

## Occupational Stress and Professional Exhaustion Syndrome in occurrence of Musculoskeletal disorders among foreign staff of petroleum companies in Egypt.

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**Abstract: Introduction:** Occupation is one in all the principal components of our everyday lives that would motive a quality of pressure. Stress and Professional Exhaustion Syndrome (burnout) are connected collectively. The relationship linking musculoskeletal disorders (MSD) and burnout syndrome as a psychosocial element was documented earlier. **Objectives:** The object of this be taught was to determine the role of work-related strain and burnout in musculoskeletal illness amongst foreign staff of various international companies in Egypt. **Substances and Methods:** A total of 253 workers representative for the international petroleum companies in Egypt were participated in a cross sectional study. The contributors have been chosen conveniently from all of the available international companies' peoples. Only 166/253 (response fee: 65.5%) of the participants were involved in the present work and complete the questionnaires. An evaluation of burnout and MSD have been made using the Nordic questionnaires and Maslach Burnout Inventory (MBI). The work place stress was calculated through the work place stress questionnaire. **Results:** The average occupational stress ( $17.18 \pm 3.42$ ) was elevated significantly ( $P = 0.02$ ) amongst foreign subjects complained from MSD than between the normal subjects ( $16.06 \pm 2.19$ ) in the course of the former week; and also during the past year ( $17.17 \pm 3.11$  and  $16.74 \pm 3.03$ , respectively;  $P = 0.01$ ) to the study. Both of occupational stress and smoking habit only were identified as impartial predictors of MSD amongst foreign subjects. **Conclusions:** It appears that linkage between musculoskeletal complaints and burnout syndrome was more complex than being returned to only occupation stress. Additional studies are encouraged to investigate different associated motives to these organizations.

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### 1. Introduction

Professional Exhaustion Syndrome (Burnout) is a psychological expression that infers an excessive stress response to the extended publicity to occupational or professional stressors (1, 2). Burnout is customarily outlined because the end result of continual occupational stress (3). If workers are incapable to manage with stress explanations, it may causng compound issues. Long duration of stressful conditions principally causing burnout syndrom which determined as crucial fundamental problem. Burnout syndrom can be drawn in three varaible dimensions: Depersonalization, emotional exhaustion, and shortage of private achievement. The syndrom of burnout was paid great attention around the world and much of researches were done concerning this topic which exceeds 4500 reports globally (3).

Working life is among the principal parts of our daily lives that would purpose a fine quantity of pressures or strains (4). Stress and reputable burnout may also be associated together. Burnout may lead to psychological disorders in addition to bodily

symptoms together with multiple physical complication, reduced vigour, fatigue, weak point, continual headache, back pain, musculoskeletal Disorders, and sleep issues (5). The MSD are multifactorial in causes and a couple of reasons comparable to bodily and psychological causes could contribute to their persistence and progression. Prior experiences mentioned that continued sitting position throughout working in offices accompanied with terrible ergonomic repute of offices were are considered as one of the important reasons of musculoskeletal signs progress in place employees. Previous studies are dealing with the organization between burnout syndrome and MSD as a psychosocial component (1, 5-8). A few of the reports about burout syndrom found the association with musculoskeletal complaints as an entire assemble, or as a precise of its three dimensions (1, 9,11).

### 2. Objectives

Foreigen individuals in international companies had distinctive labor with stressful place of work and

as much as our searching on the text, we found little researches about link between occupation stress, reliable burnout, and MSD between foreign staff and our learn probably may be one of the former studies in this field. The objective of this be taught was once to establish the function of occupational stress and burnout in musculoskeletal disordered amongst foreign staff of exclusive international petroleum companies in Egypt.

