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POLISH JOURNAL OF PHYSIOTHERAPY

OFICJALNE PISMO POLSKIEGO TOWARZYSTWA FIZJOTERAPII

THE OFFICIAL JOURNAL OF THE POLISH SOCIETY OF PHYSIOTHERAPY

NR 2/2022 (22) DWUMIESIĘCZNIK ISSN 1642-0136

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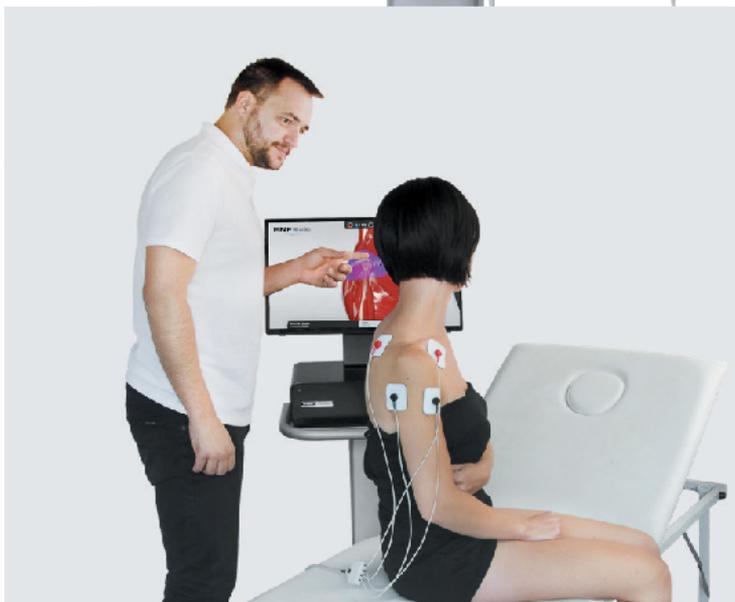
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Low back pain and other work-related musculoskeletal disorders among Jordanian physical therapists from Hashemite University

Ból krzyża i inne schorzenia układu mięśniowo-szkieletowego związane z pracą wśród fizjoterapeutów z Jordanii z Uniwersytetu Heashemite

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Abstract

Purpose. Physical therapists (PTs) have direct patient contact, they susceptible to Work-related musculoskeletal disorders (WRMDs), its prevalence among PTs in Jordan has not been reported yet. The significance of this study relies on providing descriptive data about the PTs musculoskeletal disorders in Jordan. Method. A web-based online survey (Google Forms) was used to create the survey; it contained a cover letter, a consent form and a hyperlink that directed the participants to the survey. The questionnaire was based on the Standardized Nordic Questionnaire with some modifications. It was administered to 50 PTs through e-mail messages, 46 PTs returned completed surveys (92% response). The data were analyzed using SPSS version 20 at alpha level of 0.05. Results. Reported 12-month prevalence of WRMDs among Jordanian PTs was 71.7%. WRMDs was significantly higher in female PTs ($p = 0.038$). The low back 60.6% was significantly the most commonly affected body part ($p > 0.001$), followed by the neck 48.5% with ($p = 0.002$). More than fifty percent of the PTs with WRMDs were found to be younger than 34 years 51.1%. Treating large number of patients "more than ten" in a day was reported by most 42.4% of the respondents. PTs who had worked at general hospital had high WRMDs prevalence 66.6%. Conclusions. The prevalence of low back pain (LBP) and other WRMDs among PTs in Jordan is relatively high. It affected their performance of daily activities at home and away from home, it is also contributed sometimes to their sick leaves.

Key words:

