

## Rehabilitation

**FRI0693 RESILIENCE TRAITS IN A LARGE COHORT OF PATIENTS WITH ANKYLOSING SPONDYLITIS (AS), RHEUMATOID ARTHRITIS (RA) AND FIBROMYALGIA (FM)**

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**Background:** The study of resilient traits (RT) including self-compassion, self-forgiveness, forgiveness of others, and gratitude has garnered the attention of investigators involved in health and healthcare research (1, 2). Little is known about such RT in patients with AS, RA, and FM.

**Objectives:** To examine patient group differences in levels and mental and physical health correlates of self-compassion, self-forgiveness, forgiveness of others, and gratitude.

**Methods:** We conducted an online survey with patients attending the Gastein Healing Galleries in Bad Gastein, Austria. In this health facility, approximately 12,000 patients suffering from different diseases are treated annually. Of those, 6,465 patients were invited by email to participate anonymously. Socio-demographics and health-related variables including depression, pain, and current health status were measured in all respondents. Also measures of self-compassion, self-forgiveness, forgiveness of others, and gratitude were administered in a subset of participants.

**Results:** In total 2,017 patients responded (=31%) of which a subset of 562 patients with AS (44%), FM (38%), and RA (18%) completed measures of RT. Sex ratio (male/female) was 52%/48%, mean age 57 (SD=11) and level of education was: Elementary School 28%, Junior High School 22%, High School 20%, College 13%, and University 17%. Across patient groups, no differences emerged in levels of self-forgiveness, forgiveness of others, or gratitude ( $p > .30$ ), although FM patients reported lower levels of self-compassion compared to patients with AS and RA ( $p < .05$ ). Self-compassion, self-forgiveness, forgiveness of others, and gratitude were related to depression in all three patient groups, but gratitude was the only RT that was related to depression, pain, and health across all three patient groups.

**Conclusion:** We found that only self-compassion varied across patient groups, with FM patients reporting lower levels. All RT were consistently related to depression across the three patient groups, but gratitude was also related consistently across groups to both pain and health. RT may well vary according to patient diagnoses with some traits offering more support and resilience-building to the patient than other traits. An important key for treatment support and management may be to identify which traits are most useful to encourage the development of resilience and health in specific patient groups.

## REFERENCES:

- [1] Sirois, F. M., Molnar, D. S., & Hirsch, J. K. (2015). Self-compassion, stress, and coping in the context of chronic illness. *Self and Identity*, 14(3), 334-347.
- [2] Liu L, Xu X, Xu N, Wang L. Disease activity, resilience and health-related quality of life in Chinese patients with rheumatoid arthritis: a multi-center, cross-sectional study. *Health Qual Life Outcomes*. 2017 Jul 24;15(1):149.

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**FRI0694 SELF-REPORTED SLEEPING PROBLEMS AND FATIGUE IN LARGE COHORT OF PATIENTS WITH ANKYLOSING SPONDYLITIS (AS), RHEUMATOID ARTHRITIS (RA) AND FIBROMYALGIA (FM)**

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**Background:** Sleep problems and fatigue are very common in rheumatic diseases and painful conditions. There is mounting evidence that sleep problems and fatigue have reciprocal influences on musculoskeletal pain, mood, and overall well-being of patients with rheumatic disorders. In addition, sleeping problems are a risk factor for developing chronic widespread pain.

**Objectives:** To assess and compare sleep problems and fatigue in a cohort of patients with AS, RA and FM.

**Methods:** We conducted an online survey with patients regularly attending the Gastein Healing Galleries in Bad Gastein, Austria. In this health facility appr. 12,000 patients with a variety of disease are being treated annually. Of those, 6,465 patients were invited by email to fill out the survey anonymously. Sociodemographics and disease related variables (e. g. pain, depression) were assessed, including current health status, three items concerning sleep quality, duration of sleep problems, and the number of nights affected by sleep problems, and four items from the Multidimensional Fatigue Inventory (general fatigue subscale) concerning feeling fit, tired, rested, and tiring easily.