### 3. Materials and Methods

#### 3.1. Study Population

This study is conducted through the international petroleum companies in Cairo, Egypt from the beginning of April 2014 to the end of November 2014. All of the individuals in any part of foreign international companies were eligible for participating. The worker with bone fractures as well as systemic or tumoral bone issues have been excluded. This study is convenient sample and due to security issues and all set a record of overseas international companies in Egypt and among them, as a result of availability of study population and without want for extra expenditure on bigger pattern size as much as possible, we chosen 253 contributors as learn participants. Be taught questionnaire have been disbursed among the members and finally 166 questionnaires have been returned to the researchers (response rate: 65.5%) informs consent have been signed by way of all the participants.

#### 3.2. Data Gathering Instruments

On this gain knowledge of, basal variables of international company personnel together with their age, gender, education, physique mass index (BMI), marital status, smoking, and past medical historical past were accrued by way of be trained determine list. The respectable burnout was assessed by the Maslach Burnout inventory (MBI). This scale consists of 19 questions when it comes to the three components of burnout together with individual, workrelated, and purchaser associated burnout. Individual burnout is a state of extended bodily and psychological exhaustion and is classed via six questions. Work related burnout is a state of prolonged physical and psychological exhaustion, which is perceived as involving the character's work, assessed by 5 questions. Client associated burnout is a state of extended bodily and psychological exhaustion, which is perceived as involving the man or woman's work with client, is measured using six questions. The objects had been scored utilising a 5 point scale from zero to a hundred. The MBI had been used in the previous stories for evaluation of burnout in a couple of fields equivalent to wellness care (12-14) as well as lecturers and scholars (15, 16). Data of musculoskeletal complaints had been gathered by means of Standardized Nordic

Self Reporting Questionnaire.

This questionnaire entails questions such as age, period of occupation as a worker, weight of carried loads, daily working hours, and musculoskeletal complaints in each and every of the next physique regions: neck, shoulder, elbow, wrist/hand, upper back, lumbar, one or each hips/thighs, one or each knees, and one or both ankle/ft. Data on daily working hours had been measured by means of seeing that the time spent within the workplace. The validity and reliability of the questionnaire has been permitted in different reports. Musculoskeletal complaint was defined as pain or suffering skilled in soft tissue of the different physique regions, which had befallen at the least during 2 to 3 work days in the previous week or preceding 365 days. Furthermore, the discomfort growth on the weekends, holidays, and vacation trips needed to be famous. Research workforce supervised all clinical records and questionnaire filling. A few studies were used Nordic questionnaire as instrument of comparison of MSD occurrence among staff of different workplaces (17, 18). The work place stress was measured by way of the office stress questionnaire. The scale was developed via the Marlin Com-pany, North Haven, CT, united states of america, and the American Institute of Stress, Yonkers, new york, usa. This scale included eight elements. Responses were scored making use of a five point scale starting from zero (under no circumstances) to Four (Very more commonly). This scale used to be used to verify the function of occupational stress in development of other factors amongst employees (19).

#### 3.3. Statistical Analysis

Data had been presented as mean  $\pm$  ordinary deviation for continues variables and frequency (percentage) for discreet variables. Chi squared experiment used to be used to when compared demographic and qualitative variable between workers with and without musculoskeletal complaints. Quantitative variables were when put next between two famous businesses utilizing unbiased student pattern t-test. Logistic regression analysis with enter model was carried out to determine independent predictors of musculoskeletal complaints amongst international company personnel. Age, work history, smoking, stress score, body mass index, common wellness scores, as good as personal, work related, and customer related burnout have been entered into the logistic regression model. Remained variables into the model had been identi-fied as independent predictors of MSD amongst international company personnel. Statistical evaluation used to be carried out in SPSS. P values  $< 0.05$  had been assumed as statistically significant outcome.

