chronic diseases. Most often PA is self-reported while measures of the aerobic capacity are more seldom measured in subjects with chronic pain.

Objectives: To describe physical activity levels (self-reported and aerobic capacity) in people with chronic pain classified as regional or widespread and to compare the findings with a group that report no pain.

Methods: From the 2016 follow-up of the Swedish population based Epipain cohort (n 1321), 146 subjects were invited to a clinical assessment where the aerobic capacity was assessed by using a submaximal bicycle test, the Ekblom-Bak test, together with assessment of the Borg scale for perceived exertion (RPE). Aerobic capacity was also classified as low, average or high according to data from the general population. Self-reported physical activity was coded as MVPA_{rec} if recommended levels of PA was reported (physically active on a moderate level ≥ 150 min/week (MPA) or on an vigorous level ≥ 75 min/week (VPA) or not). The Fear Avoidance Beliefs Questionnaire for PA (FABQ-PA, 0–24 best to worst) and for work (FABQ-W, 0–48 best to worst) were also assessed. The participants were classified as having chronic widespread pain (CWP), chronic regional pain (CRP) or no chronic pain (NCP) based on a pain mannequin presenting 0–18 pain regions and if pain had lasted for 3 months or more. Chi2 and Kruskal-Wallis tests were performed to study differences between the three pain groups.

Results: 141/146 (97%) subjects (mean (SD) age 59.4 (8.2) years) whereof 61% were women, could be classified into pain groups; 43 as CWP (84% women), 43 as CRP (42% women) and 55 as NCP (58% women). The group with CWP was slightly older than those with CRP (mean (SD) age 57.0 (7.6) years vs. 61.9 (6.9) years, $p=0.02$). The CWP group also had lower aerobic capacity (mean (SD) 2.2 (0.5) l/min vs. 2.6 (0.6) l/min, $p=0.03$), and a larger proportion was classified as having low aerobic capacity (CWP 21%, CRP 7% and NCP 10%, $p=0.04$). The proportion of MVPA_{rec} did not differ between the groups: CWP 70%, CRP 81% and NCP 74% ($p=0.5$). There was neither a difference between the groups in BMI, RPE or in sitting hours/week ($p>0.6$). However, differences were found in the FABQ where in the PA scale those with CRP had worse scores compared with NCP (mean (SD) 11.2 (7.3) vs. 6.0 (6.0), $p<0.001$), the difference between CWP (mean (SD) 8.9 (6.7)) and NCP was $p=0.06$. In the work subscale of FABQ, CWP had worse scores compared with CRP (mean (SD) 18.9 (15.7) vs. 10.0 (12.5), $p=0.002$) and CRP had worse scores compared to those with NCP (mean (SD) 10.0 (12.5) vs. 6.5 (9.1), $p<0.001$).

Conclusions: In this sample of subjects with chronic pain or no pain, having widespread pain tended to affect the aerobic capacity negatively while self-reports of reaching recommended levels of physical activity did not differ between groups. Fear avoidance in relation to physical activity and especially in relation to work was more noticeable in subjects with chronic pain compared to those with no pain. Measures of aerobic capacity and information of fear avoidance beliefs might help health professionals to better tailor the non-pharmacological treatment for subjects with chronic pain.

Disclosure of Interest: None declared

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SAT0738-HPR FACTORS ASSOCIATED WITH RISK OF FALLING IN ADULTS WITH KNEE OSTEOARTHRITIS: A CROSS-SECTIONAL STUDY

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Background: There is evidence of increasing number of falls in adults with knee osteoarthritis (OA). However, the contributing factors for falling in adults with knee OA has not been substantially investigated.

Objectives: This cross-sectional study aimed to explore the relationship between falling in adults with knee OA and clinical characteristics of knee OA such as balance, pain, instability, muscle strength, and physical function.

Methods: Participants with knee OA were recruited from the community (Dunedin, New Zealand). The protocol of the study was registered in Australia New Zealand Clinical Trial Registry (ACTRN 12617000154303). Falls characteristics in the preceding year were collected to distinguish between those with and without history of falling. All participants completed the following measures: Sensory Organisation Test (SOT) using NeuroCom SMART Equitest system, version 8.4.0 which produced Composite Score; Knee injury and Osteoarthritis Outcome Score for knee OA related symptoms; Knee outcome survey for self-reported knee instability (buckling); Nicholas MMT hand-held dynamometer for quadriceps and hamstrings isometric muscle strength measured at 20 and 70 degrees; and Timed-Up and Go (TUG) test for physical function.

