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Assessment of Pain Behavior and Pain Related Distress in Palestinian Musculoskeletal Disorder Patients

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Abstract

The present research work aims to investigate the pain behavior and pain distress in musculoskeletal disorders (MSDs) as well to explore to how much extent does gender, age, and body weight do contribute to MSDs. Main hypothesis was: "There are no statistical differences in the levels of pain and pain distress in musculoskeletal disorders in relation to gender, age, and body weight." Researchers used the descriptive analytical approach, mainly cross - sectional approaches, where a total sample of 60 subjects was randomly selected, and data was collected via assessment of self-reporting procedures. After data was collected and coded, SPSS-20 was utilized to analyze what coded to extract means, standard deviations as well as inferential values. All such values were calculated to answer the set research question (s) and hypothesis (es). Results were obtained to show that studied groups reported a severe pain behavior (Mean: 2.3717; Std. Deviation: 42470) and severe pain distress issues (Mean: 1.6200; Std. Deviation: .24550) in musculoskeletal disorder patients. Further, statistical comparisons showed that there are no significant statistical differences in the levels of pain behavior and pain distress at the level of significance (α =0.05) that could be attributed to gender, age, and body weight. All this may lead to the conclusion that MSDs have negative physical and psychological effects on those who suffer them as vis-a-vis pain behavior and pain distress outcomes may contribute to the same, irrespective of gender, age and body weight.

Keywords: Pain Behavior; Pain Distress; Musculoskeletal Disorders; Palestinian samples.

Introduction

Musculoskeletal disorders - MSDs nowadays are considered as the most common cause of pain and chronic disabilities. In different research works carried out in Canada, the USA and Europe, the point prevalence of physical disabilities caused by MSDs is estimated at 4-5 % of the general adult populations. Same resources indicate that the prevalence is higher among women and increases markedly with age. Moreover, it was found that pain and physical disabilities due to MSDs affect social functioning, mental health, and quality of life of sufferers [1-3].

When it comes to costs, musculoskeletal disorders as per Connelly L, Woolf A, and Brooks P, make up to two percent of the global economic disease burden! Still musculoskeletal disorders continue to be a major source of disability and lost work time, and still an increasing efforts to investigate the causes as well as the effects of MSDs, where a combination of physical, psychological and psychophysical risk factors have been documented [4].

According to the International Classification of Diseases (ICD-10), MSDs belong to the category of diseases of the musculoskeletal system and connective tissue, that encompass a spectrum of disorders, ranges from those of acute onset and short duration to lifelong dysfunctions. The primary musculoskeletal dysfunctions include: osteoarthritis, inflammatory arthritis (principally, rheumatoid arthritis), back pain, musculoskeletal injuries (e.g., sports injuries), crystal arthritis, and metabolic bone disease (principally osteoporosis). Other disorders included in this category are, amongst others, joint derangements, scoliosis, myositis, and fibromyalgia [5]. Such complaints are a major cause of years lived with disability in all continents and economies, as well the most common medical causes of long-term absence from work due to sickness in developed countries and claims of disability pensions [6].

Musculoskeletal disorder as seen by the European Agency for Safety and Health at Work is defined as: an impairments of bodily structures such as muscles, joints, tendons, ligaments, nerves, bones and the localized blood circulation system, that are caused or aggravated primarily by work and by the effects of the immediate environment in which work is carried out [7].

Physical risk factors such as high forces, high repetition, working with arms overhead, long-term static postures, local contact forces and vibration have been commonly identified. In most industrialized countries, the costs of compensation for MSDs account for at least half of all workers' compensation costs and recent reviews have reaffirmed that a strong work-related component exists for many upper limb and low back pain cases. Work-related musculoskeletal disorders (WMSDs) comprise well over half of all reported occupational illnesses [8].

Further, the association between chronic musculoskeletal pain and psychological distress related issues is well documented, and the prevalence of subjective distress as well as psychiatric symptoms is high in patients with musculoskeletal pain [9].

Systematic review works explored the evidence on the etiological role of psychosocial factors such as stress in the development of chronic musculoskeletal pain disorders, a work that may contribute enough to inform clinical practice groups on the importance of an early identification and, consequently, treatment of subjects who suffer musculoskeletal disorders accompanied by a high levels of stress; in particular, at acute stages [10].

In other results the role of posttraumatic stress symptoms (PTSS) in chronic pain patients was highlighted, where it was found that PTSS

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have a specific influence on the association between pain intensity and psychosocial aspects of the investigated pain condition per se [11].

The importance of such suggestions comes from the fact that several psychological and physiological factors predicted change in the number of pain sites [12].

However, in spite of an increasing understanding in the medical community of the interaction between psychosocial, cultural, and physiological factors in pain, studies indicate that chronic pain patients still tend to receive little psychosocial treatment in many treatment settings, because of the continued emphasis on the physical disease component of pain [13].