#### 4. Result

In this study, 166 questionnaires were backed to the researcher. The participants in this survey included 101 men and 65 women. The average ages and work history or experience of the contributors had been  $39.22 \pm 6.65$  and  $9.44 \pm 6.20$  years, respectively. Most of be taught contributors carried a master degree of science (108 participants; 64.6%) as academic measure. Imply BMI within the be taught populace used to be  $24.07 \pm 2.88$ . Amongst gain knowledge of members, 133 (80.1%) humans have been married and 89 (53.4%) individuals have been smoker. The imply of normal wellness scores in international company personnel used to be  $19.6 \pm 2.11$ . Amongst international company subjects, the imply of occupation stress used to be  $16.73 \pm 3.02$  and consequently, many of them be trained individuals had been classified as fairly low 96 (57.7%) workforce.

#### 4.1. Musculoskeletal complaints prevalence in International company personnel at preceding week and year.

Incidences of MSD in international company subjects during the previous week and year in different body constituents have been 59.7 % and 75.1%, respectively. Musculoskeletal complaints in the previous week were most usually reported in the neck (29.80%), the wrist (s) (26.10%), lessen back (19.9%), and higher back (16.80%) repeatedly; during 12 month interval, these premiums have been most often at the neck (49.70%), wrist (s) (36%), lower back (34.20%), and upper back (29.20%), respectively. Within the previous year, employees showed that musculoskeletal complaints of wrist (s) (3.7%), diminish back, Knee (s), and shoulder (2.5%), consecutively, precipitated obstacle in their function (Table 1).

**Table 1. Musculoskeletal disorders Prevalence for the duration of preceding Week and Twelve months in individuals**

Body Region	MSDs Prevalence during preceding week	MSDs Prevalence during preceding year
<b>Total N (%)</b>	99 (59.7%)	125 (75.1%)
<b>Neck</b>	30 (29.8)	62 (49.7)
<b>Wrist / Hand</b>	26 (26.10)	45 (36)
<b>Lumber</b>	20 (19.9)	43 (34.2)
<b>Upper back</b>	17 (16.8)	37 (29.2)
<b>Shoulder</b>	6 (6.2)	11 (8.7)
<b>Knee</b>	5 (5)	10 (7.5)
<b>Hip / Thigh</b>	2(1.2)	2 (1.2)
<b>Elbow</b>	-	2 (1.2)
<b>Ankle / Foot</b>	-	-

#### 4.2. Burnout situation among international company personnel

Consistent with outcome of MBI, average of subjects, work related, and client related burnout scores had been  $73.65 \pm 15.71$ ,  $73.09 \pm 14.11$ , and  $76.40 \pm 10.30$ , respectively. Imply of personal burnout rating in smokers, those with master of science measure, and disturbing international company personnel was significantly larger than in other personnel. Imply of work associated burnout in international company personnel with grasp of science degree and in annoying personnel was significantly bigger than in other subjects. Imply of consumer related burnout in international company personnel with greater than 20 years experience, stressful, and older than 50 years ancient was once significantly greater than in other personnel (Table 2).

#### 4.3. Occupational stress and burnout among international company personnel with and without musculoskeletal illness.

The results revealed that the subjects working in the international company and complained from MSD, the average of occupational stress was greater ( $P = 0.02$ ) than those without MSD ( $17.18 \pm 3.42$  and  $16.06 \pm 2.19$ , respectively;) during the last week. Also, the workers in the international company complaining from MSD, the average occupational stress was significantly higher ( $P < 0.01$ ) than those without MSD ( $17.17 \pm 3.11$  and  $16.74 \pm 3.03$ ) within the previous year. The average of three subscales of burnout have been elevated significantly in international company personnel with MSD in comparison with others (Table 3).

#### 4.4. Results of logistic regression analysis

During the analysis of data by applying the logistic regression analysis, which included different variables such as age, work history, personal, occupational stress ranking, smoking, BMI, GHQ (General Health Questionnaire) rating, and work associated as well as consumer associated burnout into

the model, only occupational stress ranking and smoking remained in our model. In different wordes, the influence of alternative be taught variables on prevalence of musculoskeletal complains used to be due to different explanations and only smoking and occupational stress had been wn as unbiased predictor of MSD among international company personnel.

