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Prevalence of Work-Related Musculoskeletal Disorders Among Physiotherapists at the Janzour Center for Disability.

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ABSTRACT

Work-related musculoskeletal disorders (WRMSDs) are injuries to the musculoskeletal system resulting from occupational activities. Physiotherapists, despite their extensive knowledge of ergonomics and injury prevention, are highly susceptible to WRMSDs during their professional practice. This study aimed to determine the prevalence of WRMSDs among physiotherapists at the Janzour Center for Disability, and to identify associated risk factors and coping strategies. A descriptive study design was employed, utilizing self-administered questionnaires distributed to 27 physiotherapists at the Janzour Center for Disability. Data from 23 completed questionnaires were analyzed using SPSS 26 to identify the most affected anatomical areas, work-related risk factors, and therapist coping strategies. The prevalence of WRMSDs among the study participants was found to be high, with all respondents reporting experiencing WRMSDs. The lower back and neck were the most frequently affected anatomical regions, while the thumb was the least affected. All participants reported experiencing pain, ranging from mild to moderate in severity. The most prevalent work-related risk factors identified were treating a large number of patients and working in awkward positions. Therapists frequently adjusted their own and patients' positions to mitigate these issues. This study concludes that the prevalence of WRMSDs is high among physiotherapists at the Janzour Center for Disability, primarily due to several identifiable work-related risk factors.

1. INTRODUCTION

Musculoskeletal disorders (MSDs) are defined by lesions in muscles, tendons, joints, ligaments, bones, nerves, and the circulatory system, often leading to functional imbalances. (Cleum Oliveiro Soares et al, 2019) These disorders encompass acute and chronic conditions that can impair various bodily functions. (Marta et al, 2017), Specifically, MSDs include degenerative and inflammatory conditions affecting diverse structures, resulting in decreased mobility and restricted social participation. (Cleum Oliveiro Soares et al, 2019) They are typically characterized by pain and either temporary or lifelong limitations in mobility and dexterity, thereby reducing an individual's capacity to work. (Chiara et al, 2024).

The World Health Organization (WHO) has reported that musculoskeletal conditions are leading causes of disability and limitations in daily living activities. (Saraswathi et al, 2021). MSDs arise from numerous factors, broadly categorized as individual-related and work-related. (Kuok Ho Daniel Tang, 2022) An increasing correlation has been observed between occupational activities and the development, exacerbation, or worsening of work-related musculoskeletal disorders (WRMSDs). (Cleum Oliveiro Soares et al, 2019). WRMSDs are defined as musculoskeletal system problems that originate from work and cause discomfort, difficulty, and pain during task performance. (Muhammad et al, 2020) These disorders are significant risk factors for conditions such as osteoarthritis, osteoporosis, and sarcopenia, and can affect multiple body areas or systems. (Chiara Greggi et al, 2024) The mechanisms underlying WRMSDs involve tissue micro-trauma due to continuous, high-strain tasks, leading to inflammation, discomfort, motor problems, and psychological stress. (Rabab Kompal et al, 2022) Chronic and severe MSDs can negatively impact quality of life, reduce work productivity, (Hongyun et al, 2019) and are a primary cause of absenteeism or presenteeism, representing a significant socioeconomic issue (Shuji Tsuji et al, 2024). Risk factors for WRMSDs include heavy physical loads, psychosocial stress, smoking, higher body mass index (BMI), and comorbidities such as pain, arthritis, and rheumatism. (Chen-Yu et al, 2022). Common biomechanical risk factors include excessive repetition, awkward postures, and heavy lifting. These injuries can manifest as pain, soreness, impairment, and dysfunction resulting from damage to muscles, ligaments, cartilage, or other connective tissues. The severity of WRMSDs varies from mild cases, requiring a few days for recovery, to severe injuries necessitating specialized therapeutic intervention. (Walaa & Alliaa,2021). Healthcare professionals are particularly susceptible to MSDs due to increased exposure to occupational risk factors. (Abdulmujeed Babatunde et al, 2023) This is especially true for those with direct patient contact, such as surgeons, nurses, and physiotherapists. (L. J.FAN et al, 2022). Physiotherapists face a high risk of developing WRMSDs. Despite comprehensive training in musculoskeletal problems and injury prevention strategies, they consistently report a high prevalence of work-related disorders throughout their careers. (Rohit et al, 2023) Physiotherapists are exposed to these disorders through repetitive tasks, manual techniques, inappropriate postures, and prolonged positions during treatment, as they often manage a large number of patients daily. The risk of work-related injuries is particularly high in specialized physiotherapy fields (e.g., orthopedic, neurology), and factors such as workplace conditions, age, and sex of physiotherapists influence the prevalence of these disorders. (Fatemeh et al, 2018). Among physiotherapists, pain predominantly affects the lower back, but can also manifest in the neck, shoulder, and upper back. (Rabab Kompal et al, 2022) Many physiotherapists experience initial symptoms of musculoskeletal pain before the age of 30, with injuries commonly occurring within the first 4–5 years of practice. (Lauren et al, 2021) Most WRMSDs develop gradually and are typically multifactorial, resulting from a combination of various interacting factors. The European Agency for Safety and Health at Work supports this perspective. (ID. Any Fantis, 2018). Therefore, understanding the dimensions and characteristics of WRMSDs among physiotherapists (PTs) is crucial for comprehending their prevalence and mechanisms, increasing awareness, designing effective interventions, and improving educational programs. (Edgar R. VIERA et al, 2016). This study aimed to determine the prevalence of work-related musculoskeletal disorders among physiotherapists employed at the Janzour Center for Disability, to identify associated risk factors, and to investigate the coping strategies utilized by these therapists.

2. METHOD

Study Design: This descriptive study was conducted on physiotherapists working at the Janzour Center for Disability between September 29 and October 3, 2024.

Participants: The initial sample comprised 27 physical therapists. Four therapists were excluded based on the established exclusion criteria: two non-Libyans, one individual with a physical education certificate, and one who had less than one year of post-graduation experience, Consequently, data from 23 therapists aged 25–52 years were analyzed. The participant group included 7 male and 16 female therapists. The mean age for male therapists was 32.8 years, while for female therapists it was 37.6 years. All participants had more than one year of professional experience post-graduation, The majority held a bachelor's degree in physical therapy, with a smaller proportion holding a diploma or a master's degree. Some participants were employed in both the private sector and the Janzour Center for Disability.
All participants reported experiencing work-related musculoskeletal disorders.

