

# Fibromyalgia and Depression in Egyptian Medical Students: A Cross-Sectional Study of Impact on Physical Functional Status

## Original Article

Basma M. Eissa<sup>1</sup>, Eman H. Elsebaei<sup>2</sup>, Amany A. Salem<sup>2</sup>, Hadeer Abd al-azim<sup>3</sup>, Noha A. Abdelmoneim<sup>3</sup>, Sara A. Blamoun<sup>4</sup> and Dina O. Abdulazim<sup>1</sup>

<sup>1</sup>Department of Rheumatology and Rehabilitation, <sup>2</sup>Department of Public Health, <sup>3</sup>MBBCh, Faculty of Medicine, Cairo University, Cairo, Egypt

<sup>4</sup>MBBCh, Faculty of Medicine, Ain Shams University, Cairo, Egypt.

## ABSTRACT

**Background:** Fibromyalgia (FM) patients experience depression at a higher rate than healthy subjects. FM patients with comorbid depression tend to have worse functional status.

**Aim of the work:** To determine the impact of FM, depression and their comorbidity on the physical functional status.

**Patients Methods:** Egyptian medical students (undergraduates and interns) were screened for FM using FM Rapid Screening Tool (FiRST), and for depression with the Beck Depression Inventory II (BDI-II). Physical functional status was assessed using Health Assessment Questionnaire II (HAQ-II).

**Results:** Among 430 medical students, the frequency of FM was 13.3% (12.3% in undergraduates, 16.2% in interns) and of depression was 38.4% (37.8% in undergraduates, 40.0% in interns). Female sex, the presence of any psychiatric comorbidity and the presence of depression were predictors of FM. Depressed medical students had higher frequency of FM compared to the non-depressed (24.2 vs. 6.4%,  $p < 0.001$ ). Medical students with FM had higher frequency of depression than those without (70.2% vs. 33.5%,  $p < 0.001$ ). Median (interquartile range) HAQ-II scores were higher in medical students with FM compared to those without (0.4(0.6) vs. 0.1(0.3),  $p < 0.001$ ) and in depressed medical students compared the non-depressed (0.3(0.5) vs. 0.1(0.3),  $p < 0.001$ ). HAQ-II scores were higher in medical students with comorbid FM and depression than in those free from both (0.4(0.54) vs 0.09(0.3),  $p < 0.001$ ), those with isolated depression (0.2(0.5),  $p < 0.001$ ) and those with isolated FM (0.18(0.43),  $p = 0.049$ ).

**Conclusions:** FM and depression negatively impact physical function in medical students. The comorbidity of both results in greater functional impairment than either condition in isolation.

**Key Words:** Depression; fibromyalgia; interns; medical students; physical function.

**Received:** 23 May 2024, **Accepted:** 27 June 2024

**Corresponding Author:** Basma M. Eissa, Rheumatology and Rehabilitation Department, Faculty of Medicine, Cairo University, Cairo, 12613, Egypt. **Tel.:** +201062216641, **E-mail:** basma.eissa@cu.edu.eg

**ISSN:** 2735-3540, vol. 75, No. 3, September 2024.

## INTRODUCTION

Fibromyalgia (FM) is a chronic pain syndrome, predominantly affecting females, characterized by central and peripheral sensitization and nociceptive abnormalities<sup>[1]</sup>. Depressive disorders are the most common psychiatric comorbidity with FM, observed in 20-80% of FM patients, depending on their psychosocial characteristics<sup>[2, 3]</sup>. The relationship between FM and depression is complex and bidirectional; each condition can increase the risk and/or worsen the outcome of the other<sup>[4]</sup>. Studies have demonstrated that functional status and quality of life are worse in FM patients with coexisting depressive symptoms<sup>[5, 6]</sup>, which FM patients experience three times the rate of individuals without FM<sup>[5]</sup>.

Medical education in Egypt consists of 6 academic years covering a discipline-based curriculum with years 1-3 covering basic sciences and years 4-6 involving clinical training. Following a 1-year internship, a medical student is licensed to practice medicine<sup>[7]</sup>. In addition to the background stresses of everyday life, undergraduate medical students experience additional stress from the academic demands<sup>[8]</sup> and competitive nature of medical education, as well as the struggles relating to social independence and financial support<sup>[9, 10]</sup>. Specific stressors related to the internship period include uncertainty about one's competence as a young physician, interacting with dying patients, uncertainty about one's future career choices, and lifestyle changes such as nights on call and less time available for leisure activities<sup>[11]</sup>. Thus, medical students

become vulnerable to developing depression<sup>[12-15]</sup> and FM<sup>[16, 17]</sup> at higher rates compared to the general population.

