outcomes, data gathered from a GWAS analysing 3 37 000 unrelated individuals in the UK BioBank was used to assess the association between the SNPs of interest and self-reported osteoarthritis and ICD10 linked hospital data: knee, hip and first carpo-metacarpal joint osteoarthritis. Traumatic eye injury from the same cohort was used as a negative control. An inverse variance weighted meta-analysis estimator was used to test for association. In presence of heterogeneity, a weighted median approach was used and, when necessary, pleiotropy was controlled for using the MR Egger method. All analyses were performed using the TwoSampleMR package in R

Results: 14 and 91 SNPs associated with BMI in the childhood and adulthood were identified in the UK BioBank GWAS respectively. Association between childhood BMI and adult OA was seen for self-reported and hip and knee OA. Adult BMI also appeared associated with them [figure 1]. Conversely, no associations were found between BMI (either childhood or adult) and Hand OA risk. Finally, no relationship was seen between BMI and traumatic eye injury (negative control)

	Adult BMI		Child BMI	
	OR	95% CI	OR	95% CI
S-R OA	1.027	1.019–1.036	1.017	1.011–1.023
Hip OA	1.005	1.002–1.007	1.006	1.002–1.010
Knee OA	1.012	1.010–1.015	1.006	1.003–1.009
Hand OA	1.001	0.999–1.001	1.000	0.999–1.001
Eye Injury	0.999	0.994–1.003	0.999	0.993–1.004

Conclusions: Higher BMI in both childhood and adulthood overweight/obesity cause an excess in risk of knee and hip osteoarthritis. Whilst the effect of adult BMI seems stronger on knees, childhood BMI might impact both knee and hip osteoarthritis risk similarly. Age-specific associations should be treated with caution given significant overlap between loci associated with BMI across age ranges. In contrast, our findings contradict previous cohorts that found an association between overweight/obesity and hand osteoarthritis, which could be explained by confounding factors such as manual work or related socio-economic factors. The association between increased BMI and knee or hip osteoarthritis adds further impetus to strategies for the prevention of childhood and adult obesity in order to reduce subsequent disability.

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SAT0682

"INCIDENCE AND REGIONAL VARIATION OF ANKYLOSING SPONDYLITIS AND SPONDYLOARTHRITIS 2000–2013: A NATIONWIDE COHORT STUDY"

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Background: Spondyloarthritis is a group of inflammatory rheumatic diseases with Ankylosing Spondylitis (AS) as the major subgroup. Only a few studies worldwide have reported incidences of AS and their trend over time.

Objectives: To describe the incidences of Ankylosing Spondylitis (AS) and spondyloarthritis (SpA) in the Danish population in 2000–2013, at both national and regional level. To establish if there is a trend in incident cases over time and test if such a trend may be explained by use of MRI scans for diagnostic evaluation.

Methods: In the Danish National Patient Registry, we identified all patients with a valid Danish civil registration number who received an AS (ICD10:DM45) or SpA (ICD10:DM46) diagnosis during the time period from 1 January 2000 until 31 December 2013. Incident cases were identified and incidence rates described as rates per 1/100.000 of AS and SpA were calculated for each year. Variation among the five Danish regions were evaluated and correlated to the diagnostic use of MRI.

Results: We identified 3620 incident cases (AS: 2116, SpA: 1504). Males are overrepresented among AS incidents (58%–80%), both nationwide and regionally. The percentages of males with an AS diagnosis are stable throughout the time period (65%–69%). Females are overrepresented among SpA incidents nationwide and in most regions. In the Region of Southern Denmark, there is a small overrepresentation of males for both SpA and AS diagnoses (58%).

The number of nationwide AS incident cases increases between 2005 and 2009 from 534 (rate: 0.52) to 828 cases (0.82). During 2010–2013 the AS incidence decreased to 754 (0.94).

The number of SpA incident cases increased from 220 (0.21) in 2009 to 430 (0.43) in 2009 with an additional increase in incidence to 854 (1.06) in 2010–2013. The trend is the same throughout the five regions.

MRI was used for diagnostic purposes in only 10%–15% of the patients in 2002. In 2013 the number had increased to 95.0% of male patients and 94.3% of female patients diagnosed with AS and 98.5/98.1% of patients diagnosed with SpA.

Conclusions: In this Danish nationwide cohort, the incidence of AS increased during the years 2000–2004 and stabilised in 2005–2013 which is in line with previous studies exploring the trends of AS incidence.

The SpA incidence increased significantly during the years 2000 to 2013. This might be caused by the implementation of the ASA criteria in 2009, which included the "imaging arm", and by increased access to MRI for diagnostic evaluation in patients with low back pain. This might lead to overestimation and/or misdiagnosis

of SpA because signs of inflammatory changes in the sacroiliac joint are a common finding in MRIs of low back pain patients.

