fibromyalgia impact questionnaire (FIQR), Tender points (TPs), fatigue severity scale, insomnia severity index, and the Hamilton's scale for depression were used to assess the disease severity.

Results: Monocyte- to- high density lipoprotein ratio (MHDR) correlated significantly and inversely with tender points and FIQR scores while lymphocyte- to- high density lipoprotein ratio(LNHDRL) and lymphocyte-to-apo-lipoprotein-B100 (LAPOR)ratio correlated significantly and directly with FIQR. None of the circulating inflammatory cells-to-lipoprotein ratios correlated with fatigue, insomnia, and depression-related symptoms.

Multi-variable regression analysis revealed a significant mean score of FIQR-symptoms equal to 63.2 with prediction of 11.9% ($R=0.346$, $F=5.903$, $p=0.004$, β -coefficients for MHDRL= -0.257 , and for LNHDRL= 3.789). The area under the curve and 95% confidence intervals of LNHDRL is 0.658 (0.545-0.771) at the cut-off score of the FIQ3-related symptoms at 63.2.

Test Result Variable(s)	AUC	p-value	95% confidence interval
MHDR	0.490	0.868	0.360 0.631
LNHDRL	0.658	0.010	0.545 0.771
MAPOR	0.589	0.148	0.468 0.710
LAPOR	0.658	0.010	0.545 0.771

Figure 1: The area under the curve and 95% confidence intervals of the circulating inflammatory cells-to-lipoprotein ratios taking the cutoff score of symptoms-related disease at 63.2 as a discriminator. AUC: Area under the curve, MHDRL: monocyte to high density lipoprotein ratio, LNHDRL: lymphocyte to non-high density lipoprotein ratio.

Abstract THU0476 – Figure 1

Conclusion: Circulating inflammatory cell-to-lipoprotein ratios can serve as prognostic markers in the assessment of disease-severity in fibromyalgia patients.

REFERENCES:

- Al-Nimer MSM, Mohammad TAM. Correlation of haematological indices and ratios derived from them with FIQR scores in fibromyalgia. *Pak J Med Sci.* 2018;34(5):1219-1224.
- Aktürk S, Büyükcavı R Evaluation of blood neutrophil-lymphocyte ratio and platelet distribution width as inflammatory markers in patients with fibromyalgia. *Clin Rheumatol.* 2017;36(8):1885-1889.
- Cordero MD, Alcocer-Gómez E, Cano-García FJ, Sánchez-Domínguez B, Fernández-Riejo P, Moreno Fernández AM, Fernández-Rodríguez A, De Miguel M. Clinical symptoms in fibromyalgia are associated to overweight and lipid profile. *Rheumatol Int.* 2014;34(3):419-422.
- Wolfe F, Clauw DJ, Fitzcharles M, Goldenberg DL, Katz RS, Mease P, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis Care Res.* 2010;62(5):600-610.
- Abu-Dahab S, AbuRuz SM, Mustafa K, Sarhan Y. Validation of the Arabic version of the revised Fibromyalgia Impact Questionnaire (FIQR_A) on Jordanian females with fibromyalgia. *Clin Rheumatol.* 2014;33(3):391-396.

Abstract THU0476 – Table 1. Correlations between disease-related symptoms with the ratios of circulating inflammatory cells-to-lipoproteins.

Disease-related symptoms scoring	MHDRL	LNHDRL	MAPOR	LAPOR
FIQR-Function	-0.352	0.170	0.016	0.167
	<0.001	0.110	0.879	0.116
FIQR-Global	-0.071	-0.018	-0.016	-0.015
	0.504	0.865	0.884	0.881
FIQR-Symptoms	-0.022	0.290	0.162	0.292
	0.839	0.006	0.126	0.005
FIQR-Overall total	-0.207	0.261	0.111	0.261
	0.050	0.013	0.298	0.013
Tender points	-0.254	0.078	0.018	0.076
	0.016	0.467	0.868	0.477
Fatigue severity scale	-0.102	-0.071	-0.104	-0.067
	0.340	0.506	0.329	0.528
Insomnia severity index	-0.086	0.031	-0.072	0.034
	0.424	0.776	0.500	0.749
The Hamilton's scale for depression	0.103	0.014	0.085	0.012
	0.334	0.896	0.425	0.912

Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.2487

THU0477

A FIBROMYALGIA ASSESSMENT SCREENING TOOL ON A MULTIDIMENSIONAL HEALTH ASSESSMENT QUESTIONNAIRE (MDHAQ) WHICH DOES NOT INCLUDE A SELF-REPORT PAINFUL JOINT COUNT (PAINFUL JC), FAST3nJC, RECOGNIZES FIBROMYALGIA SIMILARLY TO OTHER FAST3 INDICES WHICH INCLUDE A PAINFUL JC

Theodore Pincus, Isabel Castrejon. Rush University Medical Center, Chicago, United States of America

Background: Fibromyalgia (FM) generally is easily recognized, but a diagnosis may be difficult, particularly in patients with secondary FM who have other primary diagnoses. Criteria for FM initially were reported in 2000, and revised in 2011 and 2016, based entirely on a patient self-report questionnaire. However, FM criteria are not collected in most routine clinical care, as it is not feasible to use multiple patient questionnaires in busy clinical settings. MDHAQ/RAPID3 (multi-dimensional health assessment questionnaire/routine assessment of patient index data) has been found informative in all diseases in which it has been studied. Cumulative indices based on MDHAQ scales known as FAST3 (fibromyalgia assessment screening tool3) recognize FM at levels of agreement with revised FM criteria of >80% and correlations of >0.80, $p<0.001$). Pragmatic recognition of FM in non-rheumatic diseases based on MDHAQ may be possible, as most components of the MDHAQ (as well as the HAQ) appear generic rather than disease-specific. One component of MDHAQ/FAST indices, a self-report painful joint count (painful JC), is rheumatology-specific. Therefore, a FAST3-nJC (no painful JC) index was analyzed vs revised FM criteria as gold standards for possible use in non-rheumatology patients to recognize FM.

Objectives: To analyze FAST3-nJC versus 2011 and 2016 FM criteria, and compared to other FAST3 indices which include a painful JC, to recognize FM.

Methods: All patients with all diagnoses complete an MDHAQ at all visits in routine care at one setting. The self-report questionnaire to recognize the 2011 and 2016 FM Criteria was added over a 6-month period to be completed by consecutive patients. The MDHAQ includes 0-10 scores for physical function, pain and patient global visual analog scales (VAS), compiled into 0-30 RAPID3, as well as a 0-10 fatigue VAS, 0-54 self-report painful joint count, and 0-60 symptom checklist. All MDHAQ scales were analyzed for agreement with FM Criteria according to receiver-operator-characteristic (ROC) curves for area under the curve (AUC). Optimal cut points for each measure were identified, based on specificity and sensitivity, to develop optimal cumulative indices for clues to FM versus the 2011 and 2016 Criteria as gold standards.

Results: Among 502 patients with complete data, primary ICD-10 diagnoses were FM in 49, OA in 74, RA in 78, SLE 88 and other rheumatic diseases in 213. Primary or secondary FM was identified in 131 (26%) who met 2011 FM criteria, and 112 (22%) who met 2016 FM criteria. The 4 MDHAQ scales with the highest AUC vs FM Criteria (0.829-0.889) were symptom checklist, painful JC, fatigue, and pain. Three cumulative FAST3 measures were: FAST3-P with symptom checklist, painful JC and pain VAS; FAST3-F with symptom checklist, painful JC and fatigue VAS; FAST3nJC with symptom checklist, pain and fatigue VAS, but no painful JC. All FAST3 indices agreed with FM Criteria >79% and kappas were >0.52, indicating good agreement (Table). As expected, lowest agreement was seen for FAST3nJC, since the FM criteria include a self-report painful joint count, but differences are quite small.