Results: Sixty-three participants with knee OA (30 female, 33 male), with a mean age (SD) of 53.78 (16.17) years were included in the study. Thirty-one (49%) participants reported at least one fall in the previous 12 months. The independent t-test suggested that the SOT Composite Score in fallers was significantly less (mean $\pm$ SD: faller=72.16 $\pm$ 3.26, non-faller=74.84 $\pm$ 4.77; $p=0.012$) and the TUG test was significantly longer (mean $\pm$ SD: faller=7.64 $\pm$ 1.29, non-faller=6.74 $\pm$ 0.78;

$p=0.001$) when compared with the non-faller group. Also, lower muscle strength of knee flexors and extensors were significantly less in the faller group ($p<0.05$). Falling in the previous 12 months was associated with Composite Score (OR 0.85, 95% CI 0.74–0.97, $p=0.017$), knee extensors strength [20 degrees (OR 0.76, 95% CI 0.66–0.82, $p=0.025$) and 70 degrees (OR 0.71, 95% CI 0.55–0.91, $p=0.008$), and TUG test (OR 2.65, 95% CI 1.32–5.31, $p=0.006$) using univariate logistic regression analysis. There were no changes in these results with multivariable analyses adjusting for age, gender, and body mass index.

Conclusions: The study demonstrated that balance, knee muscle strength, and performance of physical function significantly differed between those with and without the history of falling. An understanding of these risk factors may help in implementing an appropriate evaluation and intervention strategy to reduce falls in this patient population. Given the prevalence of falls in knee OA, this study suggests that falls assessment should be part of the clinical practice routine when evaluating patients with knee OA.

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SAT0739-HPR OCCUPATIONAL EXPOSURE TO PESTICIDES INCREASES THE RISK OF RHEUMATOID ARTHRITIS: RESULTS FROM THE MALAYSIAN POPULATION-BASED CASE-CONTROL STUDY

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Background: Several studies have suggested farming occupation with exposure to pesticides as risk factor for rheumatoid arthritis (RA).

Objectives: We investigated the association between pesticides exposure and risk of RA subsets in the Malaysian population.

Methods: Data from the Malaysian Epidemiological Investigation of Rheumatoid Arthritis (MyEIRA) population-based case-control study involving 1055 early RA cases and 1057 age, sex and residential area matched controls were analysed. All study subjects answered a structured questionnaire on a broad range of issues including occupational exposures to pesticides. The self-reported information on ever/never occupationally exposed to pesticides was used to estimate the risk of developing ACPA-positive and ACPA-negative RA. Association between pesticides exposure and the HLA-DRB1 shared epitope (SE) was evaluated.

Results: The proportion of ACPA positivity in the RA patients was 64.4% and 1.9% in the normal controls. The presence of HLA-DRB1 SE alleles in RA patients was 40.2% and 15.8% in the normal controls. Our data demonstrated that occupational exposure to pesticides was significantly associated with an increased risk of developing RA in the Malaysian population (OR 2.31, 95% CI 1.12–4.73, $p=0.03$). The association between occupational exposure to pesticides and risk of RA was observed with ACPA-positive RA (OR 3.10 95% CI 1.49–6.47, $p=0.003$), but not with ACPA-negative RA. A dramatically increased risk for ACPA-positive RA was seen in individuals who both exposed to pesticides occupationally and carried SE alleles (OR 28.06, 95% CI 3.58–220.09, $p<0.0001$).

Conclusions: This study demonstrates that occupational exposure to pesticides is associated with an increased risk of ACPA-positive RA in Malaysian population.

REFERENCES:

- [1] Sverdrup B, Källberg H, Bengtsson C, Lundberg I, Padyukov L, Alfredsson L, Klareskog L and the Epidemiological Investigation of Rheumatoid Arthritis study group. Association between occupational exposure to mineral oil and rheumatoid arthritis: results from the Swedish EIRA case-control study- Arthritis Research & Therapy 2005;7:R1296-R1303.

- [2] Meyer A, Sandler DP, Beane Freeman LE, Hofmann JN, Parks CG. Pesticide Exposure and Risk of Rheumatoid Arthritis among Licensed Male Pesticide Applicators in the Agricultural Health Study. *Environ Health Perspect* 2017;14;125(7):077010.

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SAT0740-HPR PARITY AND THE RISK OF DEVELOPING RHEUMATOID ARTHRITIS: EVIDENCE FROM THE MALAYSIAN EPIDEMIOLOGICAL INVESTIGATION OF RHEUMATOID ARTHRITIS CASE-CONTROL STUDY

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Background: Recent evidence from epidemiological studies has suggested that reproductive factors may play an important role for rheumatoid arthritis (RA) development. An inverse association was reported in several studies between parity and risk of RA.

Objectives: We investigated the association between parity and risk of anti-citrullinated peptide antibody (ACPA)-positive RA and ACPA-negative RA in the Malaysian population.

Methods: Data from the Malaysian Epidemiological Investigation of rheumatoid Arthritis (MyEIRA) population-based case control study involving 902 female early RA and 906 age and residential area-matched female controls were analysed. Parity history was assessed through a questionnaire. Parous women were compared with nulliparous women, by calculating odds ratio (OR) with 95% confidence intervals (CI).