physical therapist, low back pain, prevalence, risk factor, Jordan

Streszczenie

Cel. Fizjoterapeuci (PT) mają bezpośredni kontakt z pacjentami, są podatni na schorzenia mięśniowo-szkieletowe związane z pracą (WRMDs), a ich występowanie wśród fizjoterapeutów w Jordanii nie zostało jeszcze zarejestrowane. Znaczenie tego badania polega na dostarczeniu danych opisowych dotyczących zaburzeń mięśniowo-szkieletowych u fizjoterapeutów w Jordanii. Metoda. Do utworzenia ankiety wykorzystano ankietę internetową (Formularze Google); zawierała ona list przewodni, formularz zgody oraz hiperłącze, które kierowało uczestników do ankiety. Ankieta została oparta na Standaryzowanym Kwestionariuszu Skandynawskim z pewnymi modyfikacjami. Przekazano go 50 fizjoterapeutom za pośrednictwem wiadomości e-mail; 46 fizjoterapeutów odesłało wypełnione ankiety (92% odpowiedzi). Dane analizowano przy użyciu SPSS w wersji 20 na poziomie alfa 0,05. Wyniki. Zgłoszone występowanie WRMD przez okres 12 miesięcy wśród fizjoterapeutów w Jordanii wynosiło 71,7%. Poziom występowania WRMD był istotnie wyższy wśród kobiet PT ($p = 0,038$). Dolegliwości najczęściej dotyczyły dolnej części pleców (60,6%) ($p > 0,001$); następne w kolejności były dolegliwości części szyjnej 48,5% z ($p = 0,002$). Stwierdzono, że ponad pięćdziesiąt procent fizjoterapeutów z WRMD miało mniej niż 34 lata (51,1%). Leczenie dużej liczby pacjentów „powyżej dziesięciu” dziennie zadeklarowało 42,4% badanych. Fizjoterapeuci, którzy pracowali w szpitalu ogólnym, zgłosili wysoką częstość występowania WRMD 66,6%. Wnioski. Częstość występowania bólu krzyża (LBP) i innych WRMD wśród fizjoterapeutów w Jordanii jest stosunkowo wysoka. Wpływa to na wykonywanie przez nich codziennych czynności w domu i poza domem, czasami przyczynia się również do sięgania po zwolnienie lekarskie.

Słowa kluczowe

fizjoterapeuta, ból krzyża, częstość występowania, czynnik ryzyka, Jordania

Introduction

Healthcare workers especially those with direct patient contact, are amongst professions with the highest rate of work-related musculoskeletal disorders (WRMDs), physical therapists (PTs) being one of them [1, 2]. In the work place, the nature and the demands of physical therapy occupation lead to make the PT vulnerable to sustain musculoskeletal disorders. WRMDs can be defined as musculoskeletal injuries that result from work-related events.

Previous studies have shown that PTs are susceptible to WRMD because of the nature of their work, which can be repetitive and labor-intensive [3]. It is suggested that there are many reasons that contribute to musculoskeletal disorders in PTs including; force "lifting and transferring dependent patients", repetition "performing the same task over and over", poor postures "repetitive bending" and bad biomechanics. Any of the mentioned reason may lead to development of physical disorders. The nature of physical therapy services and its features require treating many different signs and symptoms with many types of clinical pictures. Indeed, there are many factors that determine the physical therapy modality which could be provided to patients such as gender, body weight, level of consciousness, frequency of sessions and the specific type of treatment.

There are physical forces that are required to be applied by PTs such as handling, positioning, moving, exercising and treating patients. The repetitions of these forces could result in micro traumas to different body areas which will be accumulated to be obvious macro trauma with time. Physical therapy students are taught safe biomechanics techniques in order to reduce the chance of injury. However, Younger PTs and newly qualified graduates seem to be the most in need of interventional services aimed to reduce injury rates [3, 4].

Musculoskeletal symptoms in general are prevalent in single and multiple body regions among PTs and (LBP) in particular is the most complaint of PTs around the world [3, 4]. Low back injuries were found to be the most type of injuries among PTs in different countries [1, 4, 5, 6 and 7]. The only aggravating factor for LBP within the physical therapy profession appears to be handling of dependent patients [6]. The major risk factors for work-related LBP were: lifting, transferring, repetitive movements, awkward and static postures, physical load, treating a large number of patients daily and working while injured. LBP seems to be related to age and gender with a high prevalence noted among females, younger PTs and PTs working in rehabilitation settings [1].

Health professions like dentistry, nursing and physical therapy have been reported with high risk for developing WRMD. Results of studies conducted in these occupational groups may help formulating prevention strategies [7]. However, no such data among PTs has been reported in Jordan.

The purpose of this study is to figure out the prevalence of musculoskeletal disorders among PTs in Jordan. Since there have not been any previous studies conducted in Jordan, it is believed that this research will be of a great value to show the prevalence and the extent of this problem among Jordanian PTs. The importance of this study is to investigate the effects of musculoskeletal injuries among Jordanian PTs on their he-

alth and safety. These injuries have implications for clinical education and practice and could severely hinder retention in both the profession and the National Health Service.

Methods

Design

The study was a cross-sectional, observational study.

