Table 2. Descriptive data of MNA and NRS-2002 in rheumatic diseases.

	NUTRITIONAL SCREENING TOOLS				
	MNA	NRS-2002	NRS-2002*	Rho	p
All Rheumatic Diseases					
Total Score, n(SD)	24.31 (3.48)			.23	.004
Malnutrition, n(%)	4 (2.6)	5 (3.3)	5 (3.3)		
Risk, n(%)	55 (36.2)	147 (96.7)	41 (27)		
Normal, n(%)	93 (61.2)		106 (69.7)		
Rheumatoid Arthritis					
Total Score, n(SD)	24.43 (3.23)			.43	.05
Malnutrition, n(%)	1 (1.4)	2 (2.9)	2 (2.9)		
Risk, n(%)	22 (31.4)	68 (97.1)	15 (21.4)		
Normal, n(%)	47 (67.1)		53 (75.7)		

Conclusion: MNA was a more sensible tool for detecting risk of malnutrition when compared to NRS-2002. Screening tools play an important role at nutritional evaluation and should be complemented with objective methods such as BIA.¹ Rheumatologists must be aware that nutritional disorders affect the state of rheumatic diseases; and selecting an appropriate tool to detect malnutrition is of vital importance.

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Figure 1. Graphic 1. Nutritional screening tools in rheumatic disorders. Total N= 152 patients. MNA= Mini Nutritional Assessment NRS-2002= Nutritional Risk Screening Tool-2002. NRS-2002*= Nutritional Risk Screening Modified with 3 parameters.

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AB1301-HPR COMORBIDITIES AND FACTORS INFLUENCING RECURRENT GOUT ATTACK IN PATIENTS WITH GOUT: A CROSS-SECTIONAL STUDY

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Background: Gout attack is characterized by painful arthritis, loss of function and reduced quality of life. Frequent gout attacks can exert negative an influence on gout management [1].

Objectives: The objective was to identify the comorbidities of gout, to compare gender difference and to identify independent factors of multiple gout attacks.

Methods: A cross-sectional study was performed to collect demographic, clinical variables, self-reported comorbidities, and relevant testing. Group comparison and correlation of serum uric acid (sUA) levels with other variables was performed. Univariate and multivariate logistic regression was used to detect independent risk factors of sUA.

Results: 653 gout patients were enrolled, including 553 (84.7%) males. The mean age was 48.3±15.8 years old, with a disease duration of 8.0±6.4 years. 170 (26.0%) patients had hypertension, and 57 (8.7%) had hyperlipidemia. Elevated total cholesterol (TC) was observed in 173 (26.5%) cases. 42 (37.1%) cases presented with increased triglycerides (TG) and 270 (41.3%) had increased low-density lipoprotein (LDL-C). Abnormalities including nephrolithiasis (29.4%), hydronephrosis (3.2%), and gallstones (11.9%) were detected in the patients who underwent ultrasound examination. Although female patients had a longer disease duration, they had lower levels of sUA, creatine and C-reactive protein (CRP). A positive correlation with sUA was found in TG and CRP ($P<0.05$) in

female patients, which was not observed in males. Only gout duration (OR=1.406, $P<0.001$), sUA (OR=1.006, $P<0.001$) and LDL-C (OR=0.530, $P=0.006$) were independent factors of gout attack (>20 times).

Conclusion: Comorbidity screening involving dyslipidemia is often neglected in gout patients. Gout duration and sUA level are risk factors of multiple gout attacks.