Abstract THU0477 –Table 1. Percent agreement and kappa of 3 FAST3 (fibromyalgia assessment screening tool) indices vs 2011 and 2016 FM Criteria

FAST Index:	FAST3-P (pain)	FAST3-F (fatigue)	FAST3-nJC (no painful JC)
vs 2011 FM Criteria			
% Agreement	84.3%	86.6%	81.5%
Kappa	0.63 (0.56–0.70)	0.68 (0.60–0.75)	0.58 (0.50–0.66)
vs 2016 FM Criteria			
% Agreement	81.7%	83.8%	79.1%
Kappa	0.56 (0.48–0.53)	0.60 (0.51–0.68)	0.52 (0.44–0.60)

Conclusion: FAST3nJC had slightly lesser agreement with 2011 and 2016 FM criteria than FAST3-P and FAST3-F but would appear

satisfactory as a candidate for clues to recognize FM in patients with non-rheumatic diseases, as a diagnosis of FM ultimately is made by a physician.

Disclosure of Interests: : None declared

DOI: 10.1136/annrheumdis-2019-eular.7576

THU0478 IS FIBROMYALGIA ASSOCIATED WITH STRUCTURAL OR FUNCTIONAL ABNORMALITIES IN SKELETAL MUSCLE?

Carlos Pineda¹, Héctor García¹, Gabriela Pineda¹, Angélica Peña², Laura Aline Martínez³, Jaime Mendoza Torres¹, Luis Carlos Rodríguez Delgado¹, Mariana Moreno⁴, Jessica Gutierrez¹, Araceli Bernal¹, Marwin Gutierrez¹, Manuel Martínez-Lavín³. ¹Instituto Nacional de Rehabilitación Luis Guillermo Ibarra Ibarra, Mexico City, Mexico; ²IMSS Hospital General Regional No. 1, Querétaro, Mexico; ³Instituto Nacional de Cardiología Ignacio Chávez, Mexico City, Mexico; ⁴ISSSTE Hospital General Zona Fernando Quiroz, Mexico City, Mexico

Background: Fibromyalgia (FM) is a chronic nonarticular pain syndrome of unknown etiology characterized by diffuse muscular pain, fatigue and mood disturbances. Previous studies have shown absence of skeletal muscle degeneration, regeneration or inflammation. Altered muscle fiber size distribution and decreased capillary density were the only abnormalities reported.

From the clinical point of view some FM symptoms (fatigue, pain, myalgias, trigger points, stiffness) suggest skeletal muscle involvement.

Objectives: The objective of this study is to determine if there are structural and functional abnormalities in the skeletal muscle in patients with primary FM assessed by means of a non-invasive, low-cost multimodality approach.

Methods: Female patients > 18 years, with FM diagnosis (ACR 2010 criteria) and healthy controls matched by age. Skeletal muscle morpho-structure and function were assessed by: body mass index (BMI), total fat mass and total muscle mass calculated by direct segmental multi-frequency bioelectrical impedance analysis. Cross-sectional measurements of rectus femoris muscle area and tissue echogenicity were evaluated by ultrasound and pixel analysis. Maximum handgrip strength by digital dynamometry, gait speed (6-meter time walk test), and FM Health Assessment Questionnaire (FHAQ).

Results: A total of 94 FM patients and 140 healthy controls were included, mean age was 51.8 years +/- 10.8 vs 50.2 +/- 11.3, respectively (p = 0.27). FM patients compared with controls had similar BMI (27.9 kg/m² +/- 4.9 vs 26.8 +/- 4.5, p = 0.14), higher total body fat mass (27.8 kg +/- 9.2 vs 25.1 +/- 7.6, p = 0.04); rectus femoris muscle area was also higher for FM patients (44.6 cm² +/- 11.4 vs 41.7 +/- 13.9, p = 0.05); regarding ultrasound tissue echogenicity, FM patients demonstrated higher mean brightness in rectus femoris (157.2 pixels +/- 19.4 vs 149.9 +/- 22.4, p = 0.01); lesser handgrip strength (22.0 kg +/- 6.6 vs 26.2 +/- 5.4 p = 0.0001); slower gait speed (1.14 m/s +/- 0.2 vs 1.3 +/- 0.2 p = 0.0001); and major impairment in daily activities by FHAQ (47% vs 2.90% p = 0.0001).

Conclusion: This non-invasive multimodal evaluation of the skeletal muscle showed the presence of structural and functional abnormalities in women with FM. These changes can be attributed to sedentary and hypoactive lifestyle with consequent higher total body fat mass, skeletal muscle fat infiltration, and functional impairment of activities of daily living. Alternatively, these abnormalities may also be an expression of a small-fiber polyneuropathy (myoneurovascular dysregulation). Further studies are required to elucidate its underlying pathological process.