Tools

One tool for measuring the musculoskeletal distress that is related to occupation is the Nordic questionnaire designed by the Institutes of Occupational Health in the Nordic countries [8]. The questionnaire of this study was based on the Nordic Questionnaire and customized to be used in Jordan. The IRB approval of the Jordanian Ministry of Health and the approval of the Hashemite University were obtained before commencement of the study. The questions of the survey addressed demographic data of the respondents, gender, age, and place of work, number of patients and reviewers per day and years of experience. The rest of the questionnaire contained direct questions about the musculoskeletal disorders in different body regions by asking if the PTs had at any time during the last 12-months trouble (ache, pain, discomfort) in different body regions?, and if yes, have they been prevented by their pain from doing their normal work (at home or work)?, and if yes to the first question, have this trouble lead to sick leave from their job institution?

Subjects

An electronic-online survey was administered to fifty PTs working at Al-Basheer hospital and other private physical therapy centers. A web-based online survey (Google Forms) was used to create the survey. Participants were recruited through sending e-mail messages that contained a cover letter explaining the purpose of the study, a consent form and a hyperlink that directed the participants to the survey. A first e-mail was sent to fifty participants, and reminder e-mail was sent one week after the first one. The survey did not take more than ten minutes to get completed.

Inclusion and exclusion criteria:

PTs who worked at Al-Basheer and other private physical therapy centers with a direct contact to patients were eligible to fill the questionnaire. Incomplete questionnaire and PTs who had musculoskeletal disorders due to trauma, pregnancy or arthritic diseases were not included in the study.

Data analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 20. The Pearson Chi-square test was used to test the correlation between two categorical values. Differences were considered significant if p value was ≤ 0.05 .

Results

Demographic data

Out of 50, 46 (92%) PTs completed the questionnaire successfully. Among these, 28 (60.9%) were females and 18 (39.1%)

were males. The majority of respondents, 26(56.5%) were under the age of 34 years old. Table 1 shows the demographic data of the respondents.

Table 1. Demographic data of respondents

Gender	Frequency	Percent
Male	18	39.1
Female	28	60.9
Total	46	100.0
Age [years]	Frequency	Percent
22-34	26	56.5
35-44	16	34.8
45-54	3	6.5
55-64	1	2.2
Total	46	100.0
Place of work	Frequency	Percent
General	30	65.2
Private	16	34.8
Total	46	100.0
Number of patients per day	Frequency	Percent
> 8	14	30.4
8-10	13	28.3
> 10	19	41.3
Total	46	100.0
Years of experience	Frequency	Percent
> 5	17	37.0
5-10	13	28.3
> 10	16	34.8
Total	46	100.0

Prevalence of WRMD

Thirty- three Jordanian PTs (71.7%) of the respondents reported experiencing WRMDs during the last 12-months, they complained of disorders (ache, pain, discomfort) in at least one area among nine different body parts. The low back was

significantly the most common site of disorders (60.6%) with ($p > 0.05\%$) while the thigh was the least affected body part (18.2%). Table 2 shows the location of pain among respondents with WRMDs.

Table 2. The location of pain among respondents with WRMDs

Location of pain	No. of respondents with WRMDs [%]	P *
Neck	48.5	> 0.05 ^S
Shoulder	27.3	> 0.05 ^S
Elbow	24.2	< 0.05 ^{NS}
Wrist	36.4	> 0.05 ^S
Upper back	33.3	> 0.05 ^S
Lower back	60.6	> 0.05 ^S
Thighs	18.2	< 0.05 ^{NS}
Knees	30.3	> 0.05 ^S
Ankle	27.3	> 0.05 ^S

*Pearson chi test S – statistically significant, NS – statistically not significant

WRMDs and low back disorders

Gender: WRMDs in general and LBP in particular were found to be affected by gender of the respondents, prevalence of WRMDs was significantly higher in female PTs (51.5%) with ($p = 0.038$) while the male respondents who complained from LBP were found to be higher than female (55.6%).

Age: prevalence of WRMDs was higher in younger PTs (22–34 years) with (51.5%) while the age-grouped respondents between (22-34 and 35-44 years) complained from LBP higher than other age-grouped PTs with (44.4%).

Place of work: 66.7% of the respondents who reported WRMDs and LBP were found to work in general hospital.

Number of patients per day: (42.4%) of respondents with WRMDs treated more than ten patients in a day and (44.4%) of LBP respondents found to treat more than ten patients per a day, too.

Years of experience: PTs with WRMDs who had more than ten years' experience had higher prevalence of WRMDs (39.4%). Table 3 shows demographic data related with WRMDs and LBP.