**Results:** In total 2,017 patients responded (=31%) of which a subset of 784 respondents indicated a diagnosis of AS (43%), RA (40%), or FM (17%). Their mean age (SD) was 58 years (11) and 53% were male. Level of education was: Elementary School 30%, Junior High School 22%, High School 20%, College 13%, and University 15%. Only 17% of AS, 20% of RA and 12% of FM patients indicated that their sleep quality is not affected. In 51.6% of AS, 47.2% of RA and 64% of FM patients the duration of the sleeping problem persists more than one year. Examining levels of sleep problems and fatigue across these three groups revealed significant variation ( $p < .001$ ). Regarding sleep problems, FM patients showed significantly higher levels of problems than AS ( $p < .001$ ) and RA patients ( $p < .001$ ), and the latter two groups do not significantly differ. FM patients reported significantly higher levels of fatigue than AS ( $p < .001$ ) and RA patients ( $p < .001$ ), and AS patients had significantly higher levels of fatigue than RA patients ( $p < .001$ ). Fatigue and sleep problems were correlated in expected directions with depression, pain, and health. However, while there was little variability in the magnitude of the associations between fatigue and sleep problems with depression and pain, there was considerable variation in the association of fatigue and sleep problems with health. AS patients showed a small and non-significant association, whereas, RA patients showed a larger association ( $r = .20$ ) and FM patients showed the largest association ( $r = .5$ ).

**Conclusion:** We found sleep problems and fatigue to be common, chronic and elevated in AS, RA and FM, but not equally so across diagnostic categories. FM patients showed the greatest problems with sleep and fatigue. Furthermore, it appears that fatigue and sleep problems may have the most important connection to health for FM patients. To conclude, it is important to address sleep problems and fatigue in routine clinical assessment and management of patients with AS, RA and FM.

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**FRI0695 NEURAL MANUAL MOBILIZATION VS ROBOTIC ASSISTED MOBILIZATION TO REDUCE PAIN HYPERSENSITIVITY IN HANDOSTEOARTHRITIS: A RANDOMISED CONTROLLED PILOT TRIAL**

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**Background:** Recent studies suggest that osteoarthritis (OA) is a mixed pain state and that in some patients' central nervous system factors can play an important role.

**Objectives:** In this study, we showed some preliminary data on the effectiveness of neural manual mobilization vs robotic assisted mobilization, on reduce pain sensitivity in subjects with dominant hand OA.

**Methods:** A pilot randomized controlled trial was conducted. 50 patients (50 to 90 years old) with a diagnosis of dominant hand OA were randomized into two groups of 25 participants. The experimental group received an intervention of neurodynamic mobilization of median, radial and ulnar nerves plus exercise, the control one received a robotic assisted passive mobilization treatment (Gloreha Workstation, Idrogenet srl, Brescia, Italy) plus exercise. Both groups received 12 treatment sessions over 4 weeks. Pressure pain thresholds (PPTs) were assessed bilaterally over the Radial, Median and Ulnar nerves, first Carpometacarpal (CMC) joint, Hamate bone and in the C5-C6 zygapophyseal joint. Intensity of pain (Visual analogue scale, VAS), Quick-DASH scale, grip and pinch strength were also measured bilaterally. Patients were assessed at beginning, at the end of therapy and after a period of 1 and 3 months.

**Results:** In comparison with pre-treatment values, the experimental treatment increased the PPTs in the first CMC joint, radial and median nerves ( $P < 0.05$ ) and this effect was maintained until the 2nd Follow up session in the dominant hand. No significant changes in PPT at the hamate bone and ulnar nerve during treatment were found. No significant interaction for pain intensity (VAS) of hand while executing a grip strength, over the last 24 hours and over the last week also was found. Similarly, grip and pinch of the dominant hand did not increase after treatment.

**Conclusion:** Neurodynamic mobilization by sliding technique decreases pain in the hand joints in patients with hand OA, suggesting alternative therapies to surgery or to the use of analgesic. This research suggests alternative therapies to surgery or the use of analgesic therapy.

#### REFERENCES:

- [1] Kroon FPB, Carmona L, Schoones JW, Kloppenburg M. Efficacy and safety of non-pharmacological, pharmacological and surgical treatment for hand osteoarthritis: a systematic literature review informing the 2018 update of the EULAR recommendations for the management of hand osteoarthritis. *RMD open* 2018; 4(2): e000734.
- [2] Villafane JH, Valdes K, Pedersini P, Berjano P. Osteoarthritis: a call for research on central pain mechanism and personalized prevention strategies. *Clinical rheumatology* 2018.
- [3] Villafane JH, Bishop MD, Fernandez-de-Las-Penas C, Langford D. Radial nerve mobilisation had bilateral sensory effects in people with thumb carpometacarpal osteoarthritis: a randomised trial. *Journal of physiotherapy* 2013; 59(1): 25-30.
- [4] Villafane JH, Silva GB, Bishop MD, Fernandez-Carnero J. Radial nerve mobilization decreases pain sensitivity and improves motor performance in patients with thumb carpometacarpal osteoarthritis: a randomized controlled trial. *Archives of physical medicine and rehabilitation* 2012; 93(3): 396-403.
- [5] Villafane JH, Cleland JA, Fernandez-de-Las-Penas C. The effectiveness of a manual therapy and exercise protocol in patients with thumb carpometacarpal osteoarthritis: a randomized controlled trial. *The Journal of orthopaedic and sports physical therapy* 2013; 43(4): 204-13.