Data Collection: A total of 27 self-administered questionnaires were distributed to the participants.
Informed consent was obtained from all participants to ensure data confidentiality. Approval for the study was secured from the Director of the Janzour Center for Disability via an official letter from the Department of Physiotherapy, Faculty of Medical Technology, University of Tripoli.

Data were collected through face-to-face interviews conducted by the researchers, who clarified each questionnaire item to ensure accurate responses. Each participant required approximately 7–10 minutes to complete the questionnaire. After data collection, questionnaires were sorted to identify and exclude participants who did not meet the inclusion criteria.

Instrumentation: The questionnaire administered to study participants was adapted from a previous study (Walaa & Aliaa, 2021). It was self-administered and derived from the Nordic Musculoskeletal Questionnaire (NMQ], which facilitates the comparison of musculoskeletal problems across various body regions in epidemiological studies (Turhan et al., 2016). Additionally, questions from a study by Cromie et al. were incorporated to assess risk factors and therapist coping strategies.

Questionnaire Structure: The 48-question questionnaire primarily comprised closed-ended (Yes/No) questions, with a few open-ended items. It was organized into three main sections:

Part 1: An introduction outlining the study's objectives.

Part 2: Questions pertaining to demographic data, including gender, age, years of experience, educational attainment, work setting, and specialization.

Part 3: Questions concerning the distribution of musculoskeletal injuries across various anatomical sites (neck, lower back, shoulder, upper back, elbow, wrist/hand, hip, knee, ankle, and thumb). This section also assessed the severity of injuries through 6 questions on symptoms and pain experienced by the therapists. Furthermore, it included 15 questions on work-related risk factors and 10 questions on coping strategies.

Data Analysis: Data analysis was performed using IBM SPSS Statistics Version 26.0, with Microsoft Excel employed for data storage and figure generation. Descriptive statistics, including frequencies and percentages, were used to summarize demographic characteristics, work-related factors, injury prevalence, and coping strategies. Inferential statistical tests were conducted to evaluate the association between demographic factors and the prevalence of WRMSDs across different body locations. A Chi-square test was utilized to examine associations between categorical variables. The level of statistical significance was set at $p > 0.05$.

3. ETHIC APPROVAL

Informed consent was obtained from all participants to ensure data confidentiality. Approval for the study was secured from the Director of the Janzour Center for Disability via an official letter from the Department of Physiotherapy, Faculty of Medical Technology, University of Tripoli.

4. RESULT

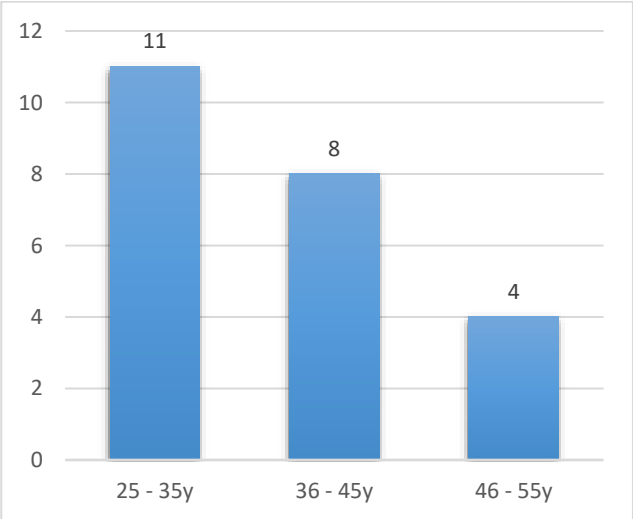
A total of 23 physiotherapists participated in this survey. The demographic characteristics of the study population are presented in (Table 1). Female physiotherapists constituted 69.6% (n=16) of the sample, while males comprised 30.4% (n=7). Regarding age distribution, the 46–55 years age group represented the smallest proportion of respondents (17.4%, n=4).

The age group of 36–45 years accounted for 34.8% (n=8) of participants, while over half of the respondents (47.8%, n=11) were aged between 25 and 35 years. The mean age for females was 37.6 years and for males was 32.8 years; however, no statistically significant difference in age was observed between genders ($p = 0.187$).

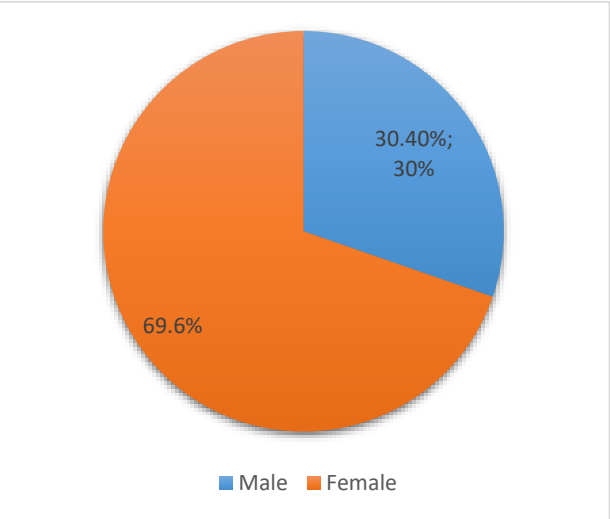
Professional experience varied among participants: 39.1% (n=9) reported 1–5 years of experience, 8.7% (n=2) had 6–10 years, and 17.4% (n=4) had 11–15 years. The remaining 34.8% (n=8) had 16–20 years of experience. [cite_start] Most participants held a Bachelor's degree (82.6%, n=19), with smaller percentages holding a Diploma (13%, n=3) or a Master's degree (4.3%, n=1). Clinical practice settings differed, with 52.2% (n=12) of participants working in both governmental and private sectors, while 47.8% (n=11) practiced exclusively in governmental settings. All participants (100%, n=23) identified their specialization as general physiotherapy, with no respondents reporting other specific fields.