When it comes to pain, pain is defined by the International Association for the Study of Pain (IASP) as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage [14].

The North American Nursing Diagnosis Association defines it as a state, in which an individual experiences and reports severe discomfort or an uncomfortable sensation; the reporting of pain may be either by direct verbal communication or by encoded descriptors [15].

To conclude, earlier reviews and related studies revealed that there are connections between pain complaints, psychological distress and MSDs. In addition, gender and age do matter in musculoskeletal disability rehabilitation, and distress is related to pain intervention with work and number of pain regions [16-20].

Also, it is that much clear to how much it is needed to assess and evaluate pain and related issues for much better intervention and treatment of the same in case we want improve quality of life - QOL and occupational abilities at work [21,23].

Problem Statement

Total absence of research works on the above mentioned topic in Palestine and Palestinian populations; except [24]. Only work on status of work related musculoskeletal disorders (WRMDS), make it justified to undergo such a research work.

Further, discrepancies in some research findings also make it necessary to study such topics for further conclusions and possible clinical implications [25,26].

Research Question(s)

What is the status of pain behavior and pain distress in musculoskeletal disorder patients? And is there any statistical differences in that status that could be attributed to gender, age, and body weight?

Hypothesis

There are no statistical differences in status of pain behavior and pain distress in musculoskeletal disorders attributed to gender, age, and body weight.

Aim and Significance

The major aim of the present study is to determine status and level of pain behavior and pain distress in musculoskeletal disorder Palestinian patients, and whether gender, age and body weight contribute to MSDs? Expected findings may contribute clinically to treatment of MSDs and related cases for much better adaptation and enhancement of quality of life.

Methods and Procedures

Design

The present research work is based on a quantitative descriptive design, where levels of pain behavior and pain distress related issues in musculoskeletal disorder patients were assessed. Dependent variables were determined as the level of pain behavior and pain distress related issues in musculoskeletal disorders. Gender, age, and weight of patients were taken as independent variables.

Population and sample

The population of this study consists of all the musculoskeletal disorder patient who are treated at the selected Palestinian rehab centers in north and South West Bank. When it comes to sample, a simple random sample was selected to fulfill the purpose of study. Permission of the concerned authorities was sought, and getting the informed consent of the 60 musculoskeletal disorder patients was assured (Table-1)

Data collection tool (s)

Based on works of Melzack R [27-30] valid and reliable scales of pain behavior and pain distress were used to collect data, and data was obtained from the musculoskeletal disorder patients directly. Gender, age, and body weight of subjects fully recorded. Responses of each and every targeted subject were taken and clinical sessions.

Data analysis

After collecting data per the set time, via SPSS (veresin-20), frequencies, means, standard deviations and further more descriptive and inferential statistical values were generated, in particular one-way ANOVA and t-test.

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	18	30.0	30.0	20.0
Female	42	70.0	70.0	30.0
Total	60	100.0	100.0	100.0
Age	Frequency	Percent	Valid Percent	Cumulative Percent
<25	10	16.7	16.7	16.7
40-25	39	65.0	65.0	10.7
40-55	11	18.3	18.3	81.7
Total	60	100.0	100.0	100.0
Body Weight	Frequency	Percent	Valid Percent	Cumulative Percent
55-65	25	41.7	41.7	41 7
65-75	35	58.3	58.3	41.7
Total	60	100.0	100.0	100.0

Table 1: Describes the investigated MSDs characteristics (i.e., gender, age, and body weight)

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Results and Discussions

Results related to study questions

Based on the set research question (s) and the utilized scale of pain behavior, the shown means and standard deviations in (Table-2) indicate that the status of pain status is high in level among the investigated subjects (Mean: 2.3717; Std. Deviation: 42470). With reference to the above table, it is clear that the total mean of the sample responses of musculoskeletal disorder patients on the Pain Behavior Scale indicates a severe status of pain among the studied subjects.

While assessing the same subjects on the Pain Distress Scale, (Table-3) shows that distress is highly present and well observed among subjects (Mean: 1.6200; Std. Deviation: .24550). Such results

indicate that investigated subjects do suffer from pain distress and related issues.