A recent study has documented the prevalence of FM in Egyptian undergraduate medical students to be 12.5%<sup>[16]</sup>. On the other hand, the prevalence of depression among undergraduate Egyptian medical students ranges between 25.2 and 75.2%<sup>[18, 19]</sup>. Data on the prevalence of either condition in Egyptian medical interns are scarce. Internationally, FM was reported in 15.7 to 26.3%<sup>[20]</sup> and depression in 35 to 57% of medical interns<sup>[15, 21]</sup>. This contrasts with the 4.43% pooled prevalence of FM in the Eastern Mediterranean adult population<sup>[22]</sup> and the 3.5% estimated prevalence of depression in the Egyptian general population<sup>[23]</sup>.

Data on the effect of the comorbidity of FM and depression on the physical function status in medical students are scarce. Our study aimed to assess the frequency of FM, depression, and their comorbidity among Egyptian medical students. Additionally, and their effect on the physical functional status in this population during their undergraduate medical education and training phases was explored.

## MATERIALS AND METHODS

### *Study design and recruitment*

In this cross-sectional study, medical students were recruited through social media platforms to fill out an anonymous web-based survey. A participant eligible for inclusion in the final data analysis had to be an Egyptian medical student i.e., either an undergraduate student currently enrolled in an Egyptian medical school (academic years 1 to 6), or an intern affiliated with an Egyptian medical school. Using screening questions, participants receiving their medical education outside Egypt, non-Egyptian medical students enrolled in Egyptian schools, and those who have completed their internship and/or licensing process were excluded. This study was performed in line with the principles of the Declaration of Helsinki. All participants gave their informed consent prior to their inclusion.

### *Data Collection*

To minimize missing data, all survey questions were marked as required. Through the online survey, the following data was collected: age, sex, and medical education stage (early academic stage (years 1-3), advanced academic stage (years 4-6), or internship stage). Participants were questioned about whether they had ever been diagnosed by

a physician with any psychiatric disorder for which they required pharmacologic or non-pharmacologic therapy for at least 3 months (psychiatric comorbidity).

### *Instruments*

Fibromyalgia Rapid Screening Tool (FiRST) was employed to screen participants for the presence of FM. It is a self-report questionnaire of six items, each assigned one point, to assess the characteristics of pain experienced, its location, character, associated symptoms, and the effect on the quality of life if any. A cutoff score of  $\geq 5/6$  points was used to define a possible case of FM. FiRST is an optimal screening instrument for this condition because it is simple, quick to administer, sensitive (90.5%) and specific (85.7%), thus enabling evaluation for possible FM without the need for a specialist referral<sup>[24]</sup>. All participants were questioned about the presence of any chronic medical illnesses (regardless of treatment), and those with  $\geq 1$  chronic illness(es) were excluded from the study.

The frequency of depression was assessed using the Beck Depression Inventory II (BDI-II)<sup>[25]</sup>. It is a 21-item self-report instrument which assesses depressive symptoms in the past 2 weeks on a 4-point Likert scale (0-3), adding up to a total score of 0-63 points. A cut-off of  $\geq 19$  points was used to define a case of depression<sup>[26]</sup>.

Respondents were classified into 4 groups according to the possible presence of FM and depression: isolated depression without FM (ID), FM comorbid with depression (FM+D), isolated FM without depression (I-FM) and "healthy" participants free from both conditions. The FM+D group was compared against each of the three other groups (acting as controls) regarding functional status assessment.

Physical functional status was assessed through the Health Assessment Questionnaire II (HAQ-II). It is a 10-item instrument designed to assess daily activity over the past week; toileting, opening doors, standing from a chair, walking on flat ground, waiting in line, reaching for an object, ambulating up steps, performing outdoor work, lifting and moving heavy objects. Each item is rated on a 4-point Likert scale and the total score is calculated by obtaining the mean of the scores for all the items (provided at least 8/10 are answered). A total score can range from 0-3, with higher scores signifying worse functional status and greater disability<sup>[27]</sup>.