Table 1: Distribution of Demographic Characteristics

Demographic variable	Frequency	Percentage
Gender		
Male	7	30.4%
Female	16	69.6%
Age group (in years)		
25 – 35	11	47.8%
36 – 45	8	34.8%
46 – 55	4	17.4%
Experience (in years)		
1- 5	9	39.1%
6 – 10	2	8.7%
11 – 15	4	17.4%
16 – 20	8	34.8%
Highest education degree		
Diploma	3	13%
Bachelor's degree	19	82.6%
Master's degree	1	4.3%
Clinical practice setting		
Governmental	11	47.8%
Both settings	12	52.2%
Specialization		
General	23	100%
Other	0	0%



Figere. 1 Age group Distribution



Figere. 2 Gender Distribution

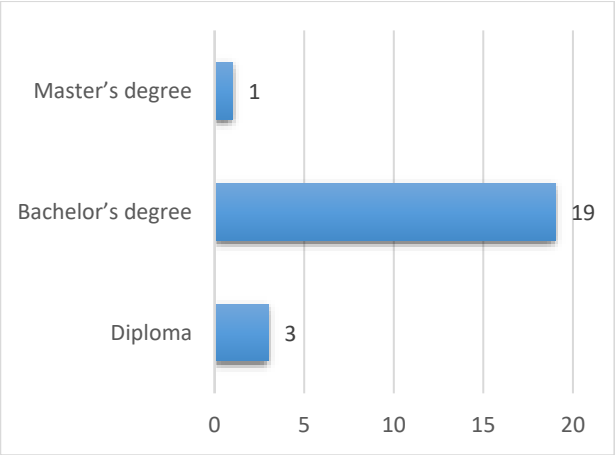


Figure. 3 Highest education degrees

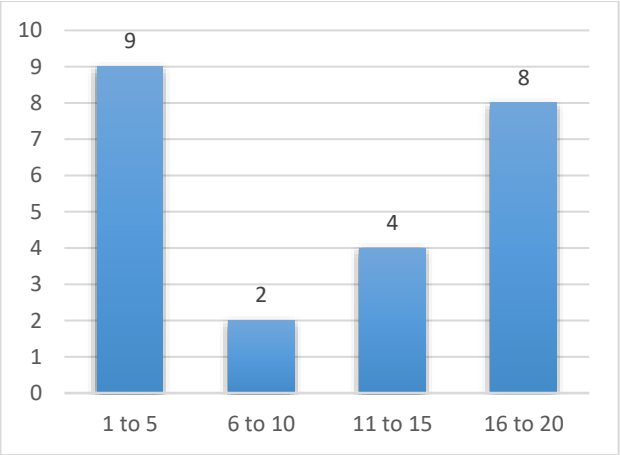
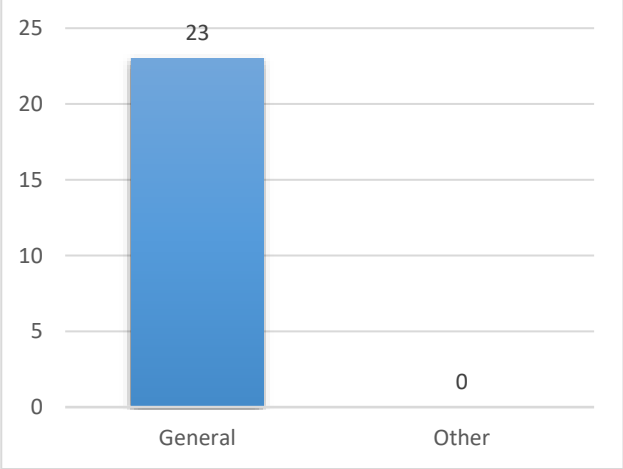
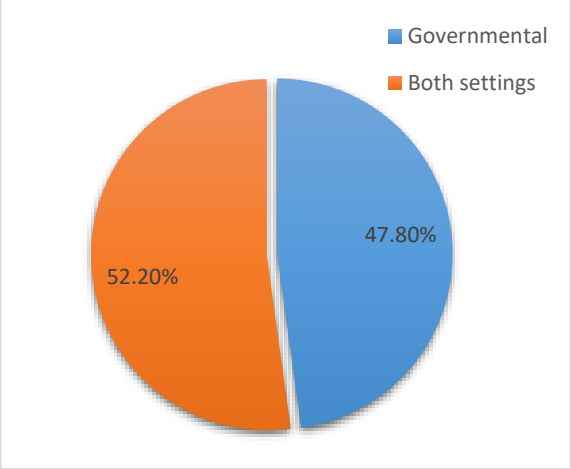


Figure. 4 Experience of years



Figere. 5 Specilization



Figere. 6 Clinical practice setting

Prevalence of WRMSDs: One hundred 100% of survey respondents reported having WRMSDs. The distribution and prevalence of WMSDs across various body regions among the participants is shown in (Table4.2). The most frequently reported injury location was the lower back, with (78.3%) of the physiotherapists reporting this type of pain. This was followed by neck injuries (60.9%), and wrist/hand injuries and shoulder injuries, each affecting (43.5%) of the respondents. Other injury locations included the upper back (34.8%), ankle (30.4%), and knee (26.1%). Less frequently reported were elbow and hip injuries, both of which affected (13%) of participants. The least common injury was thumb injury, reported by only (8.7%) of the respondents.

Table 2 shows prevalence of WRMSDs injuries various Maida anatomical location

WRMSD injury location	Frequency	Percentage
Neck injury	14	60.9%
Lower back injury	18	78.3%
Shoulder injury	10	43.5%
Upper back injury	8	34.8%
Elbow injury	3	13%
Knee injury	6	26.1%
Ankle injury	7	30.4%
Hip injury	3	13%
Thumb injury	2	8.7%
Wrist/Hand injury	10	43.5%