**Table 2. Mean of Subscales of Professional Burnout Among International company Personnel**

Variables	Mean $\pm$ SD		
	Personal Burnout	Work Burnout	Client Burnout
<b>Sex</b>			
Male	79.90 $\pm$ 15.72	73.19 $\pm$ 14.44	76.87 $\pm$ 10.42
Female	72.18 $\pm$ 15.67	72.97 $\pm$ 13.80	75.84 $\pm$ 10.21
<b>P Value</b>	0.27	0.92	0.53
<b>Marital Status</b>			
Sinle	73.96 $\pm$ 16.22	73.19 $\pm$ 14.44	76.87 $\pm$ 10.42
Married	73.57 $\pm$ 15.64	72.97 $\pm$ 13.80	75.84 $\pm$ 10.21
<b>P Value</b>	0.90	0.92	0.53
<b>Smoking</b>			
Smoker	76.36 $\pm$ 15.37	74.21 $\pm$ 15.50	76.97 $\pm$ 10.32
Non Smoker	70.56 $\pm$ 15.61	76.44 $\pm$ 11.01	76.97 $\pm$ 10.37
<b>P Value</b>	0.19	0.28	0.16
<b>Work history (years)</b>			
< 5	74.71 $\pm$ 14.80	74.92 $\pm$ 12.39	74.53 $\pm$ 6.86
5-10	74.22 $\pm$ 13.60	73.45 $\pm$ 11.12	74.46 $\pm$ 9.85
10-15	70.51 $\pm$ 21.37	69.92 $\pm$ 20.78	78.85 $\pm$ 13.01
15-20	74.40 $\pm$ 16.89	74.49 $\pm$ 18.42	80.96 $\pm$ 1175
> 20	71.87 $\pm$ 16.77	67.86 $\pm$ 11.77	87.50 $\pm$ 8.33
<b>P Value</b>	0.84	0.51	0.001
<b>Age groups (years)</b>			
< 29	67.86 $\pm$ 18.74	76.53 $\pm$ 11.82	76.19 $\pm$ 14.77
30-39	73.91 $\pm$ 15.06	74.03 $\pm$ 12.01	75.13 $\pm$ 7.02
40-49	74.50 $\pm$ 16.49	72.36 $\pm$ 18.16	75.69 $\pm$ 13.65
50-59	72.39 $\pm$ 17.07	67.86 $\pm$ 14.52	85.94 $\pm$ 10.53
<b>P Value</b>	0.76	0.37	0.001
<b>BMI groups</b>			
< 20	70.83 $\pm$ 5.89	73.21 $\pm$ 2.52	72.92 $\pm$ 2.95
20-25	74.26 $\pm$ 14.89	74.94 $\pm$ 13.10	75.41 $\pm$ 9.35
25-30	73.58 $\pm$ 17.42	68.82 $\pm$ 16.31	78.86 $\pm$ 12.31
> 30	61.67 $\pm$ 73.66	66.43 $\pm$ 12.27	80.00 $\pm$ 12.97
<b>P Value</b>	0.37	0.07	0.24

**Table 3. Comparison of study variables among International company personnel according to their musculoskeletal disorders**

Variables	+ MSDs N (%)	- MSDs N (%)	P Value
<b>Sex N %</b>			
Male	58 (57.5)	42 (42.5)	0.38
Female	35 (52.9)	30(47.1)	
<b>Marital Status</b>			
Single	8 (22.5)	25 (77.5)	0.65
Married	25 (19)	108 (81.)	
<b>Smoking</b>			
Smoker	31 (35)	58 (65.)	0.01
Non Smoker	46 (59.5)	31 (40.5)	
<b>Work history (years)</b>			
< 5	14 (30)	31 (70.)	0.001
5-10	14 (20)	57 (80.)	
10-15	8 (30)	19 (70.)	
15-20	2 (10)	13 (90.)	
> 20	1 (10)	7 (90.)	
<b>Age groups (years)</b>			
< 29	2(12.5)	8(87.5)	0.001
30-39	34 (35.)	63 (65.)	
40-49	18 (42.5)	25 (57.5)	
50-59	2 (10.)	14 (90.)	
<b>BMI groups</b>			
< 20	1(2.5)	4 (97.5)	0.03
20-25	60 (52.5)	56 (47.5)	
25-30	17 (42.5)	23 (57.5)	
> 30	1 (2.5)	4 (97.5)	