### *Statistical Analysis*

Assuming a 95% confidence interval, a 5% margin of error and a population proportion of FM of 12.5%<sup>[16]</sup> at least 169 survey responses had to be collected. With a drop-out rate of 20%, the final sample size had to be at

least 203 survey responses. A total of 447 survey responses were collected, and after considering exclusion criteria, 430 responses remained eligible for inclusion. Statistical analyses were performed using SPSS version 21 (IBM Corp, Armonk, NY). Data were presented as frequencies (numbers and percentages) or as median and interquartile range (IQR). On contingency tables, comparisons were performed using Chi-square or Fisher exact tests, and on continuous variables using Mann-Whitney U and Kruskal-Wallis tests (with post hoc Dwass-Steel-Critchlow-Fligner pairwise comparisons). Univariate logistic regression analysis was conducted to explore predictors of FM among medical students. Significance was set at  $p$  value  $<0.05$ .

## RESULTS

### *FM and its predictors*

A total of 430 participants were included in the final data analysis and their median age was 22 years (IQR 4 years). FM was observed in 57(13.3%) participants and was significantly higher in females (female to male ratio 4.7:1). FM was observed in 40(12.3%) undergraduate students; among those in the early academic stage 14(11.2%) had FM, while in the advanced stage 26(13.0%) did. As for Interns, FM was observed in 17(16.2%). The proportions of medical students in different academic years and a comparison of the frequencies of FM in each are outlined in (Table 1).

**Table 1:** Sex and academic year distribution of medical students with comparison of fibromyalgia and depression frequencies.

Parameter n (%)	Medical Students (n=430)	With FM	$p$ value	Depressed	$p$ value	
Sex	Male	137(31.9)	10(7.3)	<b>0.013</b>	44(33.1)	0.068
	Female	293(68.1)	47(16.0)		121(41.3)	
Academic years	First	18(4.2)	2(11.1)		6(33.3)	
	Second	57(13.3)	7(12.3)		22(38.6)	
	Third	50(11.6)	5(10.0)	0.362 <sup>a</sup>	27(54.0)	0.115 <sup>a</sup>
	Fourth	84(19.5)	11(13.1)	0.533 <sup>b</sup>	26(31.0)	0.182 <sup>b</sup>
	Fifth	53(12.3)	11(20.8)	0.308 <sup>c</sup>	15(28.3)	0.693 <sup>c</sup>
	Sixth	63(14.7)	4(6.3)		27(42.9)	
Internship	105(24.4)	17(16.2)		42(40.0)		

Bold values are statistically significant; *a*: comparing individual academic years; *b*: comparing early academic stage (years 1-3) vs; advanced academic stage (years 4-6) vs; interns; *c*: comparing undergraduates (years 1-6) vs; interns; *FM*: fibromyalgia; *HAQ-II*: Health Assessment Questionnaire-II; *IQR*: interquartile range.

Thirty-six (8.4%) participants stated that they had been previously diagnosed with a psychiatric disorder. Among those, 25(69.4%) had depression (BDI-II scores  $\geq 19$ ), while 11(30.6%) did not. The frequency of FM among participants with a psychiatric comorbidity was significantly higher than that among those without (27.8% vs 11.9%,  $p=0.007$ ). Univariate logistic regression analysis to examine possible predictors of the presence of FM among participants is displayed in (Table 2).

**Table 2:** Univariate logistic regression analysis for predictors of fibromyalgia among medical students.

Predictor	B	$p$ value	Odds Ratio	95% CI	
				Lower	Upper
Female Sex	0.88	<b>0.015</b>	2.4	1.2	4.9
Psychiatric Comorbidity	1.04	<b>0.010</b>	2.8	1.3	6.3
Depression	1.54	<b>&lt;0.001</b>	4.7	2.5	8.6
BDI-II Score	0.06	<b>&lt;0.001</b>	1.1	1.0	1.1
HAQ-II Score	1.90	<b>&lt;0.001</b>	6.7	3.2	14.2

Bold values are statistically significant; BDI-II: Beck Depression Inventory-II; CI: confidence interval; HAQ-II: Health Assessment Questionnaire-II.

