

# PREVALENCE, ASSOCIATED FACTORS AND IMPACT OF MUSCULOSKEKELTAL DISORDERS AMONG HEALTHCARE WORKERS

**Bahiga Hafez Daoud, Noha Selim Mohamed Elshaer, Sohyla Abdelfatah Abdelatef Abdelqader**

**Department of Community Medicine, Faculty of Medicine, Alexandria University**

## Introduction

Musculoskeletal disorders (MSDs) are one of the most frequently encountered work-related illnesses. They include a wide range of degenerative or inflammatory illnesses of the musculoskeletal system and its related blood vessels. Musculoskeletal disorders are regarded as work-related when they are primarily caused or significantly aggravated by work. Multiple factors such as personal, biomechanical, environmental, psychosocial, and organizational play a role in evolving MSDs overtime. Among healthcare workers (HCWs), MSDs are a widespread issue since the nature of their job is physically and psychologically demanding. Musculoskeletal disorders have consequences on daily life as well as family and social relationships. Moreover, they put a significant strain on the health care system as well as an economic burden.

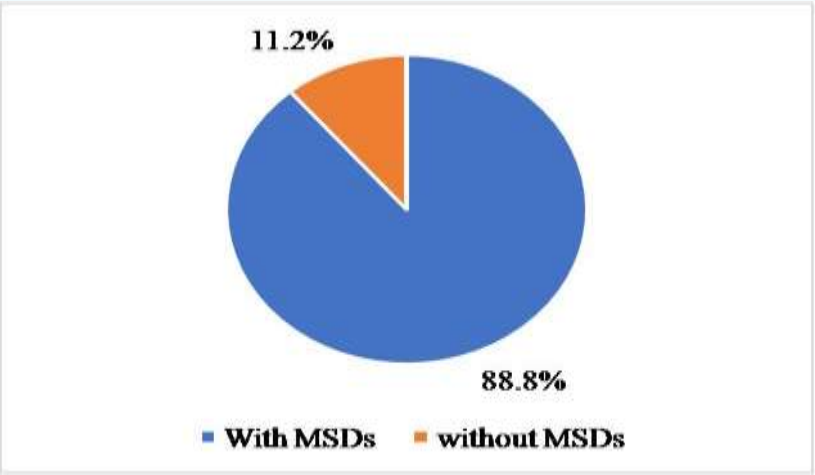
## Aim of the work

The current study was conducted among healthcare workers to estimate the prevalence of musculoskeletal disorders, identify work-related and worker-related factors associated with musculoskeletal disorders, and evaluate the impact of musculoskeletal disorders on healthcare workers’ life.

## Subjects and Methods

A cross-sectional descriptive study was adopted. The study population comprised the HCWs, including physicians, nurses, technicians, and auxiliary workers. Healthcare workers were recruited from the internal medicine departments, surgical departments, and emergency, intensive care, and anesthesiology departments at Alexandria Main University Hospital (AMUH). All participants were subjected to a structured interview questionnaire which comprised six sections as following; the first section comprised questions to collect sociodemographic data; the second section included questions to collect occupational data; the third section comprised questions derived from the Nordic Musculoskeletal questionnaire to assess the prevalence of MSDs; the fourth section included questions to assess biomechanical factors and environmental working conditions; the fifth section included items to assess psychosocial risk factors using the Blue Flags questionnaire; and the last section included items to determine the impact of MSDs on the life of HCWs.