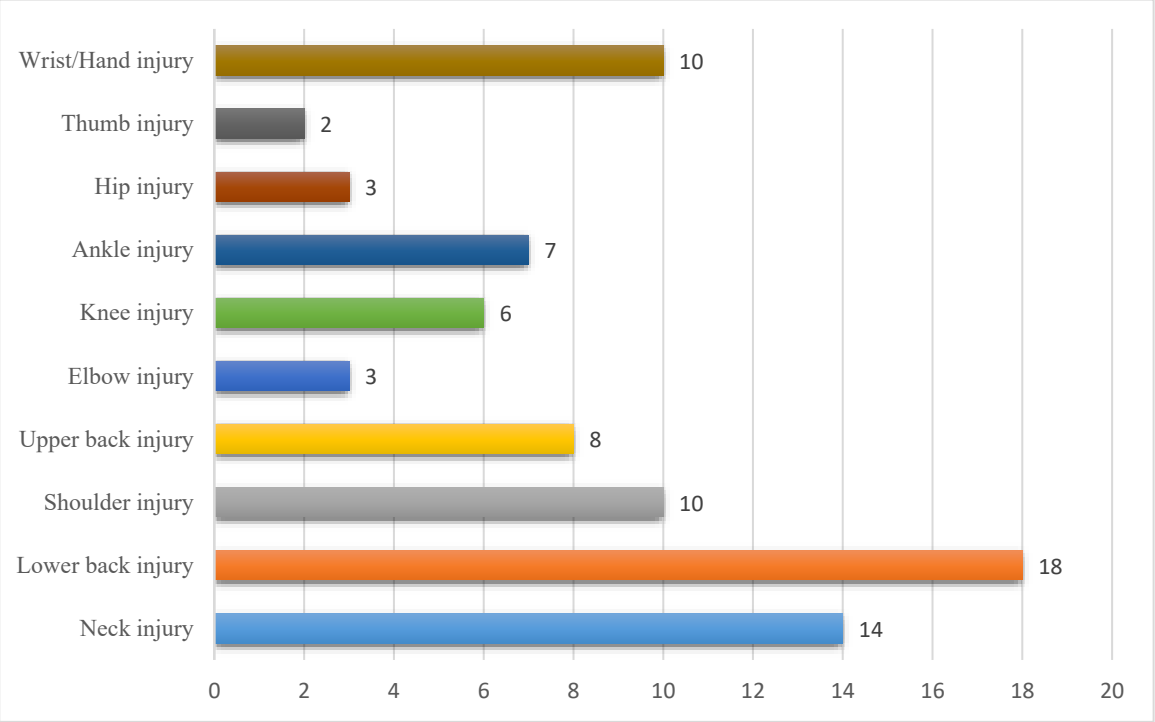


Figure. 7 distributions of WRMSDs injuries

Effect of WRMSDs: The effects of WRMSDs on the physiotherapists are summarized in (Table 3). All participants (100%) reported experiencing pain as a result of their WRMSDs. In addition, a significant majority (87%) reported experiencing fatigue, Furthermore, more than half of the respondents (52.2%) reported a sensation of heaviness, while (39.1%) experienced weakness in their affected areas. The least reported effect was stiffness, which was noted by (17.4%) of the participants. This is shown in figure (8).

Table 3 displays reported effects of WRMSDs on physiotherapists

WRMSD effect	Frequency	Percentage
Pain	23	100%
Fatigue	20	87%
Heaviness	12	52.2%
Weakness	9	39.1%
Stiffness	4	17.4%

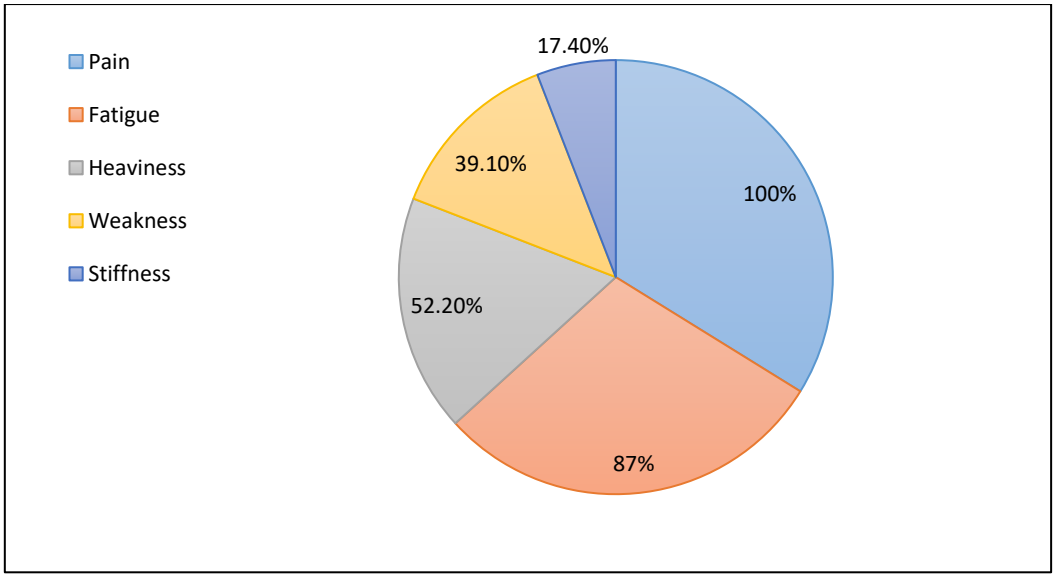


Figure. 8 effects of WRMSDs

(Table 4) displays the severity of pain experienced by the physiotherapists because of WRMSDs varied among participants. The majority of respondents (47.8%) reported experiencing moderate pain, while (34.8%) described their pain as mild. A smaller proportion (17.4%) reported severe pain. This is illustrated visually in figure (9).