### *Depression and its comorbidity with FM*

Regarding depressive symptoms, examining the entire cohort of participants, there were 165(38.4%) depressed medical students and the frequency of depression did not differ between the sexes (Table 1). Depression was observed in 123(37.8%) undergraduate students; specifically, among 55(44.0%) students in the early academic stage, and 68(34.0%) in the advanced stage. As for interns, depression was observed in 42(40.0%). The frequency of FM was significantly higher among depressed medical students compared to those without depression (24.2% vs. 6.4%,  $p<0.001$ ). The frequency of depression in medical students with FM was significantly higher than that in medical students without (70.2% vs. 33.5%,  $p<0.001$ ).

ID was recorded in 125(29.1%) medical students. FM+D was recorded in 40(9.3%), while 17(3.9%) had I-FM. The remaining 248(57.7%) medical students were "healthy". While median (IQR) BDI-II scores were higher in medical students with FM compared to those without (24(16) vs. 14(13),  $p<0.001$ ), they were not significantly

different between medical students with ID compared to those with FM+D (25(11) vs. 28(14.3),  $p=0.098$ ).

**Impact on Physical Functional Status**

Regarding functional status assessment, median (IQR) HAQ-II scores were significantly higher in interns compared to undergraduate students (0.3(0.5) vs 0.1(0.4),  $p=0.022$ ). Examining the entire cohort, HAQ-II scores were higher in medical students with FM compared to those without (0.4(0.6) vs. 0.1(0.3),  $p<0.001$ ) and in depressed medical students compared to the non-depressed (0.3(0.5) vs. 0.1(0.3),  $p<0.001$ ). A comparison of HAQ-II scores between the 4 groups of medical students according to their FM and depression status is outlined in (Table 3).

**Table 3:** Comparison between different groups of medical students according to presence of fibromyalgia and depression regarding physical functional status.

HAQ-II Score median (IQR)	No FM (n=373)	FM (n=57)	p value
Total (n=430)	0.1(0.3)	0.4(0.6)	<b>&lt;0.001</b>
Depressed (n=165)	0.2(0.5)	0.4(0.5)	<b>&lt;0.001</b>
Not Depressed (n=265)	0.088(0.3)	0.18(0.4)	
HAQ-II Score Pairwise Comparisons			
Healthy vs. ID			<b>&lt;0.001</b>
Healthy vs. I-FM			0.270
Healthy vs. FM+D			<b>&lt;0.001</b>
ID vs I-FM			0.999
ID vs. FM+D			<b>0.001</b>
I-FM vs. FM+D			<b>0.049</b>

Bold values are statistically significant; *BDI-II*: Beck Depression Inventory-II; *FM*: fibromyalgia; *FM+D*: comorbid FM and depression; *HAQ-II*: Health Assessment Questionnaire-II; *ID*: isolated depression, *I-FM*: isolated FM; *IQR*: interquartile range.

**DISCUSSION**

FM is a disabling condition with negative effects on functional status and quality of life, both of which are made worse by the presence of concomitant depression<sup>[5, 6]</sup>. Medical students can be considered a “high risk group for FM”, in whom it interferes with social life and reduces the ability to work<sup>[16]</sup>. Detection and management of depression as a part of a multidisciplinary management strategy is crucial in FM, because depression is a “modifiable factor” for which effective treatment is readily available, with resultant improvement in outcomes<sup>[5]</sup>. This is especially relevant in the valued yet vulnerable population of medical students, as those with FM and/or depression, limited by physical functional impairment, reduced productivity and performance, and compromised development of academic and professional skills<sup>[11, 17]</sup> would likely become future physicians who fall short of expectations.

To answer our research question, as expected, medical students in this study had a higher frequency of FM and depression than the general population. The comorbidity of FM and depression, which occurred in 9.3% of participants, had a negative impact on the physical functional status, and our findings suggest that that impact is greater than that of either condition in isolation. In this study, the frequency of FM was 13.3%, which is higher than the pooled prevalence of 4.43% documented in the regional general population<sup>[22]</sup>. This may be explained by reflecting on the undue stress medical students experience<sup>[17]</sup>. The frequency of FM in undergraduate medical students in this study was 12.3%, which is comparable to the findings of *Moghazy et al.*, who documented FM in 12.5% of another cohort of Egyptian undergraduate medical students using the 2010 American College of Rheumatology (ACR) criteria<sup>[16]</sup> Since FiRST is a sensitive and specific tool that takes under 3 minutes to complete<sup>[24]</sup>, these comparable results make FiRST an interesting choice for screening Egyptian adults for possible FM by the primary care physician.