Table 3. Demographic data related with WRMDs and LBP

Demographic data		WRMDs	LBP
Gender	Male	48.5%	55.6%
	Female	51.5%	44.4%
Age [years]	22–34	51.5%	44.4%
	35–44	36.4%	44.4%
	45–54	9.1%	5.6%
	55–64	3.0%	5.6%
Place of work	General	66.7%	66.7%
	Private	33.3%	33.3%
Number of patients per day	> 8	33.3%	33.3%
	8–10	24.2%	22.2%
	> 10	42.4%	44.4%
Experience Work (years)	> 5	33.3%	44.4%
	5-10	27.3%	11.1%
	> 10	39.4%	44.4%

Daily work (home or away from home) during LBP as WRMDs

Out of 33 respondents who reported WRMDs during the last 12-months, 20 PTs reported LBP, (55.6%) of those respondents reported significantly that they were had health problems that prevented them from performing normal work (home or away from home), it was found that male had problems in performing their normal work (38.9%) significantly more than females (10.7%) ($p = 0.024$).

Sick leave during LBP as WRMDs

Out of 33 respondents who reported WRMDs during the last 12-months, 20 PTs reported LBP, (38.9%) of those respondents reported significantly that they were had health problem that led them to take sick leaves. Statistically, males had to take sick leave more than females and PTs who work in general hospitals took sick leaves more than those who work in private sectors.

Discussion

The purpose of our study has been to report the prevalence of WRMDs among PTs working in Jordan. This study was done

on a sample of 50 PTs working at Al-Basheer hospital "as one of the Jordanian general hospital" and other private physical therapy departments. The percentage response for this study was 92% which is higher than responses in similar studies from Delhi [7] 75%, UK [4] 10% and Nigeria [5] 58.1%. The relative higher response in our study when compared to other studies may reveal to the small identified sample we chosen and their enthusiastic to report their complaints as work related injuries.

The prevalence of the WRMD among PTs in Jordan is found to be 71.7% of the respondents reporting to develop some musculoskeletal complains after joining the physical therapy profession during the last 12 months. It is near to the incidence of Slovenia 73.7% [6], higher than the prevalence of the Chartered Society of Physiotherapy, UK with 68% [4], and lower than the prevalence of both Delhi and Nigeria with 92% and 91.3% respectively [7, 5]. In comparison with the sample size between our study and the other similar studies, the small sample size of our study (46) may contribute to the low prevalence.

Our data suggests that the gender is correlated to this prevalence. Age of the PT, the number of patients treated per day, place

of work "general or private sector" and years of experience were all investigated as different variables related to the WRMD in nine different body regions and with special concern to the low back area. To our knowledge, this is the 1st study of this kind of study to be done in Jordan.

Prevalence of the WRMDs in Jordanian PTs was found to be significantly high in female (51.5%) as compared to their male counterparts. This is consistent with findings of the majority of the international studies, [1, 5, and 7]. This could be accounted for their body weight and height, their body strength which put them as a limited factor for work demands that represented by carrying, transferring the patients and applying body force which put extra load on their body.

Furthermore, prevalence of WRMDs was found to be related to place of work, it was 66.7% at PTs who work in general hospital while 33.3% at PTs who work in private sector. This could be explained by the nature of the inpatients who suffer from diseases and be in a condition of full dependent on PTs; require frequent lifting, mobilizing and transferring. It was found that the number of patients treated everyday were be higher among those who work in general hospital that 53.3% of them treated more than ten patients in one day.

Respondents in our study were relatively young, with 56.5% of them under 34 years of age (table 1). Among these at least 88.2% had work experience of shorter than 5 years. High Prevalence of work-related pain in these young professionals (51.5%) is either due to over load in the work setting or faulty ergonomics or wrong techniques used during treatment of reviewers [1, 3, 5, 7]. Newly qualified PTs do not seem to be using their principles of training or the instructions they give to patients for precautions, into their own practice [4]. PTs who are at the beginning of their career such like these WRMDs are known to accumulate and be obvious with age; the problem could grow with time making it difficult for them in future that could threaten their health and have implications for clinical education and general physical therapy practice. Strategies are needed to be developed, that should help them to cope with such problems early.

