Results: Replacing 30 minutes of ST with LPA was associated with better strength in upper limb ($B=0.19$), handgrip strength ($B=0.02$) and aerobic fitness ($B=2.29$); all $p<0.03$. Replacing 30 minutes of ST with MPA was related to better strength and flexibility in lower and upper limb (B ranging from 0.43 to 1.97; all $p<0.02$). Finally, replacing 30 minutes of LPA with MPA was associated with better strength and flexibility in lower and upper limb, aerobic fitness and balance (B ranging from 0.15 to 8.54; all $p<0.04$).

Conclusion: Replacing short time periods (30 min) of ST by PA (especially of moderate intensity) was related to better physical fitness. Moreover, to replace 30 min of LPA by MPA was related to better physical fitness. Our findings support the implementation of experimental research to better understand the extent to which replacing sedentary time (by LPA or MPA) or replacing LPA (by MPA) might enhance increase different components of physical fitness in fibromyalgia. Such findings would have direct clinical implications.

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THU0471

THE EFFECT OF VIRTUAL REALITY EXERCISES ON PAIN, FUNCTIONALITY, CARDIOPULMONARY CAPACITY AND QUALITY OF LIFE IN FIBROMYALGIA SYNDROME: A RANDOMIZED, SINGLE-BLIND, CONTROLLED STUDY

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Background: Fibromyalgia Syndrome (FMS) is a clinical condition with many symptoms such as chronic generalized pain, fatigue, sleep disorder, cognitive dysfunction and depressive mood. Management of FMS is difficult and the most important component is regular exercise.¹ In this syndrome, patients generally have compliance and motivation problems in maintenance of exercises. In recent years, exercises, with fun and game components, have been prescribed to increase patient compliance.² Motion-controlled video games targeting virtual reality are examples of these exercises.³

Objectives: To investigate the effect of motion controlled video games on pain, functionality, cardiopulmonary capacity and quality of life in fibromyalgic women.

Methods: Forty women (> 18 years) who have FMS were included in study. Patients were randomized into study and control groups. Control group performed aerobic exercise (cycling, 3 days/week, 20 minutes/day) for 4 weeks. Study group performed virtual reality exercise (Volleyball, Microsoft Xbox Kinect®, 3 days/week, 15 minutes/day) together with cycling exercise. After the four week supervised exercise program, both groups received the same home exercise program for four weeks. All patients were evaluated at baseline, 4th and 8th weeks. Primary outcome measure was Fibromyalgia Impact Questionnaire. Visual Analog Scale (VAS), Hospital Anxiety and Depression Scale, Fatigue Severity Scale (FSS), Symptom Severity Scale, EuroQol-Quality of Life/Visual Analogue Scale (EQ5D-QoL/VAS) and 6 Minute Walk Test (6MWT) were used as secondary outcome measures. Positive and Negative Affect Schedule (PANAS) was used for patient satisfaction. T-test was used to compare demographic data between two groups. Repeated measures ANOVA was used in evaluation of intra-group efficiency of treatment. Treatment group and time interaction was evaluated by two-way analysis of variance. We calculated 20 patients per group, in

order to find 14% minimal clinical difference in Fibromyalgia Impact Questionnaire with 80% power and 0.05 error rate (Tip 1 error).⁴

Results: All patients completed supervised exercise program (4 weeks). 34 patients (17 study group, 17 control group) were evaluated at the 8th week. Age, body mass index, education status, comorbidities and drug use were similar in both groups ($p>0.05$). After four weeks, all outcome measures improved significantly in both groups ($p<0.05$). However, there was no statistically significant difference in all outcome measures between 4th and 8th weeks. Group and time interactions for 6MWT ($F(1.21, 46.33) = 4.04$, $p = 0.043$), FSS ($F(1.61, 61.24) = 4.21$, $p = 0.026$), EQ5D-QoL Scale ($F(2, 76) = 4.55$, $p = 0.014$) and EQ5D-VAS Scale ($F(1.4, 53.55) = 3.59$, $p = 0.049$) were significant only for the study group. In addition, PANAS score was significantly higher in study group ($p < 0.001$).

Conclusion: Virtual reality exercises along with aerobic exercise increase cardiopulmonary capacity and quality of life in FMS. In addition, they increase patient satisfaction and may improve patient compliance to exercise.

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THU0472

FIBROMYALGIA SYNDROME IN WEST AFRICA: ACR 1990 IS NOT SENSITIVE FOR THE UNDER-DIAGNOSED AND WIDELY MISUNDERSTOOD DISORDER

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Background: Like most poorly understood rheumatic conditions, Fibromyalgia is thought to be rare in West Africa. Many clinicians rely on the various ACR classification criteria to make a diagnosis of Fibromyalgia despite the unknown performance of these criteria among patients of sub-Saharan African origin.

Objectives: To describe the characteristics of fibromyalgia in Nigerian patients and determine the sensitivities of four ACR criteria sets.

Methods: Consecutive patients diagnosed with fibromyalgia for the first time by a rheumatologist were evaluated using ACR 1990, ACR 2010, 2011 modification of ACR 2010 (ACR 2011) and ACR 2016 classification criteria for fibromyalgia. Sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI), fatigue with the Fatigue Severity Scale (FSS) and severity of fibromyalgia with the Revised Fibromyalgia Impact Questionnaire (FIQR). The overall characteristics and the beliefs of these patients regarding their disease were analysed.

