain in the muscles, tendons, ligaments, or nerves that is directly or indirectly related to employment is called a work-related musculoskeletal condition (WMSD). Due to the repeated and aggressive nature of their profession, as well as the lengthy periods of standing and unnatural postures required, physiotherapists are at a significant risk of acquiring WRMSDs. In this study, we will investigate the causes of WRMSDs and the preventative and remedial treatments that may be implemented by physiotherapists. [1]

Many studies have shown that between 44 and 91 percent of physiotherapists suffer from WRMSDs. According to a cross-sectional survey of physiotherapists in Ethiopia, the prevalence was found to be 71.9%. Similarly, 81.4% was found to be the frequency in Iran. The most prevalent areas of the body where physiotherapists experience WRMSDs are the neck, shoulder, low back, and wrist. [2]

Physiotherapists are susceptible to developing WRMSDs due to a number of risk factors. Such examples include physical demands of the job, awkward working postures, long hours, age, gender, and psychological and social variables. WRMSDs are more likely to occur when there are more patients, more work, and a faster tempo of work. An increase in the risk of WRMSDs is associated with work postures such uncomfortable positions, extended standing, and repetitive activities. Work time is also important, with longer shifts being associated with a higher probability of WRMSDs. WRMSDs are more common in older physiotherapists simply because of the passage of time. Due to the biological variations between sexes, female physiotherapists are also at a greater risk of getting WRMSDs. WRMSDs are exacerbated by a number of psychosocial variables, including but not limited to stress, job dissatisfaction, and an imbalance between work and personal life.[3]

Physiotherapists are susceptible to WRMSDs, although there are ways to reduce their prevalence and severity. Ergonomic measures include things like education and training programs, workload management, job rotation, or exercise and stretching

regimens. Ergonomic therapies aim to lessen the likelihood of WRMSDs by changes to working conditions. Equipment like height-adjustable desks and seats, ergonomic mouse and keyboard designs, and footrests may all help cut down on the likelihood of developing WRMSDs. Physiotherapists may benefit from exercise & stretching programs for the prevention and management of WRMSDs. Physiotherapist-designed exercise plans should include aerobic, strength-training, and flexibility components. In order to prevent physiotherapists from being overwhelmed, it is necessary to effectively manage their workloads. Physiotherapists may lower their risk of WRMSDs by engaging in work rotation, in which they switch between various duties on a regular basis. Physiotherapists may learn about WRMSD risk factors and prevention strategies via educational and training programs. [4]

Physiotherapists' WRMDs may increase with age and be correlated with the number of years they've spent in the field, according to certain studies. claimed that the lowest frequency of WRMDs was seen among physiotherapists older than 50, while others said that the majority of physiotherapists had their first symptoms before the age of 30, and that most of these early episodes happened within five years following graduation. It is possible that the high frequency of WRMDs in the physiotherapy profession is due to the physical demands of the job. environment, understaffing, age, and sex are all factors that have been identified as potential hazards in the physiotherapy profession. High repetition rate, excessive pressures, and uncomfortable postures have all been linked to an increased risk of musculoskeletal problems in the workplace, according to studies published in scientific journals throughout the globe. [5]

It has been suggested that physical therapists' cultural beliefs may make it challenging for them to avoid the hazards of WRMDS in the course of their profession. Notwithstanding variations in the contexts in which they work, physiotherapists in Nigeria are required to uphold certain shared cultural norms. Despite the abundance of data on WRMDs among physiotherapists, very little is known about the risks associated with practicing physiotherapy in Nigeria. We hypothesized that physiotherapists in Nigeria, a country with a poorly resourced health care system, could find a different picture when we look at the prevalence and job determinants of work-related musculoskeletal illnesses than what prevails in the developed countries of the globe. Hence, the purpose of this research was to examine the prevalence and risk factors of WRMDs among Nigerian physiotherapists during a 12-month period. [6]