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Table 1 Comparisons of clinical and laboratory variables between male and female patients with gout

Variable	Male (n=553)	Female (n=100)	p
Age (years)	47.7±15.9	51.3±14.5	0.040*
BMI (kg/ m2)	24.5 (22.0-27.0)	23.3 (20.3-25.3)	0.001*
Gout duration (years)	6.0 (3.0-11.0)	9.5 (4.0-15.0)	0.001*
Gout attack times			
•≤5	209 (37.5)	33 (33.0)	
•6-10	97 (17.5)	22 (22.0)	
•11-20	70 (12.7)	22 (23.0)	
•>20	177 (32.0)	23 (23.0)	
Comorbidities			
Hypertension, n (%)	138 (25.0)	32 (32.0)	0.140
Coronary heart disease, n (%)	57 (10.3)	10 (10.0)	0.926
Fatty liver disease	53 (9.6)	4 (4.0)	0.069
Laboratory testing			
•ALT (U/L)	25.0 (17.0-40.0)	19.2 (14.6-29.0)	0.003*
•ALB (g/L)	43.5±6.3	42.4±3.9	0.025*
•TB (μmol/L)	12.7 (9.0-17.3)	14.5 (12.1-17.4)	0.002*
•BUN (mmol/L)	4.85 (3.98-6.27)	4.85 (3.91-4.82)	0.588
•Creatine (mmol/L)	94.0 (81.4-108.1)	73.8 (67.4-87.2)	<0.001*
•UA (μmol/L)	528.4±141.1	363.8±122.9	<0.001*
•Glucose (mmol/L)	5.62±1.67	5.43±1.17	0.317
•TC (mmol/L)	5.05±1.15	5.09±1.10	0.726
•TG (mmol/L)	2.11±1.66	1.94±1.86	0.335
•HDL-C (mmol/L)	1.14±0.30	1.52±0.41	<0.001*
•LDL-C (mmol/L)	3.25±0.97	3.39±0.92	0.182
•ESR (mm/h)	40.1±32.4	37.4±20.8	0.402
•CRP (mg/L)	28.0±40.3	10.5±18.6	<0.001*

* $p < 0.05$; BMI: body mass index; sUA: serum uric acid; ALT: alanine aminotransferase; ALB: albumin; TB: Total bilirubin; BUN: blood urea nitrogen; UA: uric acid; TC: total cholesterol; TG: triglycerides; HDL-C: high-density lipoprotein; LDL-C: Low-density lipoprotein; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein

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AB1302-HPR ASSOCIATIONS OF SLEEP ON GOUT PREVALENCE AND SERUM URIC ACID CONCENTRATIONS

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Background: Sleep deprivation and sleep inconsistency have been associated with modulation of the immune and inflammatory response systems with effects that include higher risk for psychosis, cardiovascular disease, and increased susceptibility to infection. One hypothesized mechanism to explain these findings is an association with pro-inflammatory states.

Objectives: In a first-of-its kind study, we examined associations between sleep quantity and gout using the largest public US dataset available; the National Health and Nutrition Examination Survey (NHANES).

Methods: NHANES data from 2009 to 2014 was selected based on questionnaire responses and laboratory studies. The resulting data set was analyzed for serum uric acid (SUA) levels (cut-off >6.0mg/dL in females and >7.0mg/dL in males), and gout risk factors. Analysis of variance, means, proportions, as well as univariate and multiple logistic regression models were used to evaluate the associations between sleep quantity, SUA and gout.

Results: 10,410 survey participants from 2003 to 2014 were included in the study. A total of 280 (2.7%) had gout. Gout prevalence ranged between 4.0% and 4.7% between high, normal, and low sleep groups. Multivariate analyses showed a significant association between extremely low sleep levels (OR = 0.53 and CI = 0.34 to 0.83), and gout, which was also seen with SUA level association (OR = 0.41 and CI = 0.32 to 0.52). However, in the broader sense, lower than normal (<7 hours) and higher than normal (>9 hours) levels of sleep had no significant associations with either gout prevalence or SUA, likely due to a non-linear relationship of SUA to sleep levels.

Conclusion: Despite numerous adverse effects found with low sleep levels, our study does not show a strong association between sleep quantity and gout prevalence or SUA levels.