Owing to the greater effect of academic stress on younger medical students compared to their older peers who tend to have better coping skills, previous studies on medical students in the Arab world have demonstrated a higher prevalence of FM among medical students in the basic science academic stage (years 1-3), compared to the advanced clinical training stage (years 4-6)<sup>[16, 17]</sup>. This observation was not duplicated in this study. A similar lack of difference in the frequency of FM between pre-clinical and clinical academic years has recently been documented in a cohort of Polish medical students as well<sup>[28]</sup>. Further studies are needed to explore whether institution-specific factors relating to the learning environment could influence the extent of stress experienced by medical students, affecting the uniformity of the risk for FM across academic stages.

Female sex and travelling long distances from home were documented as specific risk factors for FM in Egyptian medical students<sup>[16]</sup>. This study adds diagnosed psychiatric comorbidity in general and depression to the potential risk factors. In line, depression and psychiatric disorders have been observed to occur at higher rates in individuals with FM than in healthy subjects in the general population<sup>[3, 29, 30]</sup>.

In the current work, FM was more frequent in depressed medical students than in their non-depressed peers, which is consistent with previous reports from the general population comparing subjects with major depressive disorder with healthy controls<sup>[31]</sup>. The prevalence of FM among a cohort of Egyptian adults diagnosed with chronic depression was 42.6% using the 1990 ACR criteria<sup>[32]</sup> which is much higher than the observed frequency of



24.2% among depressed medical students in this study. This discrepancy may be explained by the fact that the chronic depression patients belonged to an older age group (mid-thirties), with a more severe profile of professional and domestic stressors than medical students in their early twenties.

Among medical students in this study, subjects with FM had a greater frequency of depression, as well as higher BDI-II scores than those without, which is consistent with the literature on FM patients in general<sup>[3, 33]</sup>. Despite a lack of a significantly higher frequency of FM or depression among interns recruited in this study, they had worse physical functional status than undergraduates. The internship period is characterized by significant stress related to lifestyle changes and the upcoming challenges of medical specialty choice and competing for employment at prestigious institutions. These factors can lead to anxiety, sleep disturbances, fatigue, and eating habit problems<sup>[34]</sup>. Further research is needed to explore whether the aforementioned factors contribute to the observed functional impairment in Egyptian interns.

Not surprisingly, medical students with FM had worse functional status than those without, which is consistent with previous studies on FM patients vs. healthy controls<sup>[35]</sup>. Recruited medical students with FM+D also had worse physical functional status than those with ID, despite comparable BDI-II scores, which concurs with previous observations<sup>[36]</sup>. By impairing physical function in depressed patients, FM may contribute to much of their physical symptoms and disability<sup>[32]</sup>. Finally, medical students with FM+D had worse functional status than those with I-FM. In a recent study on FM patients, *Munipalli et al.*, documented a similar finding<sup>[5]</sup>. To the best of our knowledge, this is the first study to assess the effect of the comorbidity of FM and depression on physical function status in Egyptian medical students.

This work is not without limitations, among which is the cross-sectional design. Reporting bias may have resulted from relying on self-report measures instead of a physician's evaluation to screen for possible FM, depression, and physical functional impairment. The numbers of recruited medical students with I-FM and FM+D were relatively small. Finally, specific details on the psychiatric comorbidities among participants were not collected.

In conclusion, medical students in this study had a higher frequency of FM and depression than the general population. Subjects with FM had a higher frequency of depression and worse physical function compared to those without. Depressed medical students had higher frequency

of FM and worse physical function than their non-depressed peers. Medical students with FM+D had greater physical functional impairment than healthy medical students and those with either condition in isolation. Further large-scale studies are needed to validate if the comorbidity of FM and depression impacts the functional status more than either condition alone.

Given the bidirectional relationship and increased prevalence of both FM and depression in medical students, whether institutional multidisciplinary screening and management programs for both conditions would be a cost-effective intervention to improve the functional status and quality of life in medical students, and by extension, future physicians, remains a question on the public health research agenda.

---

## DECLARATIONS

### *Redundant or duplicate publication:*

The authors confirm this paper has not been published in its current form or substantially similar form elsewhere including on a website and has not been accepted for publication elsewhere.