The majority of research on physiotherapists' risk of WRMSD and its prevalence was conducted in the West and Europe. Yet, the outcome may vary depending on factors including the individual's workload, the nature of their workplace, their level of experience, and the tools they employ. There were two local studies on physiotherapists and WRMSD in Saudi Arabia, however they were done in Kuala Lumpur and Sabah. There has been relatively little study conducted on the prevalence of WRMSD among Saudi physiotherapists on a national level. In light of the lack of research on WRMSD in Saudi Arabia, this study will be the first to investigate its prevalence and identify related risk factors across a variety of physiotherapy settings in a sizable region of the country. The purpose of this research is to raise physiotherapists' understanding of WRMSD so that preventative treatments, measures, and ergonomic tools may be used sooner. [7]

MATERIAL & METHODS

The purpose of this cross-sectional research was to examine the incidence of WRMSD and identify risk variables among Saudi physiotherapists. Participants were recruited from from the national populations of physiotherapists in Saudi Arabia using a purposeful sampling strategy. It included both private and public hospitals, fitness clinics, physio-centres, geriatric care centers, sports centers, nursing homes, homes for children with special needs, rehabilitation clinics, private practitioners, and many more physiot7herapy settings throughout Saudi Arabia. As a result, the study's results would be generalized and applied to communities of Saudi physiotherapists as a whole. Saudi physiotherapists were surveyed using an online, self-administered questionnaire that was disseminated through social media and email. Participants had to be native English speakers, have worked as clinical physiotherapists in Saudi Arabia for at least a year, and be between the ages of 22 and 55. There were a total of 440 replies received, with 55 disqualified according to the predetermined conditions for disqualification. Patients who had recently had trauma, injury, operation, motor vehicle accident, or sport-related injury during the last two weeks were also excluded from this research due to the potential for confounding variables. The self-administered survey was broken down into four parts: basic personal information, the NMQ, questions about the respondent's workplace (such as their location, workplace environment, hours worked, and average weekly patient load), and questions adapted from the Dutch Musculoskeletal Survey. Cronbach's Alpha for the NMQ is 0.945 [8], and it has a high sensitivity (82.3%-100%) when used to assess the prevalence of musculoskeletal diseases and the locations where they are most prevalent [9]. Statistical Package for the Social Sciences, Version 26 was used to analyze the data (SPSS). Demographics, working personality qualities, occupational hazard factors, prevalence of WRMSD in the previous 12 months and 7 days, job and life impacts of WRMSD, or physician seeking upon WRMSD with regard to distinct body areas were all summarized and presented using

descriptive statistics. We employed chi-square tests to examine the association between WRMSD and other social, economic, and occupational risk variables. For statistical significance, a p-value of less than 0.05 is required.

RESULTS

A total of 440 physiotherapists from all of Saudi Arabia's provinces took part in the research. Fifty-five people were ruled out because they were too young or had just had a major medical procedure (n=10) or had been in a serious accident (n=45). Of those who qualified to participate, only 385 physiotherapists filled out the survey. Age, sex, height, weight, and education level are all listed in Table 1. The vast majority of physical therapists were young women (62%) and those in their twenties (59.7%). The majority of physiotherapists (46.4%), were within the normal range for body mass index (18.5-24.9kg/m2), and just 2.6% were considered obese (BMI 40). Fifty-four percent of physiotherapists had just a bachelor's degree as their greatest level of education, while only four and a half percent had postgraduate certification.

Table 1: Population statistics

Demographic variable	Subcategory	Percentage (%)	Number (n) N=Total 385
Age (year)	22-32	62.0	239
	33-43	25.9	100
	44-55	11.9	46
Gender	Female	59.7	230
	Male	40.2	155
BMI (Kg/m2)	Underweight: <18.5	6.4	25
	Obese Class II: 35-39.9	7.5	29
	Pre-obese: 25-29.9	24.8	96
	Normal: 18.5-24.9	46.4	179
	Obese Class I: 30-34.9	11.9	46
	Obese Class III: >40	2.6	10
Education level	Master's degree	4.4	17
	Diploma	16.10	62
	Bachelor's degree	54.0	209
	Advanced diploma	24.6	95
	Doctoral degree	0.5	2

As shown in Figure 1, there is a significant WRMSD prevalence among Saudi physiotherapists in the last year.