Our findings are similar to other international studies done in different parts of the world like UK [3], Nigerian [5], India [7] reporting physical therapy to be a high risk profession for developing WRMDs, especially the LBP. An unacceptable irony given that physiotherapy is used to treat musculoskeletal injuries is that PT themselves are at particular risk from this type of injury which may sustain during their whole life. In the previous similar studies, the highest prevalence of work-related musculoskeletal disorder was in low back, followed most often by the neck [1, 4, 5, 7]. In our study, along with pain in the lower back region (reported by 60.6% respondents), pain in the neck (48.5%), wrist/hands region (36.4%), upper back region (33.3%) and in knees (30.3%) also show high prevalence while the elbow and thighs came at the least affected areas. It is an irony that PTs who are responsible to treat patients for such pain, suffer from it themselves, factors that are related to WRMDs in the physical therapy field was investigated in many previous studies which include frequent strenuous back position during work, repetitive shoulder/hand movements, use of vibrating tools, use of revolving cha-

irs and chairs without armrest, high job demand and other like high exertion and low job control [7].

LBP was found in our study to be the most significant area that had the highest percentage of PTs complains among all the other nine body regions 60.6% of the reported WRMDs. The major risk factors for work-related LBP were: lifting, transferring, repetitive movements, awkward and static postures, physical load, treating a large number of patients in a single day and working while injured [1]. It was reported by male more than female that could be due to the frequent carrying and transferring of dependent male and female patients, bent or twisted body postures during these physically demanding moves and during mobilizations. Younger PTs (aged 44 years or below) had higher rates of LBP than older PTs 88.8%. Younger PTs and newly qualified graduates "less than five years' experience" had the higher risk to develop injury 44.4%. This may be regarding to performing the same task over and over, working in the same position for long periods, and treating a large number of patients in one day [4]. Older PTs moving out of direct patient care into administrative positions which are less physically demanding, could explain our results. PTs who work in general hospital had reported LBP more than PTs worked in private sector 66.7%, this could be referred to the difference in nature of the patients and reviewers for both sectors, and the work of place organization factors and regulations. Treating large number of patients in one day had been considered as a leading factor for WRMDs and LBP in many studies [4, 5, 7]. Our respondents who had more than ten patients in one day reported the most percentage of LBP with 44.4%; this is because the more the patient PT treated the more physical force he/ she applied so the more accumulated injury and pain.

Work-related disorders seem to have a major effect on the respondents' daily activities, that it indicated that these disorders had prevented them from normal work (home activities and other).

From the 20 respondents who reported low back pain, (55.6%) of them reported significantly that they were had trouble prevented them performing their normal work (home or away from home), like shopping, visiting, cooking and other home duties. Male PTs had trouble in performing their normal work (38.9%) significantly more than female (10.7%) ($p = 0.024$); that almost most of their efforts were spent through the demands of their daily professional work. (38.9%) of those respondents reported significantly that they were had trouble lead them to sick leave; LBP is considered as a high intensity pain that affect the individual strongly. Statistically, male PTs had to take sick leave more than female and PTs who work in general hospitals took sick leave more than those who work in private sector; this may be due to the low income of general hospital workers and high job strains.

Work-related disabilities in various professions are very common due to associated musculoskeletal disorders [2]. Preventive techniques should always be considered for lifting and handling the patients by incorporating special equipment like suspension frames, automatic chairs, sit-to-stand frames, sliding sheets, sling lifts, sliding boards, and other lifting equip-

ment's and height adjustable beds. The role of ergonomics; proper techniques of carrying and lifting; modalities of manual therapy; healthy environment; team work; prevention and care of injury; counseling and reporting of injury; etc., need to be emphasized during training of the therapists so that they can use their body force efficiently and effectively without putting extra load hurts any specific region of the body. Ergonomics may be introduced as a separate course during their studies. Equipment's should be encouraged to be used for such purposes. So, the general health status of Jordanian PTs will be effectively better and they can effectively take care and focus on patients.

Limitations

This study needs to be repeated in other parts of Jordan in different hospitals, on a larger sample with a long term follow-up, in order to see how such professionals cope up with such a challenge. Future studies need to investigate the contributing risk factors for these WRMDs among Jordanian PTs.

Conclusion

The prevalence of WRMD among PTs in Jordan is nearly high and affects their daily activities, sometimes even forces them to leave their work setting. PT gender, age of the PT, the number of patients treated per day, place of work "general or private sector" and years of experience were all found to be related to development of pain. Young female therapists were found the most categories with WRMDs in Jordan while young male therapists were found with the most LBP. We need to emphasize the role of ergonomics; proper techniques of carrying, lifting, manual therapy, etc., during their training, so that they can work efficiently and effectively. PTs should be encouraged to report their work related injuries.

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