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AB1303-HPR

TIME UNTIL DIAGNOSIS IN RHEUMATOLOGICAL PRACTICE: RESULTS FROM A CROSS-SECTIONAL MIDDLE-EUROPEAN COHORT COMPARED TO DATA FROM A SYSTEMATIC LITERATURE REVIEW

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Background: The time from first symptom to diagnosis (= diagnostic delay) is considered as key factor for better outcome in many chronic inflammatory rheumatic diseases, especially for rheumatoid arthritis (RA) and vasculitides like giant cell arteritis (GCA). A longer diagnostic delay may cause pain, reduced functionality, reduced life-quality and increased morbidity, as well as structural damages of the organs linked with higher mortality. This retrospective study assessed the diagnostic delay in consecutive Middle-European outpatients and compared results with those of a systematic literature review (SLR).

Objectives: To compare disease-specific diagnostic delays of consecutive rheumatic patients with international data from a systematic literature review.

Methods: Charts of a single-centre cohort with consecutively recruited patients were retrospectively reviewed for patients' and diseases' characteristics at a Middle-European university outpatient clinic for rheumatology. A SLR was performed according to PRISMA guidelines.

Results: The average mean $\pm$ SD time from first symptom to established diagnosis was 7.9 ± 11.7 (0.02-56.7) years. Spondyloarthritis patients showed the longest diagnostic delay with 13.1 ± 14.2 (0.1-56.7) years, whereas polymyalgia rheumatica-patients had the shortest diagnostic delay with 1.5 ± 0.4 (0.3-18.0) months. In the SLR, most data for diagnostic delays are comparable to the Innsbruck cohort, but the diagnostic delay for psoriatic arthritis in Innsbruck is longer than in the Danish DANBIO registry ($p < 0.001$). Independent risk factors for prolonged diagnostic delays could not be identified.

Conclusion: For this Middle-European area, initiatives are justified especially to shorten diagnostic delays of SpA and PsA.

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AB1304-HPR

KNOWLEDGE OF HIGH SCHOOL STUDENTS ABOUT RHEUMATIC DISEASES: EFFECT OF AN EDUCATIONAL SESSION JOINTLY PROVIDED BY PORTUGUESE EULAR ASSOCIATIONS

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Background: International studies have shown that the awareness and knowledge of the general population about rheumatic and musculoskeletal diseases (RMDs) is poor. This is even lower in the young population, which are also affected by these disease but do not have as much awareness campaigns as adult community. Their professors and primary health care professionals may also play here also a key role, promoting early detection of signs and interpretations of symptoms, thus avoiding late health care referrals and diagnosis. (Vlieland, 2016).

Objectives: To assess the knowledge of high school Portuguese students about the RMDs and raise awareness for RMDs in young people, their professors, vigilants, and primary care nurses, within the school environment.

Methods: A 1-hour educational session about RMDs was planned (with the inputs from members of the Portuguese EULAR Associations) and performed during school activities. The educational session started with a knowledge questionnaire about RMDs in a paper sheet (9 questions; Graph 1), repeated in the end. An interactive session, using slides, interactive questions (Sli.do®), and practical demonstrations to simulate RMD symptoms (e.g. stiffness and functional limitations) was then lead by a rheumatology nurse, with the testimony from a young patient representative. A primary care nurse assisted in order to be engaged and promote future sessions ("autonomously"). Change in knowledge was assessed with Wilcoxon-test and awareness was documented with "word clouds" (using Sli.do®).

Results: A total of 75 students participated in four sessions (mode=16 years). Half of students (52%) had never heard about RMDs. Knowledge increased significantly in all questions ($p < 0.001$; Graph 1). Figures 1 and 2 document the most common words representing what defines a RMD and what are the main symptoms, respectively.

Graph 1. Change in the percentage of correct answers before and after na educational session (n=75) (all $p < 0.001$)

Figure 1. "One to two words" to define "Rheumatic diseases" by college students (n=75) after an educational session