Table 2: A 12-month survey of WRMSD prevalence in nine body regions

Body area	WRMSD in percentage
Ankle/ toe	9.6
Knee	18.3
Hip/thighs	10.9
Lower back	41.3
Wrist/ hands	65.9
elbow	6.2
Upper back	26.4
shoulder	26.9
neck	52.5

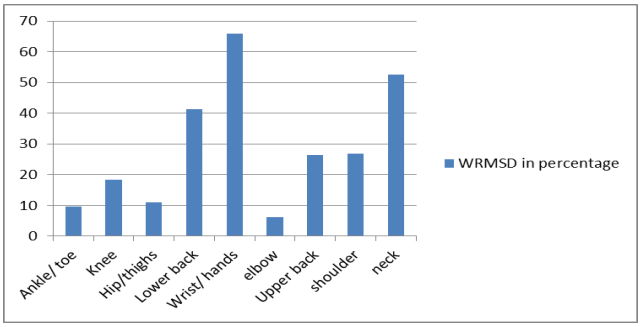

Figure 1: A 12-month survey of WRMSD prevalence in nine body regions

DISCUSSION

The prevalence of WRMSD among Saudi physiotherapists is high. Physiotherapists in Saudi Arabia reported experiencing WRMSD over the preceding 12 months, with the wrists and hands being the most common sites (64.9%). A similar range of 57%-83% of physiotherapists reported discomfort in their thumbs from doing their jobs. Nonetheless, some investigations have shown a relatively low frequency of wrist/hand WRMSD. The repetitive motions of the hands and wrists in the course of labor, such as those seen in manual therapy, may contribute to the development of WRMSD.[10] As manual therapy has been shown to be beneficial in reducing pain and breaking up scar adhesions, it may be done on a daily basis. Yet, the increased incidence of thumb or wrist in WRMSD may be traced back to the increasing prevalence of manual therapy in clinical practice, which can eventually result in osteoarthritis of the thumb and wrist. Although previous research has found a fairly low prevalence of WRMSD between so many physiotherapists, with only 17.6% of physiotherapists in Tricity reporting WRMSD affecting the wrist or hand, or the American Physical Therapy Association observing generally low pervasive nature of WRMSD among physiotherapists so because majority of them were WRMSD-free, with it as low as 28% of the as a whole occurrence of WRMSD within the

previous 12 months, the current study's findings suggest otherwise.

Lower back pain was the second most common site of WRMSD among physiotherapists, behind only the hands and wrists, as discovered in the current research, with 41.3% of therapists experiencing it. Similarly, 44% of physiotherapists in a Saudi research reported having low back discomfort.[11] As compared to earlier comparable results from Saudi (51.7%), India (61.5%), Israel (80%), and Nigeria (57.8%), the reported prevalence for lower back pain was less consistent.

According to the narrative study, between 22.1% and 73.1% of people have low back discomfort at some point throughout a 12-month period.[12] The elbow is the least prevalent site of WRMSD among physiotherapists, affecting between 0% and 8.6% of those who suffer from it. Whereas, this research discovered that physiotherapists were most often used for the hip/thigh area (10.1%), followed by the neck (52.5%), shoulder (26%), upper back (26.4%), then knee (18.3%). Other less frequent areas were the elbow (6.2%) or the ankle/toes (9.6%). These results are similar with those of earlier studies conducted by physiotherapists in Saudi Arabia (0% and 1%) about the low incidence of WRMSD at the elbow. [13]

The present research found a strong correlation between WRMSD exposure and discomfort in the neck, shoulders, upper back, lower back, and feet, and this correlation was especially strong for female physiotherapists. This result was consistent with previous reports linking gender to WRMSD in female physiotherapists.[14]

This may be because of gender-based biological differences, such as men's greater pain tolerance, and because of gender-based disparities in social roles, activities, or behaviors. Our results were at odds with those of another research that found no gender difference in WRMSD among Greek physiotherapists, and yet another that found a greater frequency of WRMSD among male physiotherapists. [15]

