
Supplementary information

**Sex- and gender-related differences in
psoriatic arthritis**

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Supplementary Table 1: Studies showing a trend in female predominance in PsA

Serial no.	Reference Group	PsA definition	Sample size	Geographic area	Duration	Effect size/ Sex ratio
1¹	Population-based	Diagnosed by rheumatologist	488,435	Greece	1982-2001	Inc: 2.87 M, 3.14 F per 100,000 Prev: 54.3 M, 57.9 F per 100,000
2²	Population-based	Diagnosed by a rheumatologist from a psoriasis registry and from hospital discharge	134,253	Iceland	2003	Prev: 118 M (95% CI 93-147), 208 F (95% CI 175-245) per 100,000
3³	Population based	CASPAR criteria	616,000	Turkey	2003-2012	Inc: 2.15 in M, 3.47 in F per 100,000 Prev: 21.5 in M (16.4-26.6) and 34.7 in F (28-41.4) per 100,000
4⁴	Population based	ICD 10 code	5.7 million	Denmark	1997-2011	Prev: 41.9 % M, 58.1% F Inc: 16.7 in M, 22.9 in F
5⁵	Population-based	PsA diagnosis by rheumatologist, in	2.9 million	Israel	2006-2015	Prev: 0.147% M, 0.159% F

		hospital discharge or in primary care + DMARD (cs or b)				
6⁶	Population-based	ICD 10 code by any physician	4.7 million	Denmark	2015	Prev: 54.5 – 59.8% in F
7⁷	Population-based	ICD 10 code (Outpatient or inpatient)	971,910	Germany	2012-2016	Female predominance at all ages. F 9.9% vs. 7% in M 55-59 yrs
8⁸	Population based	ICD 10 codes and reimbursement for PsA related care procedures	> 67 million	France	2015-2018	Prev: 45.6% M, 54.6% F
9⁹	Psoriasis registry	PsA cases identified from a psoriasis registry (not mentioned specific case def)	2472	Czech Republic	2005-2020	Inc: 33% M, 43.5% F
10¹⁰	Population based	2 ICD-10 codes, with at least 1 by rheumatologist/internal medicine specialist	19,484,795 PY	Norway	2011-2015	Inc: 23.4 M (95% CI 22.5-24.4) M, 28.4 F (27.4 – 29.5) per 100,000 PY

Supplementary Table 2: Comparison of clinical and radiographic features of psoriatic arthritis between male and female patients

Serial no.	Country	Setting	Study type	Sample size (M/F)	Outcome of interest	Findings	Effect size (M:F)
1¹¹	Norway	derm, single centre	CSS	50 (25 M/25 F)	Clinical features and Radiological sacro-iliitis	No sex differences	
2¹²	Canada	rheum, single centre	CSS	590 (345 M/245 F)	Clinical	M: Axial disease and nail involvement more frequent. F: Peripheral arthritis more frequent	Psoriatic nail lesion: M: 59.6% vs. F: 47.3%, p=0.003
					Radiological	M: Radiographic damage more severe	Radiographic axial: M:F OR 1.8 (95% CI 1.2, 2.6) Peripheral joint (by mSS): M:F OR 1.6 (95% CI 1.1, 2.2)
3¹³	Sweden	rheum, single centre	LOS, cohort	72 (29 M/43 F)	Radiological	M: associated with structural damage of peripheral joint (by Wassenberg score)	Wassenberg score: M:F OR 4.09 (95% CI 1.2, 13.8)
4¹⁴	10 IberoAmerica Centers	multicentre	CSS	147 (85 M/62 F)	Clinical	M: Higher SJC	SJC (mean, SD): M: 2.4 (4.4) vs. F: 4.9 (8.5) , p= 0.04

					Radiological	M: Higher radiographic spinal damage	BASRI (mean, SD): M: 7.2 (4.2) vs. F: 4.8 (3.1), p = 0.001
5 ¹⁵	Italy	24 PsO clinics,	LOS, cohort	225 (121 M/104 F)	Clinical	F: higher TJC, M: more severe psoriasis	TJC (mean, SD): M: 8.3 vs. F: 11.9, p=0.03 SJC (mean, SD): M: 3.4 vs. F: 5.1 (F), p=0.11 PASI (mean, SD): M: 8.0 (7.7) vs. F: 5.8 (6.9), p=0.028
					Disease activity	F: Higher axial disease activity	BASDAI: M: 36.5 (22.8) vs. F: 44.9 (22.9), p=0.036
6 ¹⁶	USA	30 rheum centres - CORRONA registry	CSS	1567 (758 M/809 F)	Clinical	F: associated with clinically detected enthesitis No sex difference in dactylitis	Among patients with enthesitis, M: 41% vs. F: 59%, p < 0.05. Among patients with dactylitis, M: 52% vs. F: 48% females, p = ns
7 ¹⁷	Turkey	32 rheum centres	CSS	1081 (702 M/379 F)	Clinical	F: more frequent peripheral arthritis and less axial disease	Peripheral arthritis: M: 59.4% vs. F: 68.5% F, p=0.011 Axial disease: M: 11% vs. F: 8.9%, p=0.011
					Disease activity	F: Higher disease activity scores and	DAS28 (mean, SD): 3.21 M: (1.38) vs. F: 3.61 (1.28), p < 0.001