Results related to study hypotheses

To test the hypothesis that says: "There are no statistical differences in status of pain behavior and pain distress in musculoskeletal disorders attributed to gender, age, and body weight," t-test was calculated and results as shown in (Table-4). Further, one way ANOVA was calculated in correspondence to age of subjects as (Table-5). (Table- 6) shows that sig. values on pain behavior and pain distress are more than the assumed statistical significance (α =0.05). An outcome that indicates absence of significant statistical differences in the level of pain behavior and pain distress among musculoskeletal disorder patients that could be attributed to age. As due, hypothesis is accepted

Pain Behavior	N	Mean	Std. Deviation
Vocal verbal complaints	60	2.4500	.67460
Vocal nonverbal -complaints, including moans, groans, and gasps	60	2.4333	.69786
Time spent lying down during the day because of pain	60	2.3667	.68807
Facial grimaces	60	2.4667	.72408
Standing posture	60	2.4167	.59065
Q6	60	2.3833	.66617
Body language, indicative of pain, including clutching and rubbing pain site	60	2.2833	.71525
Visible equipment use, including crutches; cane, brace, TENS, leaning on furniture	60	2.3000	.72017
Stationary motion	60	2.2500	.75071
Analgesic medication	60	2.3667	.71228
Pain Behavior Scale	60	2.3717	.42470

Table 2: Shows Means of pain behavior and related Std. Deviations in MSDs.

Pain Distress	N	Minimum	Maximum	Mean	Std. Deviation
Do you think you will ever get over your pain?	60	1.00	2.00	1.6833	.46910
Do you feel you have bad an adequate medical evaluation?	60	1.00	2.00	1.6500	.48099
Do you feel depressed, or have you lost interest in most of your daily activities?	60	1.00	2.00	1.6167	.49030
During the past 6 months, have you considered suicide?	60	1.00	2.00	1.5333	.50310
How much caffeinated coffee do you drink per day?	60	1.00	2.00	1.5833	.49717
Dose alcohol relieve your pain or help you sleep?	60	1.00	2.00	1.5167	.50394
Has anyone ever told you they were annoyed with your use of alcohol, pain killers, or stress drugs?	60	1.00	2.00	1.7167	.45442
Do you feel that your life is out of control?	60	1.00	2.00	1.6833	.46910
Has your pain made you excessively angry, irritable, or violent?	60	1.00	2.00	1.6000	.49403
Pain Distress Scale	60	1.00	2.00	1.6200	.24550

Table 3: Shows Means of pain distress and related Std. Deviations in MSDs.

Gender		Levene's Test for E	quality of Variances	t-test for Equality of Means		
		F	Sig	t	df	Sig. (2-tailed)
Pain behavior scale	Equal variances assumed	.356	.553	265-	57	.792
	Equal variances not assumed			262-	28.874	.795
Pain distress scale	Equal variances assumed	1.657	.203	1.265	57	.211
	Equal variances not assumed			1.426	39.233	.162

Table 4: Shows t - test results in relation to gender variable on pain behavior and pain distress responses among MSDs.

Age		Sum of Squares	df	Mean Square	F	Sig.
Pain behavior scale	Between Groups	.279	2	.140	.768	.469
	Within Groups	10.363	57	.182		
	Total	10.642	59			
Pain distress scale	Between Groups	.098	2	.049	.807	.451
	Within Groups	3.458	57	.061		
	Total	3.556	59			

Table 5: Shows one way ANOVA test results in relation to age variable on pain behavior and pain distress responses among MSDs.

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Body weight		Levene's Test for E	quality of Variances	t-test for Equality of Means		
		F	Sig	t	df	Sig. (2-tailed)
Pain behavior scale	Equal variances assumed	.010	.921	547-	58	.587
	Equal variances not assumed			543-	50.756	.589
Pain distress scale	Equal variances assumed	.005	.942	-1.622-	58	.110
	Equal variances not assumed			-1.647-	54.506	.105

Table 6: Shows one way ANOVA test results in relation to body weight variable on pain behavior and pain distress responses among MSDs.

Discussions

Corresponding to the obtained results above, it is clear that musculoskeletal disorders (MSDs) and related pain issues and pain distress continue to be a major source of disabilities and lost work time, though, there has been an increasing efforts to investigate causes and find solutions of these disorders. Further, though tendencies and readiness to undergo changes are well noticed and observed by researchers (possible will be communicated in further research works), the challenge is continuing while managing and dealing with dysfunctions and disabilities, whether it is in developing or developed countries.

Results shows that vocal verbal complaints, vocal nonverbal complaints, lying down, facial grimaces, standing postures, etc are highly documented in their presence among subjects.

In the case of pain distress, frustration, feeling as bad evaluated and dealt with, depression, considering suicide, caffeination, alcohol and drug abuse considerations, lost control, anger, irritation and violence are that much prevailed.

Having a deep look in these outcomes we observe to how much extent they go hand in hand with one another; irrespective of unequal means and corresponding standard deviations.

To add more, the present findings go in alignment with many previous existing studies in particular those demonstrating chronic pain (physical domain) as highly associated with severe psychological and psychosocial symptomatology compared with patients who are free from such symptoms and related signs [31-35].