REFERENCES:

- [1] Lodahl M, Treister R, Oaklander AL. Specific symptoms may discriminate between fibromyalgia patients with vs without objective test evidence of small-fiber polyneuropathy. *Pain Rep* 2018; 3(1): e633.
- [2] Martínez-Lavín, M. Fibromyalgia and small fiber neuropathy: the plot thickens. *Clin Rheumatol* 2018;37: 3167.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.5860

THU0479 SAFETY AND EFFICACY OF MEDICAL CANNABIS IN FIBROMYALGIA

Itzhak Sagy¹, Lihi Bar-Lev Schleider², Mahmoud Abu-Shakra^{1,2}, Victor Novack². ¹Soroka Medical Center, Rheumatology, Beersheba, Israel; ²Soroka Medical Center, Beersheba, Israel

Background: Although chronic pain is a well established indication for medical cannabis therapy, there is scarce evidence to support the role of medical cannabis in the treatment of fibromyalgia.

Objectives: The aim of the study was to investigate the characteristics, safety and effectiveness of medical cannabis therapy for fibromyalgia.

Methods: A prospective study with 6 months follow-up period based on fibromyalgia patients who were willing to answer questionnaire in a specialized medical cannabis clinic between 2015 and 2017.

Results: Among the 367 fibromyalgia patients the mean age was 52.9 ±15.1, of whom 301 (82.0%) were women. 28 patients (7.6%) stopped the treatment prior to the six months follow-up. The six months response rate was 70.8%. Pain intensity (scale 0-10) reduced from a median of 9.0 at baseline to 5.0 (p<0.001), and 194 patients (81.1%) achieved treatment response. In a multivariate analysis age above 60 years (Odds ratio [OR] 0.34, 95% C.I 0.16-0.72), concerns about cannabis treatment (OR 0.36, 95% C.I 0.16-0.80), spasticity (OR 2.26, 95% C.I 1.08-4.72) and previous use of cannabis (OR 2.46 95% C.I 1.06-5.74) were associated with treatment outcome. The most common adverse effects were mild and included dizziness (7.9%), dry mouth (6.7%) and gastrointestinal symptoms (5.4%).

Conclusion: Medical cannabis appears to be safe and effective alternative for the treatment of fibromyalgia symptoms. Standardization of treatment compounds and regimens are required.

Disclosure of Interests: : Itzhak Sagy: None declared, Lihi Bar-Lev Schleider Employee of: employee of Tikun-Olam Ltd. without shares or options, Mahmoud Abu-Shakra: None declared, Victor Novack Consultant for: paid member of the Tikun Olam Ltd. scientific advisory board

DOI: 10.1136/annrheumdis-2019-eular.111

THU0480 IS PROLONGED SEDENTARY TIME ASSOCIATED WITH THE IMPACT OF THE DISEASE IN WOMEN WITH FIBROMYALGIA? THE AL-ÁNDALUS PROJECT

Víctor Segura-Jiménez¹, Blanca Gavilán Carrera², Pedro Acosta-Manzano², Alberto Soriano Maldonado^{3,4}, Inmaculada C Alvarez-Gallardo⁵, Fernando Estevez-Lopez^{6,7}. ¹Faculty of Education Sciences, University of Cádiz, Department of Physical Education, Cádiz, Spain; ²Faculty of Sport Sciences, University of Granada, Department of Physical Education and Sports, Granada, Spain; ³Faculty of Education Sciences, University of Almería, Department of Education, Almería, Spain; ⁴CERNEP Research Center, University of Almería, Sport Research Group, CTS-1024, Almería, Spain; ⁵Faculty of Education Sciences, University of Cádiz, Department of Physical Education, Cádiz, Spain; ⁶Faculty of Sport Sciences, University of Granada, Department of Physical Education and Sports, Granada, Spain; ⁷University of Ulster, Belfast, United Kingdom

Background: Spending time seated has previously shown to be associated with worse symptomatology in fibromyalgia¹. In addition, to accumulate sedentary time (ST) in prolonged, unbroken periods (bouts) has shown to be particularly harmful in the general population².