### *Ethics approval and consent to participate:*

This study was approved by Cairo University Faculty of Medicine Research Ethical Committee (Code N-242-2023) and has thus been conducted in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. All participants provided informed consent prior to their inclusion.

### *Availability of data and materials*

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

### *Competing Interests*

The authors declare that they have no competing interests.

### *Funding*

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### *Author contributions*

BE and DA conceptualized the research project and BE prepared the data collection survey. DA, HA, NA and SB oversaw participant recruitment and data collection. AS and EE performed data handling and analysis. BE wrote

the first draft of the manuscript. DA revised the draft for publication. All authors have read and approved the final manuscript.

#### ABBREVIATIONS

ACR: American College of Rheumatology  
 BDI-II: Beck Depression Inventory II  
 FiRST: Fibromyalgia Rapid Screening Tool  
 FM: fibromyalgia  
 FM+D: Comorbid FM and depression  
 HAQ-II: Health Assessment Questionnaire II  
 ID: Isolated depression  
 I-FM: Isolated FM  
 IQR: Interquartile Range

#### REFERENCES

1. **Yepez D, Grandes XA, Talanki Manjunatha R, et al.** Fibromyalgia and Depression: A Literature Review of Their Shared Aspects. *Cureus Cureus Inc.* 2022. 14(5):e24909.
2. **Fietta P, Fietta P, Manganelli P.** Fibromyalgia and psychiatric disorders. *Acta Biomed* 2007. 78(2):88–95.
3. **Singh G, Kaul S.** Anxiety and depression are common in fibromyalgia patients and correlate with symptom severity score. *Indian J Rheumatol* 2018. 13(3):168.
4. **Chang M-H, Hsu J-W, Huang K-L, et al.** Bidirectional Association Between Depression and Fibromyalgia Syndrome: A Nationwide Longitudinal Study. *J Pain* 2015. 16(9):895–902.
5. **Munipalli B, Allman ME, Chauhan M, et al.** Depression: A Modifiable Risk Factor for Poor Outcomes in Fibromyalgia. *J Prim Care Community Health* 2022. 13:215013192211207.
6. **Zeid W, Ibrahim M.** Assessment of family physicians' knowledge about fibromyalgia in Egypt. *Egypt Rheumatol Elsevier* 2021. 43(4):337–40.
7. **Badrawi N, Hosny S, Ragab L, et al.** Radical reform of the undergraduate medical education program in a developing country: the Egyptian experience. *BMC Med Educ BioMed Central Ltd* 2023. 23(1):143.
8. **Aktekin M, Karaman T, Senol YY, et al.** Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Med Educ Med Educ* 2001. 35(1):12–17.
9. **Ovuga E, Boardman J, Wasserman D.** Undergraduate student mental health at Makerere University, Uganda. *World Psychiatry World Psychiatric Association* 2006. 5(1):51–52.
10. **Elsawy WIH, Sherif AAR, Attia MSED, et al.** Depression among medical students in Alexandria, Egypt. *Afr Health Sci Makerere University, Medical School* 2020. 20(3):1416–25.
11. **Baldassin S, Alves TC de TF, Andrade AG de, et al.** The characteristics of depressive symptoms in medical students during medical education and training: a cross-sectional study. *BMC Med Educ* 2008. 8(1):60.
12. **Patel A, Al-Saffar A, Sharma M, et al.** Prevalence of fibromyalgia in medical students and its association with lifestyle factors – a cross-sectional study. *Reumatologia* 2021. 59(3):138–45.
13. **Rotenstein LS, Ramos MA, Torre M, et al.** Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students: A Systematic Review and Meta-Analysis. *JAMA* 2016. 316(21):2214–36.
14. **Naidu K, Torline JR, Henry M, et al.** Depressive symptoms and associated factors in medical interns at a tertiary hospital. *S Afr J Psychiatr* 2019. 25(0):1322.
15. **Mata DA, Ramos MA, Kim MM, et al.** In Their Own Words: An Analysis of the Experiences of Medical Interns Participating in a Prospective Cohort Study of Depression. *Acad Med* 2016. 91(9):1244–50.
16. **Moghazy AA, Ibrahim AM, Ahmed HA, et al.** Fibromyalgia syndrome in medical students. *The Egyptian Rheumatologist Elsevier* 2023. 45(1):93–97.
17. **Samman AA, Bokhari RA, Idris S, et al.** The Prevalence of Fibromyalgia Among Medical Students at King Abdulaziz University: A Cross-Sectional Study. *Cureus Cureus, Inc.* 2021. 13(1):e12670.
18. **Amr M, Gillany A El.** Self-reported depression and anxiety by students at an Egyptian medical school. *JPPS* 2010. 7(2):71.
19. **Fawzy M, Hamed SA.** Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry Res Elsevier Ireland Ltd* 2017. 255:186–94.
20. **AIEnzi F, Alhamal S, Alramadhan M, et al.** Fibromyalgia in Health Care Worker During COVID-19 Outbreak in Saudi Arabia. *Front Public Health Frontiers Media S.A.* 2021. 9.