Table 4 severity of pain because of WRMSDs

Pain severity	Frequency	Percentage
Mild	8	34.8%
Moderate	11	47.8%
Severe	4	17.4%

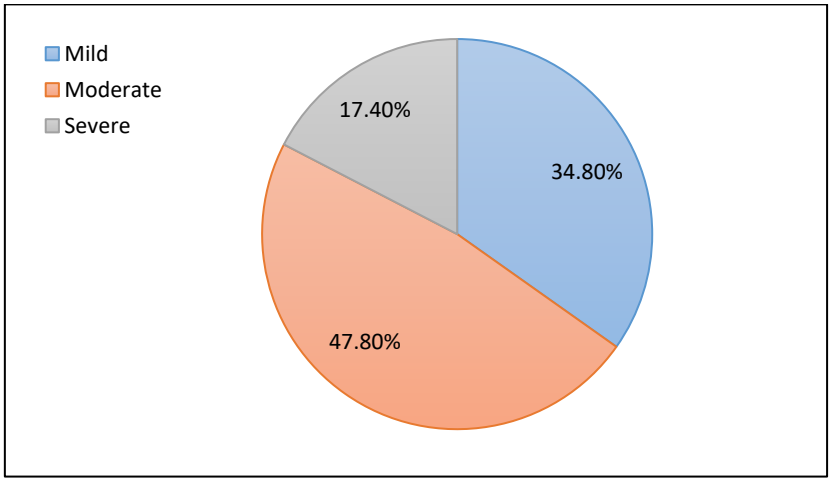


FIGURE 9 SEVERITY OF PAIN BECAUSE OF WRMSDS

Work factors: The survey results highlighted several work-related factors that may contribute to the development of WRMSDs among physiotherapists; this is displayed in table (5). The most common issues were examining and treating a large number of patients (95.7%), working in awkward positions (82.6%), and dealing with heavy patients (78.3%) and not having enough rest time between cases (78.3%). Additionally, many physiotherapists reported working beyond their physical abilities (65.2%) and continuing to work despite injury or pain (65.2%), in addition, (65.2%) reported that they rescue a patient in the event Of fall on their own, Other significant factors included repeated bending and twisting (60.9%) and working in a stationary position for extended periods (69.6%). Despite receiving training, more than half of the respondents (52.2%) reported incorrect use of body mechanics. Less frequently reported issues included narrow work areas (26.1%), and non-ergonomical Tools (47.8%) figure (10).

Table 5 shows work-related factors contributing to WRMSDs

Work factors	Frequency	Percentage
Working in awkward positions	19	82.6%
Working in a stationary position for long time	16	69.6%
Incorrect use of body mechanics	12	52.2%
Repeated bending and twisting while working	14	60.9%
Working beyond physical abilities	15	65.2%
Receiving training for body mechanics	15	65.2%
Dealing with heavy patients	18	78.3%
Move in patient passively	13	56.5%
Saved a patient who fell	15	65.2%
Continued work despite injury or pain	15	65.2%
Not enough rest time between cases	18	78.3%
Examined and treated a large number of patients	22	95.7%
Repeated the same treatment technique	5	21.7%
Work area is very narrow	6	26.1%
Tools used are not ergonomically	11	47.8%

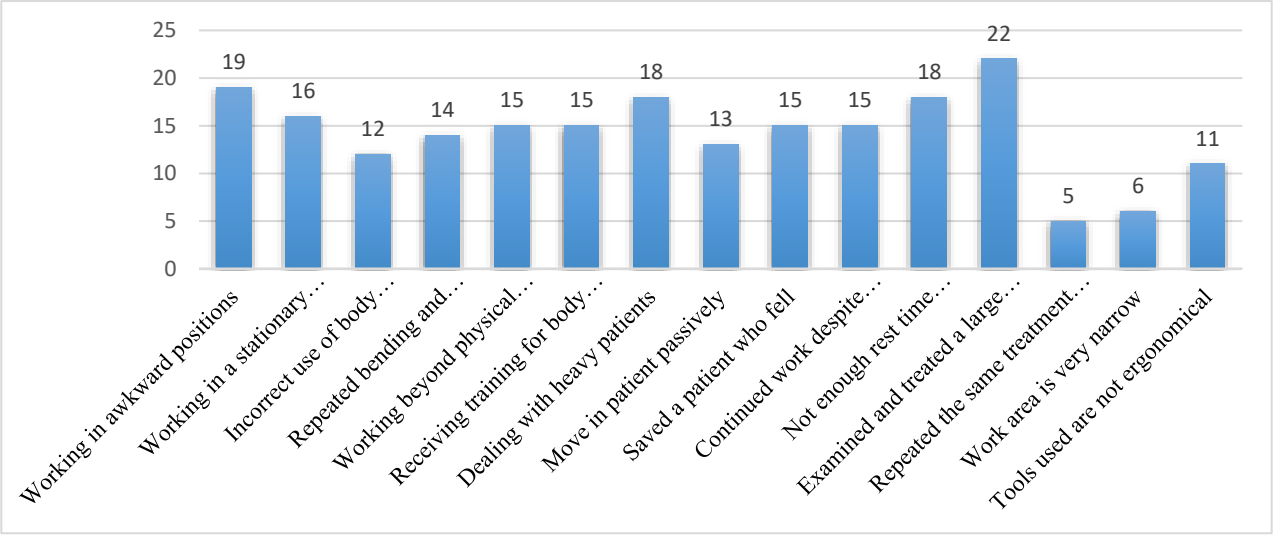


Figure.10 work-related factors contributing to WRMSDs

Coping strategies: (Table 6) summarizes the coping strategies employed by physiotherapists to manage the effects of WRMSDs. The most frequently used coping strategies included adjusting the patient's or their own position and adjusting the height of the plinth (both 95.7%). Many also sought helps from a physiotherapist (73.9%) or adopted less painful techniques (69.6%). Over half of the respondents took regular breaks when fatigued (60.9%), sought help from a physician (56.5%), or took sick leave (56.5%). Less common strategies included using splints or Kinesio taping (30.4%), requesting help from colleagues (43.5%), and performing warm-ups or exercises regularly (43.5%) Figure (11).

Table 6 shows the coping strategies used by physiotherapists to manage WRMSD

Coping strategies	Frequency	Percentage
Seeking help from a physiotherapist	17	73.9%
Adjusting patient or own position	22	95.7%
Adopting less painful techniques	16	69.6%
Taking regular breaks at fatigue	14	60.9%
Using splint or Kinesio taping	7	30.4%
Seeking help from a physician	13	56.5%
Taking sick leave	13	56.5%
Request help from a colleague for handling the cases	10	43.5%
Performing warmups or exercises regularly	10	43.5%
Adjust the height of plinth	22	95.7%