Objectives: To examine the association of prolonged ST with the impact of the disease in women with fibromyalgia.

Methods: Four-hundred-and-seven (51.4±7.6 years old) fibromyalgia women participated in this cross-sectional study. Sedentary time accumulated in bouts of ≥10, ≥20, ≥30 and ≥60 minutes, and moderate-to-vigorous physical activity (MVPA) were measured with triaxial accelerometry (GT3X+). To control for total ST, the percentage of ST spent in different bout categories were calculated (e.g., (time spent in bouts ≥30 min/ total ST) ×100). We assessed different domains of fibromyalgia impact (function, overall, symptoms) and the global impact of fibromyalgia (total score) with the Revised Fibromyalgia Impact Questionnaire (FIQR). Separate linear regression models were built to assess the association of percentage of ST spent in different bout categories (independent variables) with the domains of fibromyalgia impact and the global impact of the disease (dependent variable) while controlling for age, fat percentage, medication for pain and depression, and total accelerometer wear time. Model 2 additionally included time spent in MVPA.

Results: Greater percentage of ST spent in bouts ≥10 min (β=0.171, p<0.001), ≥20 min (β=0.163, p=0.001), ≥30 min (β=0.169, p<0.001), and ≥60 min (β=0.161, p=0.001) was associated with greater global impact of the disease. In model 2, greater percentage of ST spent in bouts ≥10 min (β=0.145, p=0.003), ≥20 min (β=0.138, p<0.004), ≥30 min (β=0.146,

$p < 0.002$), and ≥ 60 min ($\beta = 0.144$, $p < 0.002$) was associated with greater global impact of the disease. Similar results were observed for the association of percentage of sedentary time spent in different bout categories with the domains of fibromyalgia impact (function, overall, and symptoms). **Conclusion:** The results seem to indicate that ST accumulated in bouts is negatively associated with the impact of the disease in women with fibromyalgia. Overall, these associations were independent of time spent in MVPA. It might be advisable to promote reducing prolonged ST in this population.

REFERENCES:

- [1] Segura-Jiménez V, Borges-Cosic M, Soriano-Maldonado A, et al. Scand. J. Med. Sci. Sports. 2017;27:83–92.
- [2] Benatti FB, Ried-Larsen M. Med. Sci. Sports Exerc. 2015;47:2053–61.

Acknowledgement: We thank all the study participants for their collaboration. **Funding:** This study was supported by the Spanish Ministry of Economy and Competitiveness (I+D+i DEP2010-15639; I+D+i DEP2013-40908-R; BES-2014-067612) and the Spanish Ministry of Education (FPU 15/00002)

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.8058

THU0481 SLEEP DISTURBANCES IN FIBROMYALGIA – AN AUSTRALIAN TERTIARY HOSPITAL EXPERIENCE

Kevin Su¹, Krishna Bajee Sriram², Parham Afrasyabi¹. ¹Gold Coast University Hospital, Rheumatology, Southport, Australia; ²Gold Coast University Hospital, Respiratory, Southport, Australia

Background: Fibromyalgia (FM) is a central pain disorder with an estimated population prevalence of 2-7% and six times as common in women than men.¹ Obstructive sleep apnoea (OSA) is a structural sleep disorder, with an estimated incidence of 14% of males and 5% females. Incidence of OSA in FM has been variably reported but estimated at 25-81%.² Despite its frequency, the underlying nature of sleep disturbances haven't been consistently replicated. A 2017 meta-analysis found significant differences in sleep efficiency (SE), a measure of total time spent in REM (Rapid Eye movement) sleep, number of arousals and sleep quality.³ Prados et al in 2013 showed women with FM have less severe sleep disturbance than males, suggesting a gender difference.⁴

Objectives: To identify the incidence of FM in a cohort referred to the respiratory department for diagnostic polysomnography (dPSG) at the Gold Coast University Hospital (GCUH), a tertiary referral centre in Australia. We aim to identify epidemiological, gender differences and sleep abnormalities in patients with FM and OSA.