Results: Our findings demonstrated that parity was significantly associated with decreased risk of developing RA in the Malaysian population (RA versus controls, 82% vs. 89%, OR 0.58, 95% CI 0.44–0.77, $p < 0.001$). The association between parity and risk of RA was uniformly observed for ACPA-positive RA (OR 0.58, 95% CI 0.43–0.80, $p < 0.001$) and ACPA-negative RA (OR 0.58, 95% CI 0.40–0.84, $p < 0.01$) subsets, respectively. Compared with nulliparous women, the decreased risk was pronounced at the level of three and more live births for both ACPA-positive (OR 0.48, 95% CI 0.34–0.66, $p < 0.001$) and ACPA-negative RA (OR 0.46, 95% CI 0.31–0.68, $p < 0.001$) subsets.

Conclusions: Our data demonstrated that parity and level of three and more live births was associated with decreased risk of developing RA in the Malaysian population. The associated decrease risk was observed in both ACPA-positive and ACPA-negative RA subsets.

REFERENCES:

- [1] Orellano C, Saevarsdottir S, Klareskog L, Karlson EW, Alfredsson L, Bengtsson C. Parity and the risk of developing rheumatoid arthritis: results from the Swedish Epidemiological Investigation of Rheumatoid Arthritis study. *Ann Rheum Dis* 2014;73:752–755.
- [2] Ren L, Guo P, Sun Q, Liu H, Chen Y, Huang Y and Cai X. Number of parity and risk of rheumatoid arthritis in women: A dose-response meta-analysis of observational studies. *J. Obstet. Gynaecol. Res* 2017;43(9):1428–1440.

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SAT0741-HPR COGNITIVE-BEHAVIOURAL AND SOCIAL FACTORS DO NOT PREDICT RECURRENT SECONDARY HEALTH CARE USE IN PATIENTS WITH FIBROMYALGIA: A LONGITUDINAL STUDY

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Background: Health care use in fibromyalgia (FM) is relatively high. Besides disease-related variables, cognitive-behavioural factors have been concurrently associated with health care use. It is unknown whether cognitive-behavioural and social factors also predict future health care use.

Objectives: To identify cognitive-behavioural and social factors predicting recurrent secondary health care use in FM.

Methods: Data were drawn from a prospective cohort of recently diagnosed patients with fibromyalgia (n=199), spanning 18 months. Patients were recruited after receiving their diagnosis and protocolled treatment advice by a rheumatologist. Using self-report questionnaires, health care use, cognitive-behavioural (i.e. illness cognitions, pain coping, coping flexibility), social (i.e. invalidation by family, spousal responses to pain and well behaviour), sociodemographic and disease-related variables including comorbidities, severity of FM, and depressive and anxiety symptoms were collected. Primary outcome was recurrent secondary health care use at 18 months follow-up defined as the use or non-use for each of the following four categories of secondary health care: consultation with medical specialists, diagnostic procedures, admission to health care institutions, and multimodal treatment program. A patient was considered a recurrent secondary health care user, if secondary health care from at least one of the four categories was used in the past six months. Univariate and multivariate logistic regression models examined whether and which variables were predictors for recurrent secondary health care use. Internal validation was performed to correct for over-fit of the final multivariate model.

Results: Recurrent secondary health care use was lower than initial secondary health care use. Univariate analysis showed that having at least one comorbidity, depressive feelings, severe consequences of fibromyalgia, low personal control and a high severity of fibromyalgia predicted recurrent secondary health care use. In the multivariate model, having at least one comorbidity was the only remaining predictor for recurrent secondary health care use.

Conclusions: Our results suggest that the existence of comorbidities as communicated by the patient is the strongest warning signal for recurrent secondary health care use in FM. There seems no value in using cognitive-behavioural and social factors for early identification of patients with FM at risk for recurrent secondary health care use.

Disclosure of Interest: None declared

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SAT0742-HPR EUROPEAN LEAGUE AGAINST RHEUMATISM RECOMMENDATIONS FOR THE ROLE OF THE NURSE (EULAR-RN) IN THE MANAGEMENT OF CHRONIC INFLAMMATORY ARTHRITIS (CIA): RESULTS OF PATIENTS IN NORDIC COUNTRIES

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Background: The dissemination of the EULAR-RN in the management of CIA¹ have been completed in Europe and in the USA.² The treatment is supposed to be carried out based on shared decision making (SDM).³ Lay versions of the recommendations and input from the patient organisations are essential in the integration of the recommendations and SDM.⁴

Objectives: The aims of this study were to assess agreement with and application of, and identify barriers against implementing the EULAR-RN in the management of CIA and to assess differences between individual Nordic countries.

Methods: A web-based survey was distributed using snowball sampling. Levels of agreement and application were assessed using a 0–10 rating scale (0=none, 10=full agreement/application). Reasons for disagreement with and barriers against applying each recommendation were sought. Differences between groups were assessed using the Kruskal-Wallis Test.

Results: A total of 318 patients from Finland participated in the survey. Their mean age was 52.1 years (SD 15.6). 47% had completed secondary education, 25% only primary and one third tertiary education. The mean duration of the disease was 17.7 years (SD 13.0), with a diagnosis of RA (63.5%), AS or PsA (29.8%, 6.7% respectively) and treated in general (45%), university (32%) or other hospitals. The median level of agreement was high, ranging from 8 to 10 in Finland