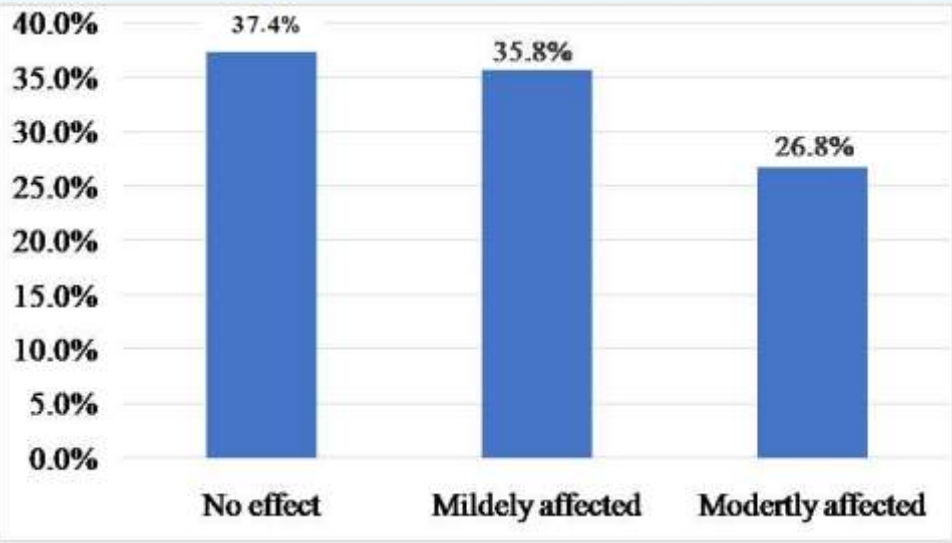
## Results



**Figure 1:**  
**Prevalence of MSDs’ symptoms (ache, pain, discomfort) in the last 12 months among HCWs at AMUH, 2023 (n = 430).**

**Table 1: Multivariate logistic regression of independent predictors of MSDs among HCWs (n = 430), 2023**

Variables	Coefficient	Adjusted OR	95% CI	p value
Female gender	0.9	2.3	(0.8, 6.6)	0.107
Illiterate	0.2	1.3	(0.1, 14.1)	0.864
Current smoker	0.7	2.0	(0.5, 8.5)	0.353
Chronic medical condition	2.0	7.7	(0.8,78.1)	0.084
Positive family history of MSDs	1.8	6.2	(1.3, 29.7)	0.026*
BMI ≥ 25 kg/m <sup>2</sup>	1.3	3.6	(1.4, 9.2)	0.009*
Age (years)	0.1	1.1	(1.0, 1.2)	0.126
Nurse	-1.1	0.3	(0.1, 1.4)	0.140
Auxiliary worker	-2.6	0.1	(0.003, 1.6)	0.098
Employment duration > 20 years	0.1	1.2	(0.1, 16.2)	0.912
Maintaining the whole body in static posture	1.7	5.4	(2.1, 14.0)	0.001*
Adopting awkward posture	1.9	7.0	(2.5, 19.8)	< 0.001**
Pushing/pulling load from 5 to 20 kg at work	-1.7	0.2	(0.01, 4.0)	0.277
Pushing/ pulling load > 20 kg at work	2.6	13.9	(0.3, 688.9)	0.186
Carrying load > 20 kg at work	-1.5	0.2	(0.01, 4.1)	0.318
Lifting load with twisted trunk at work	0.8	2.2	(0.2, 27.7)	0.552
Exposure to noise at work	-0.2	0.8	(0.3, 2.1)	0.642
Holding vibrating tool at work	-0.2	0.8	(0.2, 3.3)	0.811
Using non-adjustable workbench	3.8	43.8	(7.6, 251.8)	< 0.001*
Working in Both indoor and outdoor	-1.6	0.2	(0.02, 2.6)	0.222
Working constantly in air conditioning	-2.4	0.1	(0.01, 0.6)	0.015*
Working in ambient air room and air conditioning	-1.2	0.3	(0.1, 1.0)	0.059
Score of psychosocial factors	0.1	1.0	(1.0, 1.1)	0.058
Model X <sup>2</sup> = 142.98; p = 0.000; Cox & Snell R <sup>2</sup> = 0.28; Nagelkerke’s R <sup>2</sup> = 0.56; Hosmer & Lemeshow X <sup>2</sup> = 4.50; p = 0.809				



**Figure 2 : Impact of MSDs on family and social relationship as reported by HCWs with MSDs at AMUH, 2023 (n = 382).**

## Conclusion

Musculoskeletal disorders are highly prevalent among HCWs. Musculoskeletal disorders were significantly associated with positive family history of MSDs, BMI equal to or greater than 25 kg/m<sup>2</sup>, maintaining the whole body in static posture for a long time at work, adopting awkward posture for a long time at work, using a non-adjustable workbench at work, and working constantly in air-conditioned workplaces. Musculoskeletal disorders have a significant impact on daily life as well as family and social relationships among HCWs who reported MSDs’ symptoms.