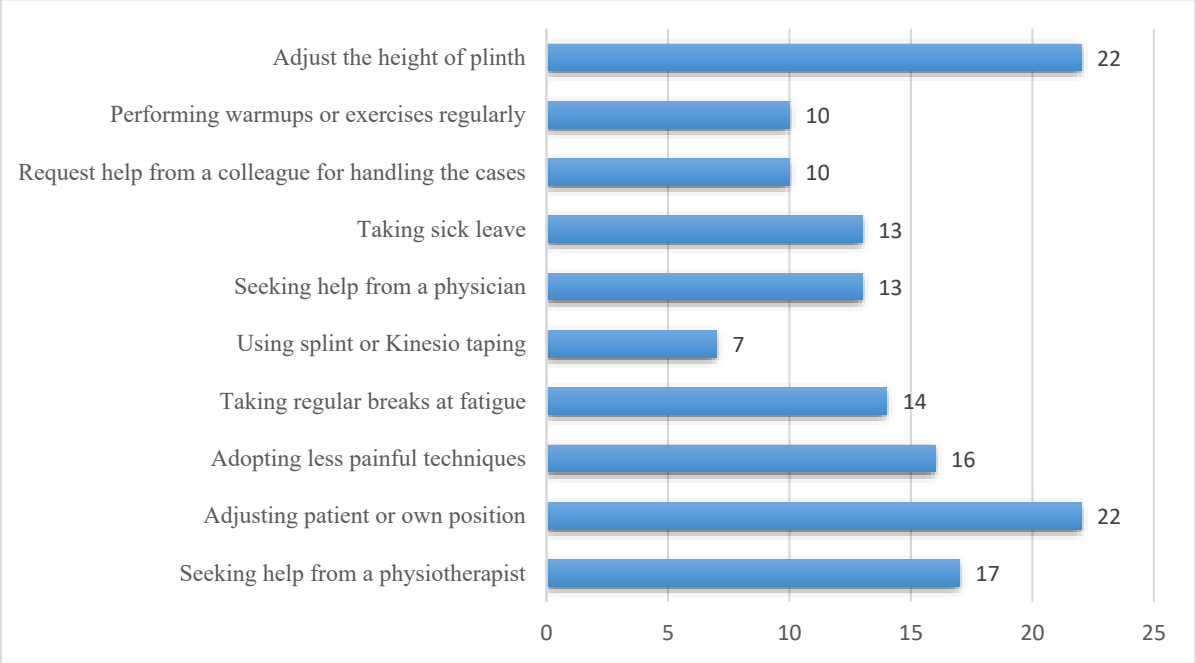


Figure. 11 Coping strategies to manage WRMSD

Distribution of WRMSDs by socio-demographic variables: The results indicated several associations between demographic variables and the prevalence of WRMSD in different anatomical regions. Female gender showed a significant association with lower back injuries ($p = 0.040$) and upper back injuries ($p = 0.006$). As for the male physical therapists, they all had lower back injuries. However, no significant gender association was found with neck ($p = 0.809$), shoulder ($p = 0.968$), or elbow injuries ($p = 0.908$) Figure (12).

There was no significant association between age and any of the reported injuries, although a near-significant trend was observed for lower back ($p = 0.059$) and shoulder injuries ($p = 0.078$). In the case of upper back injuries, the highest prevalence was in the 25-35 and 36-45 age groups, both at 50%, but this was not statistically significant ($p = 0.122$). Similarly, no significant association was found between years of experience and injury prevalence across the regions ($p > 0.05$), although upper back injuries were most frequently reported by those with 1-5 years of experience (62.5%), in addition the experience group of 6-10 years was more likely to experience WRMSDs compared to other experience groups ($p = 0.0.34$).

Regarding education level, the bachelor's degree group had the highest prevalence of injuries across all regions, but no significant associations were found with injury prevalence, including neck ($p = 0.085$), shoulder ($p = 0.074$), or upper back injuries ($p = 0.640$).

Lastly, no significant differences were observed between clinical practice settings (governmental vs. both sectors) and the prevalence of injuries in any anatomical region ($p > 0.05$). Additionally, all participants reported general specialization, preventing any meaningful comparison with other specialties Table 7).

Table 7 shows associations between demographic variables and WRMSD prevalence in different anatomical locations (Neck, Lower back, Shoulder, Upper back, Elbow)

Variable		Neck (n=14)		Lower back (n=18)		Shoulder (n=10)		Upper back (n=8)		Elbow (n=3)	
		n (%)	p	n (%)	P	n (%)	p	n (%)	p	n (%)	p
Gender	Male	4 (28.6%)	0.809	7 (38.9%)	**0.040**	3 (30%)	0.968	0 (0%)	**0.006**	1 (33.3%)	0.908
	Female	10 (71.4%)		11 (61.6%)		7 (70%)		8 (100%)		2 (66.7%)	
Age (years)	25 - 35	8 (57.1%)	0.245	8 (44.4%)	0.059	3 (30%)	0.078	4 (50%)	0.122	1 (33.3%)	0.062
	36 – 45	3 (21.4%)		8 (44.4%)		6 (60%)		4 (50%)		0 (0%)	
	46 - 55	3 (21.4%)		2 (11.1%)		1 (10%)		0 (0%)		2 (66.7%)	
Experience (years)	1- 5	7 (50%)	0.334	6 (33.3%)	0.304	3 (30%)	0.272	5 (62.5%)	0.277	0 (0%)	0.229
	6 - 10	1 (7.1%)		2 (11.1%)		2 (20%)		0 (0%)		0 (0%)	
	11 - 15	1 (7.1%)		4 (22.2%)		2 (20%)		1 (12.5%)		1 (33.3%)	
	16 - 20	5 (35.7%)		6 (33.3%)		3 (30%)		2 (25%)		2 (66.7%)	
Highest education degree	Diploma	3 (21.4%)	0.085	2 (11.1%)	0.702	0 (0%)	0.074	1 (12.5%)	0.640	0 (0%)	0.539
	Bachelor's	11 (78.6%)		15 (83.3%)		10 (100%)		7 (87.5%)		3 (100%)	
	Master's	0 (0%)		1 (5.6%)		0 (0%)		0 (0%)		0 (0%)	
Clinical Practice setting	Government	7 (50%)	0.794	9 (50%)	0.691	5 (50%)	0.855	4 (50%)	0.879	2 (66.7%)	0.481
	Both sectors	7 (50%)		9 (50%)		5 (50%)		4 (50%)		1 (33.3%)	
Specialization	General	14 (100%)	-	18 (100%)	-	10 (100%)	-	8 (100%)	-	3 (100%)	-
	Other	0 (0%)		0 (0%)		0 (0%)		0 (0%)		0 (0%)	

Male gender showed a significant association with knee injuries ($p = 0.022$), where all knee injury cases were reported by males. However, there was no significant gender association with ankle ($p = 0.244$), hip ($p = 0.124$), thumb ($p = 0.545$), or wrist/hand injuries ($p = 0.968$) (Figure 12). Regarding age, no significant associations were found with any injury location ($p > 0.05$). However, a higher proportion of 36-45-year-olds reported ankle (42.9%), hip (66.7%), and wrist/hand (50%) injuries. In contrast, the 25-35 age group had a higher prevalence of ankle (42.9%) and wrist/hand injuries (40%). Experience showed no significant association with the prevalence of injuries in any of the regions ($p > 0.05$). However, those with 1-5 years of experience (50%) most frequently reported knee injuries, while hip injuries were most commonly seen in those with 1-5 years of experience (66.7%), In terms of education level, all knee and wrist/hand injuries were reported by participants with a Bachelor's degree, though no significant associations were found for these or any other injury type ($p > 0.05$). Notably, none of the participants with a Master's degree reported injuries in any region. For clinical practice setting, there was a significant association between hip injuries and working in a governmental setting ($p = 0.027$), where all hip injury cases occurred. No significant associations were found between practice setting and injuries in other regions, including knee ($p = 0.280$), ankle ($p = 0.752$), or wrist/hand ($p = 0.855$). Lastly, all participants were specialized in general practice, preventing any meaningful comparison.

