associations appear independent of gut inflammation and both NSAID and immunomodulatory treatment. This provides further evidence for an important link between disturbances in gastrointestinal homeostasis and axSpA manifestations, and implies that gut dysbiosis may be a novel biomarker for severe disease.

Table 1.

	All patients n=132	Nr-axSpA n=44	AS n=88	Controls n=46
Male sex, n (%)	72 (55)	17 (39)	55 (63)	23 (50)
Age, y	53 (13)	48 (12)	55 (13)	51 (14)
Symptom duration, y	26 (14)	21 (11)	28 (14)	
Body mass index, kg/m ²	27 (4.3)	27 (4.2)	27 (4.3)	25 (3.3)
Smoking ever, n (%)	43 (33)	9 (20)	34 (39)	13 (28)
CRP, mg/L	3.7 (5.3)	2.3 (2.4)	4.3 (6.1)	
F-Calprotectin ≥50 mg/kg, n (%)	46 (35)	12 (27)	34 (39)	
Evaluator's global, 0-4, median (IQR)	1 (0-1)	1 (0-1)	1 (0-1)	
ASDAS-CRP	1.8 (0.9)	1.9 (0.9)	1.8 (0.9)	
BASDAI	3.1 (2.2)	3.3 (1.9)	3.0 (2.4)	
BASFI	2.0 (2.1)	2.0 (1.7)	2.1 (2.2)	
VAS pain, cm	3.3 (2.5)	3.4 (2.2)	3.2 (2.7)	
IBS symptoms, n (%)	43 (33)	15 (34)	28 (32)	
ASAS 3-month NSAID score	37 (44)	36 (44)	37 (44)	
Ongoing csDMARD, n (%)	24 (18)	9 (20)	15 (17)	
Ongoing bDMARD, n (%)	56 (42)	19 (43)	37 (42)	

Mean (SD) unless otherwise specified. y, years; IBS, irritable bowel syndrome

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Figure 1. AxSpA outcomes in relation to Dysbiosis Index (DI, a measure of gut microbiota aberration, with ≥3 denoting dysbiosis). P-values for overall between-group differences (One-way ANOVA; * Kruskal-Wallis test). B: Between-group differences (unadjusted and adjusted) in axSpA outcomes between patients with gut dysbiosis (DI≥3) vs. those without. * Bootstrapped 95%CI:s.

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POS0238

SICK LEAVE AND ITS PREDICTORS IN EARLY AXIAL SPONDYLOARTHRITIS: THE ROLE OF CLINICAL AND SOCIOECONOMIC FACTORS. FIVE-YEAR DATA FROM THE DESIR COHORT

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Background: Sick leave (SL) represents an often poorly studied adverse work outcome especially in early axSpA, with speculation around the potential role of clinical and socioeconomic (SE) factors.
Objectives: To investigate the occurrence of SL and the impact of clinical and SE factors on SL in early axSpA.

Methods: Patients with a clinical diagnosis of axSpA from the DESIR cohort up to 5 years of follow-up (6-month visits in the first 2 years, followed by annual visits) were studied. Time to SL and potential baseline and time-varying predictors were explored, with a focus on SE variables: age, gender, smoking status since last visit, ethnicity (Caucasian vs other), job type based on 'collar' (blue vs white), educational status (low vs high-university), marital status (married vs not) and parental status (number of children); and clinical factors including disease activity (ASDAS/BASDAI), function (BASFI), mobility (BASMI), at each time point. The incidence of SL was calculated as the number of SL events over the total number of person-days under observation. Univariable analyses, followed by collinearity and interaction tests, guided subsequent multivariable Cox survival model building.

Results: In total, 704 axSpA patients with work-related data were included in this study: mean (SD) age 33.8 (8.6); 46% male. At baseline, 80% of patients were employed; of these, 5.7% reported being on SL, with people shifting in and out of different work states over time. The distribution of first and recurrent SL episodes over time is shown in the figure 1. The incidence of SL amongst those at risk (n=620, 88%) and across the five years of DESIR was 0.05 (95% CI 0.03, 0.06) per 1000 days calculated in a total of 913,559 observed person-days. In survival analyses, 7% (n=43) of those at risk developed SL at some point. Mean (SD) time to SL was 806 (595) days (min 175, max 2021 days). In people who developed SL, 25% did so at 364 days; 50% and 75% at 545 and 1172 days, respectively. Significant differences were seen between baseline socio-demographic, clinical variables and treatment in patients who developed SL at any point, compared to those who did not. In multivariable models (Table 1) older age, higher disease activity, smoking and use of TNFi, the latter likely a proxy to worse disease, were all significantly associated with more SL. Male gender and higher education were associated with less SL. There were no relevant interactions between SE factors and clinical variables.

Figure 1. Distribution of first and recurrent sick leave episodes over time in the study population at risk.