21. **Albajjar MA, Bakarman MA.** Prevalence and correlates of depression among male medical students and interns in Albaha University, Saudi Arabia. *J Family Med Prim Care* 2019. 8(6):1889–94.
22. **Heidari F, Afshari M, Moosazadeh M.** Prevalence of fibromyalgia in general population and patients, a systematic review and meta-analysis. *Rheumatol Int Springer Verlag* 2017. 37(9):1527–39.
23. **World Health Organization.** Estimated population-based prevalence of depression. 2018[Online] 2018 [cited 2023]. Available at: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-population-based-prevalence-of-depression>.
24. **Perrot S, Bouhassira D, Fermanian J.** Development and validation of the Fibromyalgia Rapid Screening Tool (FiRST). *Pain* 2010. 150(2):250–56.
25. **Beck AT, Steer RA, Ball R, et al.** Comparison of Beck Depression Inventories-IA and-II in Psychiatric Outpatients. *J Pers Assess* 1996. 67(3):588–97.
26. **Poole H, Bramwell R, Murphy P.** The utility of the Beck Depression Inventory Fast Screen (BDI-FS) in a pain clinic population. *Eur J Pain John Wiley & Sons, Ltd* 2009. 13(8):865–69.
27. **Wolfe F, Michaud K, Pincus T.** Development and validation of the health assessment questionnaire II: A revised version of the health assessment questionnaire. *Arthritis Rheum John Wiley & Sons, Ltd* 2004. 50(10):3296–305.
28. **Knapik M, Gisman P, Phatthana N, et al.** Comparison of the prevalence of fibromyalgia in pre-clinical and clinical years among medical students of the Collegium Medicum of the University of Warmia and Mazury in Olsztyn. *Rheumatology Forum* 2023. 9(3):105–11.
29. **Arout CA, Sofuoglu M, Bastian LA, et al.** Gender Differences in the Prevalence of Fibromyalgia and in Concomitant Medical and Psychiatric Disorders: A National Veterans Health Administration Study. *J Womens Health* 2018. 27(8):1035–44.
30. **Creed F.** A review of the incidence and risk factors for fibromyalgia and chronic widespread pain in population-based studies. *Pain Pain* 2020. 161(6):1169–76.
31. **Vishne T, Fostick L, Silberman A, et al.** Fibromyalgia among major depression disorder females compared to males. *Rheumatol Int* 2008. 28(9):831–36.
32. **El-Bazz W, El-Tokhy H, Attia F, et al.** Fibromyalgia in Egyptian Rheumatoid Arthritis Patients and patients with Depression. *Egypt J Rheumatol Clin Immunol (Online) Egyptian Society of Rheumatology & Clinical Immunology* 2014. 2(1):97–103.
33. **Palomo-López P, Becerro-de-Bengoa-Vallejo R, Elena-Losa-Iglesias M, et al.** Relationship of Depression Scores and Ranges in Women Who Suffer From Fibromyalgia by Age Distribution: A Case-Control Study. *Worldviews Evid Based Nurs* 2019. 16(3):211–20.
34. **Abdulghani H, Irshad M, Zunitan M Al, et al.** Prevalence of stress in junior doctors during their internship training: a cross-sectional study of three Saudi medical colleges' hospitals. *Neuropsychiatr Dis Treat* 2014. 10:1879.
35. **Cerón Lorente L, García Ríos MC, Navarro Ledesma S, et al.** Functional Status and Body Mass Index in Postmenopausal Women with Fibromyalgia: A Case-control Study. *Int J Environ Res Public Health* 2019. 16(22):4540.
36. **Yoshikawa GT, Heymann RE, Helfenstein M, et al.** A comparison of quality of life, demographic and clinical characteristics of Brazilian men with fibromyalgia syndrome with male patients with depression. *Rheumatol Int* 2010. 30(4):473–78.