## 5. Discussion

Finally, 166 questionnaires had been returned to the researchers. Imply of individuals and work allied burnout ranking in smoker, individuals who keep a degree of master of science, and traumatic international company personnel were significantly better than different individuals. Imply of purchaser related burnout in international company individuals with greater than 20 years of experience, traumatic participants, and people older than 50 years was once significantly better than the others. Average of three subscales of burnout were significantly greater in international company subjects with MSD in assessment with the others. Simplest smoking and occupational stress were identified as independent predictor of MSD amongst international company personnel. The important motive of the gift learn was to discourage mine MSD occurrence amongst international company subjects of overseas nationality in Egypt as good as to assess the association of MSD occurrence with work-associated reasons corresponding to occupational stress or burnout. Psychological causes comparable to occupational stress and burnout had effects on musculoskeletal pain (20). The data in this study showed that inspite of

stress and burnout had been significantly larger in international company individuals with MSD, occupational stress hadn't any prominent task on this procedure. Of their be trained on different work agencies, Kjellberg and Wadman found that stress in staff differed from burnout, even though each of them had been closely concerning each different (20). Identical data were mentioned in Maslach and Schaufeli learn (21). Burnout is involving loss of vigor which may be take place in both psychological and physical a part of human lifestyles.

Persons who expertise burnout nearly all of the occasions, progressively loss their impracticality, motive and energy (22). In few stories, burnout concept was defined in three main parts: depersonalization, emotional tiredness, and lack of personal and official completion (22, 23). Data of binary logistic regression amongst be taught variables of the current work confirmed that lots of the assumed factors comparable to age, sex, work historical past, and different causes were dependent predictor of MSD in the employees. However, every other and non related explanations have been effective in burnout development among employees. Our be taught results were much like the results obtained by Larsman *et al.*

Where small percent of MSD conditions have been linked to the occupational stress and official burnout (24). A few earlier reports confirmed the organization of burnout syndrome with the existence and progress of MSD among employees (5-8, 25). Apparently linkage between musculoskeletal complaints and burnout syndrome was extra problematic than being returned to occupation stress slowly. Musculoskeletal pain had been regarding muscular strain, some of the most findings in employees with high stress stage. Larsman and Hanse stated that low social aid and psychological stimuli were accompanied with growing danger of shoulder, neck, and low again soreness (26). International company personnel are the reputable employees who expend nearly all of their time in international companies within a number of nations with different socioeconomically and educational status. They very likely face with many stressors and it could lead to burnout development. Consistent with be trained findings for evaluation and manage of burnout in international company personnel, apart from psychological motives comparable to occupational stress, we need to pay extra attention to different mediated reasons comparable to work atmosphere, ergonomic hindrance, and different cultural stipulations. Force of our be taught used to be its gain knowledge of population. According to our looking in the literature, this be taught we didn't find be trained that review position of burnout or other psychological causes on MSD progress amongst international company subjects up to the date of performing. In attendance learn had some boundaries; firstly, we best chosen some international company individuals due to safety and political don't forgetations. Secondly, burnout is a psychological concept and its size instruments needed to be defined extra evidently to the contributors to broaden be trained correctness. Thirdly, international company peoples of many international locations had social and economic differences; for this reason, it seems that stratified sampling system is a greater sampling method for the prospect investigations.

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