Methods: dPSG reports of 998 patients with 1053 studies at the GCUH from 2015 - 18 was audited. We included FM diagnosed by a rheumatologist from the general Rheumatology clinics of the same facility. Two control groups were formed, one with a random number generator. The second from manual matching of major OSA risk factors such as age, gender and Body mass index (BMI), with a two to one ratio for statistical power. All were subsequently subdivided into gender. Statistical analysis was performed with calculation of mean, standard deviation and T tests for significance as calculated by the computer software Stata.

Results: Abstract THU0481 – Table 1. Demographics Data

	Age (Yrs)	Gender	BMI (kg/m ²)
Control (Random)	51.38 (15.92)	15F/22M	34.51 (10.43)
Control (Matched)	56.25 (9.87)	64F/10M	33.66 (8.71)
FM group	55.83 (10.1)	32F/5M	32.93 (9.14)

Abstract THU0481 – Table 2. Sleep Study Data

A. One to One Random Group				B. Two to One Matched Group			
Mean (Standard Deviation)	FM -	FM +	P value	FM -	FM +	P value	
Epworth Sleep Scale (ESS)	8.57 (5.58)	9.86 (5.27)	0.8898	10.07 (6.43)	9.86 (5.27)	0.4867	
Total Sleep time (min)	325.43 (66.44)	330.59 (83.67)	0.6648	326.61 (85.93)	330.59 (83.67)	0.662	
Sleep Efficiency (%)	78.97 (10.21)	77.58 (11.89)	0.376	75.31 (17.24)	77.58 (11.89)	0.8015	
Sleep Onset Latency (min)	14.96 (15.79)	24.05 (20.86)	0.9723	26.88 (38.80)	24.05 (20.86)	0.315	
Stage NREM (%)	85.81 (6.12)	83.71 (9.47)	0.2629	80.39 (21.90)	83.74 (9.47)	0.3874	
Stage REM (%)	13.98 (6.09)	16.47 (9.60)	0.8893	13.83 (8.00)	16.47 (9.60)	0.9117	
Arousals per hour	29.69 (17.71)	28.03 (21.78)	0.3389	30.19 (28.94)	28.03 (21.78)	0.3407	
Oxygen Desaturation Index (ODI)	23.59 (25.25)	12.26 (18.99)	0.0176	17.45 (24.3)	12.26 (18.99)	0.1522	
Periodic Limb Movement Index (PLM)	5.79 (19.67)	6.73 (12.15)	0.5348	7.40 (16.64)	6.73 (12.15)	0.352	
Total Apnoea Hypopnoea Index (AHI)	29.22 (25.65)	19.79 (20.06)	0.0423	24.32 (25.53)	19.79 (20.06)	0.1984	

C. Matched Male Group				D. Random Male Group			
Mean (Standard Deviation)	FM -	FM +	P value	FM -	FM +	P value	
Epworth Sleep Scale (ESS)	9.2 (6.03)	12 (4.74)	0.8083	7.63 (1.07)	12 (2.12)	0.955	
Total Sleep time (min)	359.45 (32.46)	255.5 (54.72)	0.0002	606.63 (13.98)	255.5 (24.47)	0.0596	
Sleep Efficiency (%)	78.83 (8.20)	65.82 (14.02)	0.0194	77.14 (2.21)	65.82 (6.26)	0.0247	
Sleep Onset Latency (min)	11.55 (7.06)	20.5 (11.36)	0.9598	12.81 (2.94)	20.5 (5.07)	0.8702	
Stage NREM (%)	85.05 (3.83)	89.14 (8.14)	0.2006	86.63 (5.67)	89.14 (8.14)	0.4161	
Stage REM (%)	14.96 (3.84)	10.8 (8.144)	0.0965	13.25 (1.2)	10.8 (1.64)	0.2119	
Arousals per hour	24.15 (9.39)	31.2 (10.19)	0.8975	34.66 (4.42)	31.2 (4.55)	0.3611	
Oxygen Desaturation Index (ODI)	16.28 (22.18)	19.72 (22.77)	0.6084	30.44 (6.38)	19.72 (10.18)	0.2305	
Periodic Limb Movement Index (PLM)	4.98 (9.66)	5.72 (8.62)	0.5563	9.15 (5.35)	5.72 (8.85)	0.3843	
Total Apnoea Hypopnoea Index (AHI)	24.4 (25.27)	37.7 (23.86)	0.8262	37.6 (6.25)	37.7 (10.66)	0.5025	