Research make it clear that pain intensity and pain-related disability with psychological distress were significantly increased in the life of those subjects who are under traumatic and stressful conditions, specifically those who are facing occupational and hardship circumstances. It may said that patients with and without trauma and patients with and without relevant levels of psychological issues, such as posttraumatic stress symptoms contribute differently to pain and pain related issues. Such findings go in agreement with the findings of Ruiz-Párraga and Lopez Martinez [36], who are in a sample of 346 back pain patients (back pain is a well know musculoskeletal disorder) found that studied subjects with posttraumatic stress symptoms reported significantly higher levels of pain and more psychological distress in pain-related disabilities. Similarly, were the findings of Åkerblom S., et al. [37] where it was found in their work that enhanced levels of pain interference, kinesiophobia, anxiety, and depression in 465 patients are suffering from chronic pain disorders.

Such findings, with the present findings, endorse that many studies in the area of MSDs and related pain disabilities, in particular those in comorbid with psychological concerns, do posit a more severe painrelated symptomatology, which possibly means psychology and related behaviors do contribute to bad symptomatology and not merely the presence of a particular trauma or distress. In other research findings, psychological factors have been found to play a significant role in the development particular MSDs such as back and neck pain [38]. When it comes to psychological distress, it was found as strongly associated with musculoskeletal pain sites among various groups of working population [39-42]. In our study, there was an increasing trend in the total proportions of pain distress (a Mean of: 1.6200] Std deviation: .24550), which is an indicator of increase in the score of psychological concerns and related behaviors. Such findings may be considered as a kind of internalizing type of psychological distress, in particular depression (a Mean of: 1.6167] Std deviation: .49030). This is what goes with similar findings by Moore SA, Dowdy E, Furlong MJ [43]. A result that might refer to strong association of psychological distress and musculoskeletal pain sites due to workrelated psychosocial factors [44-46].

To end our discussions, pain behaviors and psychological pain represented in distress found to be of high and equal in effect on all studied subjects, irrespective of their gender (male/ female), age variances, and body weight discrepancies. This is what was reached to by t-tests and ANOVAs.

Conclusions and Clinical Implications

Based on obtained results, the researchers may conclude that samples reported a severe pain behavior on the Pain Behavior Scale, in addition to a reported severe pain distress as depicted on Pain Distress Scaling. Absence of significant statistical differences in the level of pain behavior and pain distress related issues among subjects that could be attributed to gender, age, and weight make it obvious that pain behavior and pain distress has equal impacts and effects on those who are suffering from it; an outcome that indicates that MSDs bad consequences are cross such limited variables and demographics.

When it comes to clinical implications, the present findings may be of great relevance to pain rehabilitation and pain distress management programs in several ways. Further, findings make it an urgent that physical interventions should go hand in hand with psychological and psychosocial modalities in treatment plans. Likewise, the current study findings share some important insights into how much extent psychological issues may influence, rather must influence practice and related clinical directions when it comes to pain complaints, complications, and associated distress issues in disabilities. Therefore, screening of physical symptoms as well psychological and psychosocial concerns in health settings while working with patients is highly recommended if we want to keep in mind the significance of holistic approaches in therapy settings, for much therapeutic outcomes.

Documenting the effects and associated symptomologies of MSDs in the studied groups as it has been documented in other studies where pain and pain distress as being highly associated with disabilities and related issues lead us to bring it to attention that such effects and associations has impacts and implications in the field of Healthrelated Quality of Life - HRQoL (i.e., physical, social, psychological and spiritual domains of health). And this is what is fully has been supported by many utilized measures of HRQoL [47-48]. And all is

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needed knowing that HRQoL has become an important demand in the world of health and disease, particularly when studying health status as defined by WHO and prospected related health outcomes [49-51].

Furthermore, research outcomes that revealed a high prevalence of MSDs and their negative effects on the perceived HRQoL and related aspects as compared with other common chronic conditions and their impacts and high ranks in impairments make it urgent to implement clinically such findings to improve the life aspects of those who are suffering from MSDs [52-54].

Practices at modern healthcare systems (e.g., the European healthcare system), where patients with MSDs usually do consult primary healthcare physicians [55]. Teaches us not to go merely for physical factors and related symptoms, severity or persistence of those symptoms, rather we have to address and consider those associated mental distress issues and levels of depression [56].

Refering to Zamri, N., Moy, M., and Hoe W [57]. it is time to know that interventions targeting psychological distress and work-related psychosocial characteristics may reduce musculoskeletal pain and related complaints.

Limitations

There are some limitations of great significance to be highlighted. One of them is that causality cannot be established in such research works, for they are non-experimental design based works, rather crosssectional design based. More, selection bias might have been occurred with the fact that all participants were volunteers, who come to clinical sessions with different characteristics and different intentions. And of course, such issues mostly not possible to be addressed in this research work. Further, a possibility of recall bias while dealing with data has happened, since the used data collection tools were based on self-reporting of the studied subjective. Also, the used scales (i.e., the Pain Behavior Scale and the Pain Distress Scale) are not validated on Palestinian or Arabs communities and populations.

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