Table 1. Univariable and multivariable model analyses with Sick Leave as outcome.

Type of analysis	Univariable analysis HR (95% CI)	Multivariable model HR (95% CI) (N = 614)
Explanatory variables		
Age	1.04 (1.01, 1.08)	1.05 (1.01, 1.09)
Male gender	0.37 (0.19, 0.74)	0.41 (0.20, 0.86)
High education	0.33 (0.17, 0.61)	0.48 (0.24, 0.95)
Marital status	2.44 (1.12, 5.27)	NS
ASDAS (CRP)	1.83 (1.34, 2.50)	1.49 (1.04, 2.13)
BASFI, 0-10	1.24 (1.09, 1.40)	*
BASMI, 0-10	1.76 (1.31, 2.38)	*
Comorbidity count	1.77 (1.22, 2.57)	NS
HLA-B27 positive	0.51 (0.28, 0.93)	NS
Smoking (current vs not)	2.40 (1.31, 4.37)	2.55 (1.32, 4.91)
NSAID score last week, 0-400	1.01 (1.00, 1.01)	NS
Oral Corticosteroid use (vs no)	3.90 (1.80, 8.46)	NS
TNF use	2.86 (1.55, 5.28)	2.41 (1.27, 4.58)

*Variables tested in models separate from ASDAS. NS=Not significant in multivariable model.

Conclusion: In this early axSpA cohort of young, working-age individuals, older age and worse disease activity were associated with more SL, whereas male gender and higher education were associated with less SL. The findings suggest a role of SE factors such as gender and level of education in adverse work outcomes, alongside active disease.

Disclosure of Interests: None declared

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POS0239

ROOT JOINT INVOLVEMENT IN SPONDYLOARTHRITIS: A POST-HOC ANALYSIS FROM THE INTERNATIONAL ASAS-PERSPA STUDY

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Background: In patients with spondyloarthritis (SpA), root joint diseases (RJD), i.e. hip or shoulder involvement, may be associated with a distinct disease phenotype compared to those with other affected joints. The ASAS-PerSpA study (PERipheral involvement in SPondyloArthritis) [1], offers a unique opportunity to study the phenotypes of patients with RJD in a global cohort.

Objectives: Primary objective was to compare the clinical characteristics of SpA patients with and without RJD. Secondary objectives were to compare the prevalence of RJD across the different SpA subtypes and the different regions of the world, compare the severity of axial disease as well as the disease burden in SpA patients with and without RJD.

Methods: This is a post-hoc analysis of the ASAS-PerSpA study, which included 4,465 patients with any subtype of SpA (axial SpA (axSpA), peripheral SpA (pSpA), psoriatic arthritis (PsA), inflammatory bowel disease associated SpA (IBD-SpA), reactive arthritis (ReA) and Juvenile SpA (Juv-SpA)) according to the rheumatologist's diagnosis. RJD was defined as a positive answer by the investigator to the following question: "Do you consider that the patient has ever suffered from RJD (e.g. hip, shoulder) related to SpA?" In case of a positive answer, a potential specific treatment (e.g. Total Articular Replacement) was investigated. The patient's characteristics were compared between those with and without RJD involvement, using Chi-2 or Fisher exact test for the categorical variables and t-test for the continuous variables. Two separate multivariable stepwise binary logistic regression analyses were conducted to identify factors associated with the dependent variables "hip involvement" and "shoulder involvement".

Results: RJD occurred in 1,503 patients (33.7%), with more prevalent hip (24.2%) than shoulder (13.2%) involvement. The prevalence of RJD as a group was the highest in Juv-SpA (52.7%), followed by pSpA (44.3%) and axSpA (33.9%). The highest prevalence of RJD was found in Asia and the lowest in Europe and North America. Among patients with hip involvement, 6.0% had a history of hip replacement (highest in the Middle East and North Africa and Latin America); among patients with shoulder involvement, 0.8% had a history of shoulder replacement. Hip had a distinct pattern of associations compared to shoulder involvement (Figure 1). Hip involvement was significantly associated with the SpA main diagnosis (highest in pSpA, lowest in PsA), younger age at first SpA symptom, lower prevalence of family history of psoriasis, positive HLA-B27, occiput-to-wall distance > 0, and treatment with cs-DMARDs and b-DMARDs. Shoulder involvement was associated with the SpA main diagnosis (highest in Juv-SpA and pSpA, lowest in axSpA), older age at first SpA symptom, higher prevalence of enthesitis, dactylitis, tender joints count, IBD, occiput-to-wall distance > 0, EQ5D score and treatment with cs-DMARDs.

Conclusion: Hip involvement was more prevalent than shoulder involvement in patients with SpA, and had a distinct phenotype resembling axial disease whereas shoulder involvement was mostly associated with features of peripheral disease. Hip and shoulder involvement should be analyzed separately in future studies rather than under the RJD entity.