Results: Of the one hundred and fourteen (114) patients, ninety six (96) were females; male-to-female ratio is 1:5.3. The median duration of symptoms before diagnosis is 54 months (3 to 273 months) and the mean age is 44.6±15.6 years. Mild, moderate, and severe fibromyalgia were found in 32(28.1%), 53(46.5%) and 29(25.4%) patients respectively. Sensitivities of ACR 1990, ACR 2010, ACR 2011, and ACR 2016 were 38.5%, 68.2%, 76.7% and 76.7%, respectively. Poor sleep was found in 83 (72.8%) patients. Patients in functional classes I, II, and III were 71 (62.3%), 19 (16.7%) and 24 (21.1%), respectively. There was none in class IV. There was positive history of widespread pain in at least one first degree relative of 56 (49.1%) patients. Twenty-one (18.4%) patients had changed or quit their job due to the disease and there was

significant association between job loss and number of tender points as well as disease severity. The Mean FFS score is 4.48 ± 1.3 and 73 (64.0%) patients believed their problem is a spiritual attack while 43 (37.7%) had done one form of ritual or the other in search of cure.

Conclusion: Fibromyalgia syndrome exists in West Africa. It is poorly understood among the sufferers and ACR 1990 is not sensitive as a diagnostic tool for the condition.

Abstract THU0472 – Figure 1

Abstract THU0472 – Figure 2

Abstract THU0473 – Figure 3

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	Quit/Changed job	Not quit/changed job	P
Fibromyalgianess (ACR 2011)	17.5 ± 6.1	20.3 ± 6.5	0.120
Fatigue (FSS)	40.9 ± 12.9	42.7 ± 12.9	0.565
Sleep (PSQI)	6.2 ± 3.4	6.5 ± 3.5	0.715
Widespread pain (WPI)	9.8 ± 4.3	10.7 ± 4.2	0.405
ACR Tender Points	14.8 ± 4.1	9.5 ± 4.7	0.001
Severity (FIQR)	57.1 ± 17.0	49.5 ± 14.4	0.038
Duration Of Symptoms	24 (12 - 120)	24 (3 - 276)	0.662

Abstract THU0473 – Table 1. Correlation between MAAS score and selected variables in FMS patients

	Symptom Severity Scale	N of Somatic Symptoms	WPI Score	Tender Points (N)	Disease Duration	FIQR Score	FIQR Function	FIQR Overall Impact	FIQR Symptoms	FACIT-fatigue score
r	-.384	-.406	.047	-.002	.050	-.255	-.191	-.002	-.320	.214
p	.000	.000	.625	.986	.622	.019	.068	.986	.001	.028

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THU0473 MINDFULNESS IN FIBROMYALGIA: MEAN LEVELS AND CORRELATION WITH DISEASE BURDEN

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Background: Limited evidence suggests that mindfulness-based interventions can have a role in the management of fibromyalgia (FMS) [1], with positive effects on quality of life, pain perception [2] and sleep problems [3]. However, there is little data on the levels of mindfulness in FMS and its relationship with the impact of disease.

Objectives: To evaluate the levels of mindfulness and its correlation with disease burden in FMS.

Methods: Mindfulness was assessed in 112 FMS patients (mean age 45.34 ± 11.36 yrs, 86.5% females) and in 128 (43.60 ± 14.35 yrs, 75% females) healthy control subjects by the Mindful Attention Awareness Scale (MAAS) questionnaire [4]. The MAAS, a 15-item scale developed to assess individual differences in the frequency of mindful states over time, is the most popular scale measuring mindfulness. Each item can be scored on a Likert scale from 1 to 6, lower scores indicating a greater tendency towards mindfulness. FMS patients were further evaluated by Widespread Pain Index (WPI) and Symptom Severity Scale Score as per 2016 criteria, by the revised FIQR score, and by the Facit-Fatigue scale. Data analysis, including ANOVA and Pearson correlations, was performed with the SPSS software.

Results: In the whole population, mean MAAS score was 4.17 ± 0.72 , a value comparable to literature data in different populations, and was correlated to age ($r=0.175$, $p=0.008$) but not significantly different in males vs females (4.28 ± 0.67 vs 4.16 ± 0.72). FMS patients and control subjects showed similar values (4.12 ± 0.80 and 4.22 ± 0.63 , $p=0.291$). In FMS patients, the MAAS score showed a significant direct correlation with FACIT-fatigue scores, and a significant inverse correlation with overall impact of disease, as assessed by the burden of somatic symptoms and FIQR score. MAAS score showed no significant correlations with variables directly related to pain domain (WPI, tender points), nor with disease duration (Table 1).

Conclusion: Mindfulness levels, as assessed by MAAS questionnaire, are not significantly different in FMS patients as compared to unselected healthy control subjects. However, levels of mindfulness are higher in patients reporting a higher disease burden, but lower in patients reporting lower levels of fatigue, and are not significantly correlated to pain.

Mindfulness in FMS shows complex interactions with the different domains of the disease, and needs to be further investigated, in order to clarify its relationship with disease features, and eventually to establish guidelines for mindfulness-based interventions.

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