N.B. Statistically significant data is highlighted in bold

Abstract THU0481 – Table 3. Female Study Data

E. Matched Female Group				F. Random Female Group			
Mean (Standard Deviation)	FM -	FM +	P value	FM -	FM +	P value	
Epworth Sleep Scale (ESS)	10.34 (6.54)	9.53 (5.35)	0.4061	9.93 (1.6)	9.87 (0.96)	0.48	
Total Sleep time (min)	319.9 (90.63)	342.33 (81.81)	0.9015	353 (15.33)	345.15 (14.78)	0.37	
Sleep Efficiency (%)	74.83 (18.22)	79.42 (10.63)	0.9283	81.64 (2.48)	80.05 (1.96)	0.3182	
Sleep Onset Latency (min)	130.39 (93.75)	29.26 (61.14)	0.244	18.1 (4.74)	23.79 (9.91)	0.8042	
Stage NREM (%)	17.12 (9.49)	13.72 (8.49)	0.0841	84.6 (6.73)	82.86 (6.49)	0.5288	
Stage REM (%)	13.72 (8.49)	17.35 (9.62)	0.958	15.06 (1.74)	17.12 (1.67)	0.7735	
Arousals per hour	31.00 (30.85)	27.54 (23.15)	0.2737	22.39 (2.05)	27.22 (4.11)	0.7798	
Oxygen Desaturation Index (ODI)	17.36 (24.73)	11.1 (18.48)	0.1151	13.54 (2.75)	11.32 (3.25)	0.3338	
Periodic Limb Movement Index (PLM)	7.69 (17.49)	6.89 (12.71)	0.3335	0.87 (0.6)	6.18 (2.16)	0.9479	
Total Apnoea Hypopnoea Index (AHI)	23.91 (25.74)	16.99 (18.28)	0.094	16.91 (2.9)	17.07 (3.22)	0.5127	

Conclusion: Female predominance and 3% population incidence of FM was congruent with literature. We note the mean age was nearing expected upper limits for FM. Increased age as a risk factor for OSA may have led this selection bias. Unexpectedly, overall severity of OSA as per AHI and number of desaturating events as per ODI3 was less in FM. We hypothesise that this is due to a higher proportion of females in the FM group compared to males, confirmation would require a larger study cohort, a limitation of this study. It was beyond the scope of this study to explore concomitant medication use and comorbidities and its effect on sleep. Another significant finding was in males, where sleep efficiency (SE) was lower in both matched and random groups. Furthermore, when matched for age, gender and BMI, males FM have reduced total sleep time. Suggesting that males with FM may have additional impediments to good sleep efficiency which may not be readily recognised during clinical evaluation. Similarly to Prados et al, we found females with FM (fig. 3) had a trend for better sleep quality and less sleep disturbance. However, no domain reached statistical significance, which again reflects low study power. This study emphasises the contribution of OSA as a comorbidity for patients with FM and its effect on sleep quality. Importantly, also the differences in gender.

REFERENCES:

- [1] Neumann L, Buskila D. Epidemiology of fibromyalgia. Curr Pain Headache Rep. 2003 Oct;7(5):362-8.
- [2] Ferré A. Chronic fatigue syndrome and sleep disorders: clinical associations and diagnostic difficulties. Neurologia. 2016 Feb 11. pii: S0213-4853 (16)00010-4.
- [3] Wu YL, Chang LY, Lee HC, Fang SC, Tsai PS. Sleep disturbances in fibromyalgia: A meta-analysis of case-control studies. J Psychosom Res. 2017 May;96:89-97.
- [4] Prados G, Miró E, Martínez MP, Sánchez AI, López S, Sáez G. Fibromyalgia: gender differences and sleep-disordered breathing. Clin Exp Rheumatol. 2013 Nov-Dec;31(6 Suppl 79):S102-10.

Acknowledgement: Dr Jennifer Ng (Rheumatology) at the Gold Coast University Hospital

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.2534