Table 8 shows associations between demographic variables and WMSD prevalence in different anatomical locations (Knee, Ankle, Hip, Thumb, Wrist/Hand)

Variable		Knee (n=6)		Ankle (n=7)		Hip (n=3)		Thumb (n=2)		Wrist/Hand (n=10)	
		n (%)	p	n (%)	p	n (%)	p	n (%)	p	n (%)	p
Gender	Male	6 (100%)	**0.022**	1 (14.3%)	0.244	0 (0%)	0.124	1 (50%)	0.545	3 (30%)	0.968
	Female	0 (0%)		6 (85.7%)		3 (100%)		1 (50%)		7 (70%)	
Age (years)	25 – 35	1 (16.7%)	0.168	3 (42.9%)	0.864	1 (33.3%)	0.348	0 (0%)	0.101	4 (40%)	0.370
	36 – 45	3 (50%)		3 (42.9%)		2 (66.7%)		2 (100%)		5 (50%)	
	46 – 55	2 (33.3%)		1 (14.3%)		0 (0%)		0 (0%)		1 (10%)	
Experience (years)	1- 5	1 (16.7%)	0.262	3 (42.9%)	0.482	2 (66.7%)	0.522	0 (0%)	0.382	4 (40%)	0.257
	6 - 10	0 (0%)		1 (14.3%)		0 (0%)		0 (0%)		2 (20%)	
	11 – 15	2 (33.3%)		2 (28.6%)		0 (0%)		1 (50%)		1 (10%)	
	16 – 20	3 (50%)		1 (14.3%)		1 (33.3%)		1 (50%)		3 (30%)	
Highest education degree	Diploma	0 (0%)	0.259	1 (14.3%)	0.688	1 (33.3%)	0.547	0 (0%)	0.669	0 (0%)	0.074
	Bachelor's	6 (100%)		6 (85.7%)		2 (66.7%)		2 (100%)		10 (100%)	
	Master's	0 (0%)		0 (0%)		0 (0%)		0 (0%)		0 (0%)	
Clinical Practice setting	Governmental	4 (66.7%)	0.280	3 (42.9%)	0.752	3 (100%)	**0.027**	0 (0%)	0.096	5 (50%)	0.855
	Both sectors	2 (33.3%)		4 (57.1%)		0 (0%)		2 (100%)		5 (50%)	
Specialization	General	6 (100%)	-	7 (100%)	-	3 (100%)	-	2 (100%)	-	10 (100%)	-
	Other	0 (0%)		0 (0%)		0 (0%)		0 (0%)		0 (0%)	

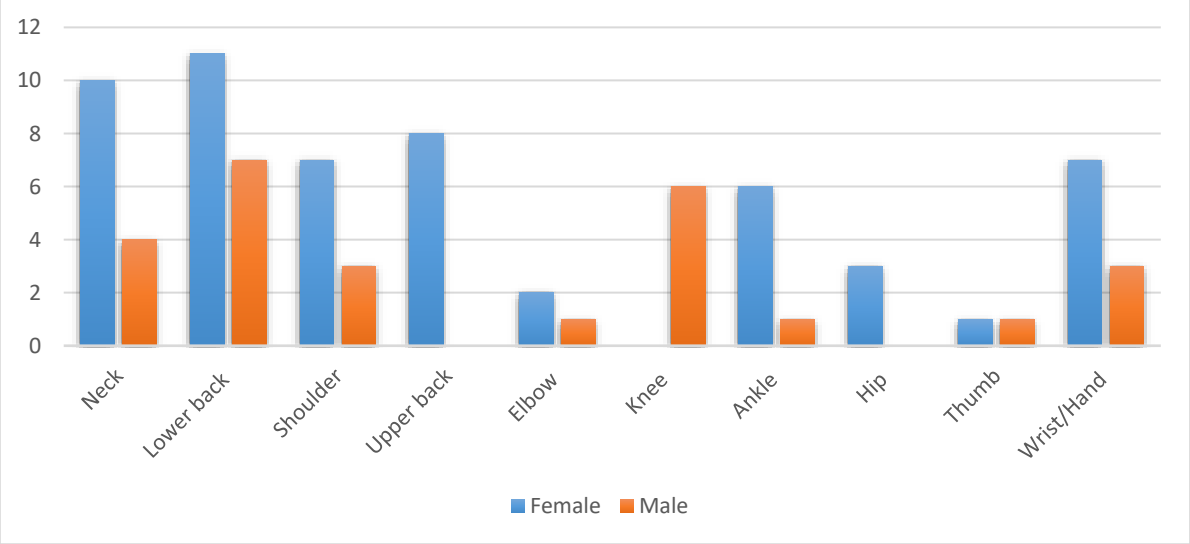


Figure .12 prevalence of WRMSDs in participating male and female physiotherapists.

5. DISCUSSION

The prevalence of WRMSD among physical therapists working in Janzour Center for disability is considered very high due to several work-related factors reported by physical therapists as the main cause of their injury. However, physical therapists were implementing several strategies to cope with this problem and practice their work normally. This result is consistent with the previous research she did by (Walaa & Alia, 2021) which reported a high prevalence of WRMSD among Egyptian physical therapists through a self-survey based on the unified North questionnaire. Through the results of these studies, all physical therapists working in Janzour center for disability those included in the survey complained of WRMSD because of practicing this profession. This rate was slightly higher than the previous research she did (Walaa & Alia, 2021) where the prevalence rate WRMSDs was (99.5%) among Egyptian physical therapists. This is due to the difference in the number of participants in the study, as the number of participants in our studies was very small.