REFERENCES:

- [1] Lopez-medina, C. et al. Prevalence and Distribution of Peripheral Musculoskeletal Manifestations in Axial Spondyloarthritis, Peripheral Spondyloarthritis and Psoriatic Arthritis: Results of the International, Cross-sectional ASAS-PerSpA Study. RMD Open; 2021;7:e001450.

Figure 1. Factors associated with hip and shoulder involvement in the multivariable analysis

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POS0240

GEOGRAPHICAL PREVALENCE OF A FAMILY HISTORY IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS AND ITS ASSOCIATION WITH HLA-B27: DATA FROM THE WORLDWIDE ASAS-PERSPA STUDY

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Background: Research has shown that in axial spondyloarthritis (axSpA) patients, the most common form of spondyloarthritis (SpA) in a family history is axSpA. Moreover, the association between a positive family history of spondyloarthritis (PFH) and HLA-B27 carriership is driven by a PFH of axSpA and

possibly acute anterior uveitis (AAU), but not by other forms of SpA. However, this research was limited to mostly Western European patients.

Objectives: To investigate the impact of geographical region on family history and its association between HLA-B27 carriership in patients with axSpA around the world.

Methods: Data from the Assessment in SpondyloArthritis international Society (ASAS) peripheral involvement in Spondyloarthritis (ASAS-perSpA) study was used. Analyses were restricted to patients with an axSpA diagnosis who had information available on HLA-B27 status and family history. The frequencies of any PFH, as well as a PFH for axSpA, psoriasis, AAU, inflammatory bowel disease (IBD) and reactive arthritis (ReA), were determined per geographical region. Logistic regression models were built to assess the effect of HLA-B27 status on the occurrence of any PFH and each disease in a PFH in the total population and also stratified per geographical region.

Results: In total, 2,048 patients were included from 4 regions: Asia (n=545), Europe & North America (n=840), Latin America (n=202), and Middle East & North Africa (n=461). Patients had a median age (IQR) of 40 (31-50) years, 31% were female, and had a disease duration of 11 (5-20) years.

A PFH of axSpA was the most common in all geographical regions, regardless of HLA-B27 carriership. A PFH of psoriasis and IBD appeared to be more common in HLA-B27 negative patients, and a PFH of ReA was rare in all patients (figure 1). Univariable logistic regression models showed an association between a PFH and HLA-B27 carriership in the Asian population, but this association does not seem apparent in the other geographical regions (table 1). Contrary, a PFH of axSpA was associated with HLA-B27 carriership in all geographical regions except the Middle East & North Africa (table 1). An association between HLA-B27 carriership and a PFH of psoriasis was solely present in Middle East & North Africa (OR=0.4, 95% CI 0.2-0.7), and an association with a PFH of IBD was solely present in Europe & North America (OR=0.5, 95% CI 0.3-0.9). No associations were found for HLA-B27 carriership and a PFH of AAU and ReA in any geographical region. There was also no effect modification of geographical region (p=0.43) on the association between HLA-B27 status and a PFH.

Table 1. Univariable associations between HLA-B27 carriership and a positive family history of axSpA patients in the perSpA cohort stratified per geographical region

	HLA-B27+ n=1,609	HLA-B27- n=439	OR (95% CI)	p-value
Any positive family history				
Total population				
Yes	631	149	1.26 (1.01-1.57)	0.044
No	978	290	Ref.	
Per geographical region				
Asia	157/487	11/58	4.23 (2.26-7.91)	<0.001
Europe & North America	270/658	67/182	1.19 (0.89-1.61)	0.241
Latin America	50/164	9/38	1.65 (0.80-3.39)	0.175
Middle East & North Africa	154/300	62/161	0.74 (0.53-1.02)	0.063
Positive family history for axSpA				
Total population				
Yes	518	90	1.84 (1.43-2.38)	<0.001
No	1,087	348	Ref.	
Per geographical region				
Asia	144/487	11/58	4.19 (2.24-7.83)	<0.001
Europe & North America	196/658	30/182	2.09 (1.40-3.13)	<0.001
Latin America	37/164	3/38	3.95 (1.21-12.89)	0.023
Middle East & North Africa	141/300	46/161	0.98 (0.69-1.40)	0.917

axSpA, axial spondyloarthritis; CI, confidence interval; HLA-B27, human leucocyte antigen B27; OR, odds ratio

Conclusion: Throughout the world, axSpA was the most common form of SpA in a family history. In all regions except Middle East & North Africa, a PFH of axSpA was associated with HLA-B27 carriership in axSpA patients. These results suggest that the current expert definition of a PFH of SpA should be reevaluated.

Figure 2. Frequency of positive family history per disease split per region for HLA-B27 positive patients (A) and HLA-B27 negative patients (B)

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