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#### FRI0696 THE NEXT STEP; MOVING TOWARDS A MORE PHYSICALLY ACTIVE RHEUMATOLOGY POPULATION

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**Background:** For individuals with rheumatic diseases, it is important to be sufficiently physically active. Several standardized exercise programs have been developed for patients with rheumatic diseases, that have proven to be effective in increasing physical activity level for a short period of time or only in a selection of the patients. A more personalized approach based on shared-decision making to tailor the intervention on personal physical activity goals could increase compliance to improve and sustain the physical activity level in patients with rheumatic diseases.

**Objectives:** Primary, this study will examine whether a personalized physical activity program is effective to increase and sustain the level of

physical activity in patients with a rheumatic disease. Secondary, this study will examine whether this program also results in a reduction in pain and fatigue.

**Methods:** A before after study will be performed among patients of the rheumatology outpatient clinic of Bernhoven in the Netherlands who do not meet the international physical activity recommendations<sup>1</sup> and who are motivated to improve their physical activity level. Physical activity will be measured with an activity tracker (steps/week) and as secondary outcomes the VAS pain and VAS fatigue will be measured over time. Measurements will take place before and 1, 3, 6 and 12 months after inclusion. Each participant starts the programme with an intake by a physiotherapist to identify motives and barriers for being physically active. Additionally, motivational interviewing and shared decision-making are used to tailor the intervention on personal physical activity goals. Participants will perform an individualized program, but they will also be a member of a group of 5-15 participants who will start at the same time. This group will meet three times a year to get feedback about their goals and physical activity level. Besides that, they can share experiences, questions, remarks and ideas with each other and with the physiotherapists involved in this study.

**Results:** Since February 2018, 49 patients are included in the physical activity program with a mean ( $\pm$ sd) age of  $53 \pm 12$  years and a median (IQR) disease duration of 2 (1-6) years. The majority of the participants is female (71%) and most frequently diagnoses are rheumatoid arthritis, spondyloarthritis and fibromyalgia. At baseline mean  $\pm$ sd daily steps is  $8469 \pm 4170$ , mean VAS pain is  $43 \pm 23$  and mean VAS fatigue is  $53 \pm 25$ . Results after 1, 3 and 6 months after baseline will be presented at EULAR. The inclusion of newly participants is still ongoing.

**Conclusion:** Despite it is too early to make a statement about the effectiveness of a personalized physical activity program, there are signs that participants became more physically active. During group meetings patients told they spent more time being physically active; they took more frequently their bike or went outside for a walk. This study will be continued giving the patients of the rheumatology outpatient clinic a personalized opportunity to become more physically active.

#### REFERENCES:

- [1] JM. Weijers, SAA. Rongen-van Dartel, PLCM. van Riel. Exercise participation has increased in patients with Rheumatoid Arthritis: A cross-sectional comparison between two Dutch RA cohorts. *Mediterr J Rheumatol*. 2018;29(4):199-206.

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#### HPR Epidemiology and public health (including prevention)

#### FRI0697-HPR CONSUMPTION OF DAIRY PRODUCTS AND RISK OF RHEUMATOID ARTHRITIS AMONG WOMEN: A POPULATION-BASED PROSPECTIVE COHORT STUDY

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**Background:** Conflicting results have been reported regarding the association between consumption of milk and dairy products and the risk for development of rheumatoid arthritis (RA).

**Objectives:** The aim of this study was to investigate the association between consumption of milk and dairy products and the development of RA in a large population-based cohort of women.

**Methods:** In a prospective cohort study 35,600 women aged 48-83 years, from the Swedish Mammography Cohort (SMC), were followed between 2003 and 2015. Consumption of dairy products was assessed in 1997 at a mean age of mean age of 61.5 years (SD 9.1 years) with a 96-item self-administered questionnaire. The risk (hazard ratio; HR) of RA development associated with consumption of dairy products was estimated using Cox proportional hazard regression models with adjustment for age, alcohol intake, smoking, energy intake, meat and fish consumption.

**Results:** During the follow-up of 12 years, 368 individuals were identified with a new diagnosis of RA. Comparing high consumption with low consumption of dairy products, no association between consumption of dairy