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A NORTH-SOUTH WORLDWIDE GRADIENT IN SYSTEMIC ACTIVITY OF PRIMARY SJÖGREN SYNDROME: INCREASED SEVERE DISEASE IN PATIENTS FROM SOUTHERN COUNTRIES

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Objectives: To analyse the influence of geolocation on the clinical systemic presentation of primary Sjögren syndrome (SjS) at diagnosis.

Methods: The Big Data Sjögren Project Consortium is an international, multi-centre registry created in 2014. Centres were classified by continent, with an additional north-south sub-classification according to latitude (>or<50°N in Europe, equator >or<in America and>or<30°N in Asia). Systemic involvement at diagnosis was retrospectively scored using the ESSDAI.

Results: The highest baseline ESSDAI scores were reported from Southern vs Northern countries in Europe (7.2 vs 4.6, p<0.001), America (5.3 vs 3.5, p<0.001) and Asia (6.3 vs 3.9, p<0.001). In Europe, the frequency of activity in each domain was higher in Southern countries (in all domains except constitutional, p<0.001). In America, Southern countries had the highest frequencies of active patients in constitutional, articular, cutaneous, pulmonary, PNS and CNS domains (p<0.001 in all) and the lowest frequencies in lymphadenopathy (p=0.018) and biological (p<0.001) domains. In Asia, patients from China had the highest frequency of activity in glandular, articular, pulmonary, muscular, haematological and biological and those from India in lymphadenopathy, cutaneous, renal and PNS.

Conclusions: This study provides the first evidence for a strong influence of geolocation on the systemic phenotype of primary SjS at diagnosis. Geographical determinants should be considered as key variables when systemic disease is scored.

Disclosure of Interest: None declared

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SAT0684

APPENDICITIS AND THE RISK OF NEWLY DIAGNOSED SYSTEMIC SCLEROSIS: A NATIONWIDE, POPULATION-BASED, CASE-CONTROL STUDY IN TAIWAN

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Background: Previous studies suggested that patients with systemic sclerosis (SSc) had specific alterations in the gastrointestinal microbiota, including increased levels of pathobiont genera, such as *Fusobacterium*. Local expansion of *Fusobacterium* was also found in children with acute appendicitis. However, no prior study had explored the association between incident SSc and prior appendicitis.

Objectives: To explore the association between appendicitis and the risk of incident systemic sclerosis (SSc).

Methods: Using the 2003–2012 claims data of the entire population in Taiwan, we identified 1595 patients with a new diagnosis SSc (ICD-9-CM 710.1) validated by a thorough review of the original medical record from 2006 to 2012 as SSc cases. We also selected 15 950 individuals who never had a diagnosis of SSc during 2003–2012 matching SSc cases (1:10) for age, sex, and the year of index date from claims data of a one million representative Taiwanese population as non-SSc controls. The index date was defined the first date of SSc diagnosis in the SSc group and the first date of ambulatory visit for any reason in the control group. Using conditional logistic regression analysis, The association between appendicitis (ICD-9-CM 540–543) and the risk of incident SSc was tested by estimating odds ratios (ORs) with 95% confidence intervals (CIs) controlling for potential confounders, including Charlson comorbidity index, a history of periodontal disease (ICD-9-CM 523), salmonella infection (ICD-9-CM 003), and intestinal infection (ICD-9-CM 009). We also performed sensitivity analyses by varying the definition of appendicitis according to the status of receiving primary appendectomy.

Results: The mean ±SD age was 51±15 years in both cases and controls. The proportion of women was 77.5%. Appendicitis was identified in 17 (1.1%) of 1595 SSc cases and 81 (0.5%) of 15 950 non-SSc controls before the index date had a history of appendicitis. A significant association between appendicitis and the risk of SSc was demonstrated (OR, 2.03; 95% CI, 1.14–3.60) after adjustment for potential confounders. The association between appendicitis and SSc risk was still statistically significant using various definitions of tonsillitis based on the status of primary appendectomy.

	Univariate	Multivariate
	OR (95% CI)	OR (95% CI)
Appendicitis	2.11 (1.25–3.57)	2.03 (1.14–3.60)
Primary appendectomy	2.04 (1.17–3.57)	1.93 (1.06–3.54)
Appendicitis with primary appendectomy	2.07 (1.18–3.62)	1.97 (1.07–3.61)
Appendicitis or primary appendectomy	2.09 (1.23–3.53)	1.99 (1.13–3.53)

Conclusions: The present study reveals an association between SSc risk and a history of appendicitis.

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