## الفيبروميالجيا والاكنتاب في طلاب الطب المصريين: دراسة مقطعية للأثر على الحالة الوظيفية البدنية

بسمه م. عيسى<sup>١</sup>، إيمان ه. السباعي<sup>٢</sup>، أماني أ. سالم<sup>٣</sup>، هدير عبد العظيم<sup>٣</sup>، نهى أ. عبد المنعم<sup>٣</sup>، سارة ع. بلامون<sup>٤</sup> و دينا أ. عبد العظيم<sup>٤</sup>

<sup>١</sup>قسم الروماتيزم و التاهيل، <sup>٢</sup>قسم الصحة العامة، <sup>٣</sup>بكالوريوس الطب و الجراحة، كلية الطب، جامعة القاهرة، القاهرة، مصر.

<sup>٤</sup>بكالوريوس الطب و الجراحة، كلية الطب، جامعة عين شمس، القاهرة، مصر.

**الخلفية:** يعاني مرضى الفيبروميالجيا من الاكنتاب بمعدل أعلى من الأشخاص الأصحاء. يميل مرضى الفيبروميالجيا الذين يعانون من الاكنتاب الى تدهور الحالة الوظيفية.

**الهدف:** تحديد تأثير الفيبروميالجيا والاكنتاب واجتماعهما على الحالة الوظيفية البدنية.

**الأساليب:** تم فحص طلاب الطب المصريين (الطلاب الجامعيين والامتياز) للفيبروميالجيا باستخدام أداة الفحص السريع للفيبروميالجيا (FIRST)، وللاكنتاب باستخدام مقياس بيك للاكنتاب (BDI-II). تم تقييم الحالة الوظيفية البدنية باستخدام استبيان تقييم الصحة (HAQ-II)

**النتائج:** بين ٤٣٠ طالب طب، كانت نسبة الفيبروميالجيا ١٣,٣٪ (١٢,٣٪ في الطلاب الجامعيين، ١٦,٢٪ في الامتياز) والاكنتاب ٣٨,٤٪ (٣٧,٨٪ في الطلاب الجامعيين، ٤٠,٠٪ في الامتياز). كان الجنس الأنثوي ووجود أي اضطراب نفسي مصاحب ووجود الاكنتاب متنبئات للفيبروميالجيا. كان لدى الطلاب المكتئبين نسبة أعلى من الفيبروميالجيا مقارنة بغير المكتئبين (٢٤,٢ مقابل ٦,٤٪،  $p < ٠,٠٠١$ )

كان لدى الطلاب الذين يعانون من الفيبروميالجيا نسبة أعلى من الاكنتاب من الذين لا يعانون منه (٧٠,٢٪ مقابل ٣٣,٥٪،  $p < ٠,٠٠١$ ) كانت درجات استبيان تقييم الصحة II الوسيطة (النطاق الربعي) أعلى في الطلاب الذين يعانون من الفيبروميالجيا مقارنة بالذين لا يعانون منه (٠,٦)٠,٤ مقابل (٠,٣)٠,١ ( $p < ٠,٠٠١$ ) وفي الطلاب الطبيبين المكتئبين مقارنة بغير المكتئبين (٠,٥)٠,٣ مقابل (٠,٣)٠,١ ( $p < ٠,٠٠١$ ) كانت درجات استبيان تقييم الصحة II أعلى في الطلاب الذين يعانون من الفيبروميالجيا والاكنتاب معا مقارنة بالذين يخلون من كلاهما (٠,٥٤)٠,٤ مقابل (٠,٣)٠,٠٩ ( $p < ٠,٠٠١$ )، و من الذين يعانون من الاكنتاب فقط (٠,٥)٠,٢ ( $p < ٠,٠٠١$ ) ومن الذين يعانون من الفيبروميالجيا فقط (٠,٤٣)٠,١٨ ( $p = ٠,٠٤٩$ )

**الاستنتاجات:** الفيبروميالجيا والاكنتاب يؤثران سلبا على الوظيفة البدنية في طلاب الطب. يؤدي اجتماع الحالتين إلى تدهور وظيفي أكبر من أي حالة بمفردها.