This high prevalence of WRMSD had an impact on the health of therapists and a decrease in their work efficiency, as well as an impact on their well-being, the results of this study showed that most participants had injuries in more than one anatomical site in the body. The most affected sites were the lower back, neck, shoulder, wrist/ hand, and upper back. This is consistent with the previous study conducted by (Walaa & Alia, 2021). The prevalence of WRMSD in the lower back in this studies was 78.3% of the physiotherapists, which is significantly higher than that reported in the previous study conducted by (Walaa & Alia, 2021)**.** In addition, other parts of the body were less prevalent in these studies compared to the results shown in the previous study conducted by (Walaa & Alia, 2021) as the prevalence of WRMSD in the neck was 60.9% of the participants in this study and it was lower than reported in the previous study conducted by (Walaa & Alia, 2021) and shoulder injury was also lower in the participants in this study than reported in the previous study conducted by (Walaa & Alia, 2021). On the other hand, 43.5% of the physical therapists reported wrist and hand injuries, and that was it had a slightly higher rate than reported in the previous study conducted by (Walaa and Alia, 2021). The most prevalent symptom among the physical therapists included in the research sample was pain, as the results of this study showed that all physical therapists suffered from pain ranging from mild to moderate, and that is consistent with the previous study conducted (Walaa & Alia, 2021) as pain was the most prevalent complaint in the anatomical areas studied. However, the percentage of physical therapists participating in this study was 100% suffering from pain as a result of the injury, which was higher than reported in the previous study conducted by (Walaa & Alia, 2021). In addition, Fatigue was the second most common symptom in the current study, and that disagreed with what **(**Walaa & Alia, 2021) said in the previous study, as fatigue was the least common symptom among Egyptian physical therapists.

Through the results of these studies, participants identified risk factors that may have caused WRMSD, where the most common risk factors were examining and treating a large number of patients, and the therapist adopting uncomfortable positions such as bending the back and knee while treating patients. In addition to dealing with heavy patients and not having enough rest time between sessions. This result is consistent with the previous study conducted by (Walaa & Alia, 2021), in terms of the most common risk factors, with a difference in order, as Egyptian physical therapists reported that working in uncomfortable positions was the most common work-related factor causing WRMSD. In addition to dealing with heavy patients and remaining in a fixed position for a long time while treating patients. (95.7%) of participants in this, studies reported that treating and examining a large number of patients daily is the factor they believe is the main cause of WRMSD. Therefore, more than half of the therapists in the current study suffered from fatigue in addition to not having enough rest time between sessions, and this percentage was much higher than what was reported in the previous study conducted (Walaa & Alia, 2021).

Most of the physiotherapists adjusted their position and the patient's position as well as the height of the base to cope with this problem and continue working, in addition to seeking help from another physiotherapist. This is consistent with the coping strategies used by Egyptian therapists that were reported in the previous study conducted by (Walaa & Alia, 2021). However, the percentage of physiotherapists participating in this study who adjusted their position (95.7%) was much higher than that reported in the previous study conducted by (Walaa & Alia, 2021). In addition, a small number of Egyptian physiotherapists participating in the previous study conducted by (Walaa & Alia, 2021) adjusted the height of the base as a mechanism to cope with the injury, while (95.7%) of the physiotherapists in the current study adjusted the base. This suggests that many individuals in this study are aware of basic ergonomic principles and are taking steps to improve their workspace. Through the results of this study, we found a relationship between demographic data and the prevalence of WRMSD in anatomical locations in the Body, as half of the female therapists suffered from injuries in more than 3 anatomical locations in the body compared to men, where most of them suffered from injuries in 3 or fewer locations. This indicates the prevalence of WRMSD among female therapists is higher than among male therapists and that is consistent with the previous study conducted (Walaa & Alia, 2021). However, this result cannot be generalized because the number of male therapists is less than that of females.

In addition, there were injuries in some anatomical locations that were complained of by and one sex and not by the other sex, as upper back and ankle injuries were common among female therapists only, while knee injuries were common among male therapists only. However, lower back injuries were strongly associated between the sexes this result cannot be compared with the previous study conducted by (Walaa & Alia, 2021) because this conclusion was not addressed.

In terms of age, there was no significant association between age and the prevalence of WRMSD, however, a higher proportion of people aged 36–45 years reported shoulder injuries and knee injuries were more frequently reported by those with 36–45 years, in addition, upper back and lower back injuries were common between the two age groups 25-35, 36-45 as for years of experience, the neck and upper back injuries were more common in those with 1–5 years of experience. This could be explained by the fact that entry-level physical therapists work in more physically challenging jobs, while senior physical therapists typically devote more of their time to administrative and organizational tasks than manual labor. However, this is in line with the findings of a study conducted by (Walaa & Alia, 2021). In terms of educational level, the highest prevalence of MSDs was reported among participants with a bachelor's degree who reported neck and upper back problems. This may mean that basic educational training does not provide entry-level physical therapists with the appropriate training to avoid injury. This is consistent with the (Walaa & Alia, 2021) study. However, this result cannot be generalized because most of the participants in these studies had a bachelor's degree. In these studies, there was no relationship between the prevalence of WRMSDs and the therapist's place of work in public or both facilities (general, and private). This result was in contrast to the previous study conducted by (Walaa & Alia (2021). All participants in this study were general practitioners, which prevented any meaningful comparison with other specialties. This is consistent with what (Walaa & Alia 2021) reported.

Overall, the sample size in this study was small, which limits the generalizability of the results. In addition, the self-reported data can lead to potential biases, in addition to the descriptive study design, which makes it difficult to establish causal relationships between demographic factors and the prevalence of WRMSDs.

6. CONCLUSION

This study concludes that the prevalence of work-related musculoskeletal disorders (WRMSDs) is exceptionally high among physiotherapists at the Janzour Center for Disability. The most commonly affected anatomical regions were the lower back and neck. The findings confirm that the primary contributing factors to these disorders include treating a high volume of patients and working in awkward physical postures. Conversely, therapists employ coping strategies such as adjusting their own and patients' positions to mitigate these risks. The study recommends the implementation of proactive intervention programs in therapeutic institutions to reduce the incidence of these disorders, thereby improving both the quality of patient care and the well-being of the medical staff.

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