All 9 bodily regions were also significantly associated with the physiotherapist's work environment. Physiotherapists in Greece also reported a significant correlation between their workplace and WRMSD. Research, however, found no strong correlation between WRMSD and workplace conditions.[16]

Moreover, the present study demonstrated a substantial correlation between the number of treated patients by physiotherapists and most of the body areas studied. It encompasses the head, shoulders, upper back, hands, lower back, and feet. It's possible that this is because of the excessive workload, which has a major impact on both mental and physical stress, and therefore the high prevalence of WRMSD. Treatment of a high patient volume was shown to increase lumbar WRMSD. A correlation between the quantity of individuals treated and monitored by physiotherapists who employed manual therapy & WRMSD across all 9 body sites was found in the current study. It was shown that the use of manual therapy was significantly correlated with the occurrence of WRMSD, particularly in the thumb or wrist. [17]

Wear and tear on the thumb or wrist may occur as a result of the repeated impact of manual procedures on soft tissue and joints. In addition, working with WRMSD over time was linked to the condition in all 9 regions of the body. A similar correlation between WRMSD rate and physiotherapists' refusal to seek sick leave was seen in a prior research from the same Tricity. Without enough time for rest and recuperation, the physiotherapist's fatigue may interfere with the healing process, exacerbating the patient's WRMSD symptoms.[18]

Also, trunk bending/twisting was significantly correlated with WRMSD everywhere except the elbow. Lower back WRMSD has been linked to regular trunk bending in comparable papers before, whereas neck WRMSD has been linked to frequent neck bending and winding. [19]

Physiotherapists have a higher incidence of WRMSD, particularly in the lower back, than the general population. This may be due to the fact that their work requires them to often bend and twist, which may lead to muscular strain, joint sprain, or even provoke muscle spasms. WRMSD was also strongly related with overwork in every region of the body except the elbow. According to previous research, treating a large volume of patients is correlated with a higher incidence of WRMSD. The research demonstrated a correlation between working long hours and WRMSD due to the increased effort. The low supply of physiotherapists in Saudi Arabia, despite considerable demand from the public, may be to blame. Due to the high population density of Saudi Arabia (1 physiotherapist for every 13,000 residents), the country has a severe shortage of physiotherapists. Physiotherapists may face a significant backlog because of this situation. Physiotherapists who don't take enough time off to rest increase their risk of burnout and WRMSD. [20]

The current investigation confirms the findings of the previous study, which found a substantial correlation between ergonomic factors and the incidence of WRMSD, namely in the areas of the shoulders, wrists/hands, upper back, lower back, hips/thighs, knees, and ankles/toes. In contrast to the high incidence of WRMSD, which may be prevented by creating an ergonomically friendly workplace, extra stress on muscles, joints, tissue, and ligaments is caused by a lack of ergonomics. Positive effects on discomfort, job satisfaction,

and everyday activities should be expected from adopting an ergonomic design approach. [21]

A similar increase in WRMSD related to improper ergonomics was documented in a study of dentists. Lastly, similar to a research that found a strong link between psychological stress and burnout syndrome, it was shown that psychological stress was associated with WRMSD in the shoulders, wrists/hands, upper back, lower back, and ankles/toes. Burnout syndrome has been linked to an increased risk of WRMSD, according to a prior research. Nevertheless, physiotherapists in Nigeria did not report any link between psychological work stress and WRMS.[22]

CONCLUSIONS

Among Saudi physiotherapists, the current research found a significant incidence of WRMSD. The neck, lower back, and wrists/hands were hit the worst. Among Saudi physiotherapists, the risk variables for WRMSD were shown to be occupational setting, patient load per week, and gender. The dramatic increase in WRMSD between many Saudi physiotherapists can be attributed to a number of factors, including the use of manual therapy, continuing to work after being diagnosed with MSD, engaging in frequent trunk bending-twisting, having an excessive workload, working in an unsuitable environment, and experiencing psychological. Negative effects on job productivity and living quality are brought on by WRMSD. These links highlight the need for further research into suitable and effective early treatments, measures, and ergonomics among Saudi physiotherapists to reduce the prevalence of WRMSD and boost their occupational and personal well-being.

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