						lower rates of remission	Remission (DAS 28): M: 33.9% vs. F: 22.8%, p < 0.001
8¹⁸	Turkey	Rheum, multicentre	CSS	187 (72/115)	Clinical	F: Higher TJC, SJC M: Worse psoriasis	TJC (mean, SD): M: 4.6 (7.9) vs. F: 8.2 (10.8), p= 0.01 SJC (mean, SD): M: 0.9 (1.7) vs. F: 2.0 (4.4), p=0.015 PASI: (mean, SD): M: 15.9 (5.9) vs. F: 8.3 (4.6), p <0.0001
					Disease activity	F: Worse DAS28 and BASDAI	DAS28 (mean, SD): M: 3.1 (0.5) vs. F:3.9 (0.2), p <0.0001 BASDAI (mean, SD): M: 3.1 (0.7) vs. F: 4.1 (0.7), p < 0.0001
9¹⁹	Turkey	rheum, single centre	CSS	117 (39 M/78 F)	Clinical	No sex differences in axial metrology	BASMI: No sex difference
					Disease activity	F: worse axial disease activity scores	BASDAI (median): M: 2.4 vs. F: 4.7, p < 0.001 CPDAI: No sex difference
10²⁰	USA	28 rheum centre CORRONA?	CSS	1530 (744 M/786 F)	Clinical	No sex difference in axial involvement	Among patients with axial involvement, M: 46% vs. F: 54%, p=0.55

11²¹	14 countries	21 rheum centres	LOS, cohort	458 (230 M/228 F)	Clinical	F: Higher clinical enthesitis scores	LEI (mean, SD): M: 0.3 (0.9) vs. F: 0.8 (1.7) , p < 0.001
					Disease activity	F: higher disease activity scores. F: less likely to achieve MDA	DAPSA (mean, SD): M: 12.6 (16.6) vs. F: 16.9 (14.9), p=0.004 MDA (mean, SD): M: 50% vs. F: 25.7%, p < 0.001 VLDA (mean, SD): M: 19.5% vs. F: 5.8%, p < 0.001
12²²	Turkey	25 rheum centres	CSS	1018 (366 M/652 F); axial PsA 373 (150M/223F)	Clinical	F: Peripheral arthritis, enthesitis, dactylitis, gluteal pain and hip pain more frequent M: More severe psoriasis	PASI (Median, range): M: 2 (0-24) vs. F: 1 (0-47), p=0.005
					Radiological	F: higher rate of spondylitis in first 10 years of disease, M: higher rates of spondylitis after 10 years.	Spondylitis in 5-10 years: M: 20.7% vs. F: 25.6%. Spondylitis in 15-20 years: M: 6% vs. 4.9% OR for spondylitis in M:F 1.46 (95% CI 1.12, 1.93)

					Disease activity	F: Higher disease activity scores in the peripheral and axial joints	DAS28 (mean, SD): 2.87 (1.15) vs. F: 3.49 (1.09), $p < 0.001$ BASDAI (mean, SD): M: 3.35 (2.23) vs. F: 4.54 ± 2.17 , $p < 0.001$
13²³	Turkey	multicentre	CSS	1038 (360M/678F)	Clinical features	M: Higher prevalence of spondylitis and higher PASI F: Higher TJC	Spondylitis: M: 41.9% vs. F: 35.3%, $p < 0.05$ TJC (Median, IQR): M: 2(5) vs. F: 3 (7), $p < 0.001$ PASI (Median, IQR): M: 2.1 (3.6) vs. F: 1.5 (2.9), $p < 0.01$
					Disease activity	F: Lower remission rates	DAS 28 remission: M: 32.8% vs. F: 17.6% $p < 0.001$ cDAPSA remission: M: 13.1% vs. F: 7.7%, $p < 0.01$ MDA: M: 22.5% vs. F: 15.5%, $p < 0.01$

* BASDAI, Bath ankylosing spondylitis disease activity index; BASFI, BASMI, Bath ankylosing spondylitis metrology index; BASRI, Bath ankylosing spondylitis radiology index; cDAPSA, clinical Disease Activity of Psoriatic Arthritis; CI, confidence interval; CPDAI, Composite Psoriatic Disease Activity Index; CSS, cross sectional study; DAPSA, disease activity of psoriatic arthritis; DAS28, disease activity score 28; Derm., dermatology; IQR, Interquartile Range; LEI, Leeds enthesitis index; LOS, longitudinal study; MDA, minimal disease activity; mSS, modified Steinbrocker Score; ns, non significant; OR, Odds Ratio; PASI, psoriasis area severity index; PsO, psoriasis; Rheum., rheumatology; SD, standard deviation; SJC, swollen joint count; TJC, tender joint count; VLDA, Very Low Disease Activity; vs., versus;

Supplementary Table 3: Comparison of patient reported outcomes and work disability in psoriatic arthritis between male and female patients

Serial no.	Country	Setting	Study type	Sample size, Total (M/F)	Outcome of interest	Findings	Effect size (M:F)
1 ²⁴	Norway	5 rheum centres	CSS	271 (169 M/102 F)	Work disability	F: higher work disability	WD: (patients receiving Work disability pension) M: 17.4% vs. F: 32.7% in F, p= 0.004. Male to Female OR 0.48 (95% CI 0.23, 0.97)
2 ²⁵	UK	national registry - BSRBR	LOS, cohort	254 (109 M/145 F)	Work disability	F: higher work disability	Among PsA patients taking anti-TNF therapy and work disabled, 72% female and 28% males (p < 0.001)
3 ²⁶	Sweden	regional registry – SSATG register	LOS, cohort	191 (103 M/88 F)	Work disability	F: higher work disability	WD: M:F OR 0.4 (95% CI 0.2, 0.9)
4 ¹²	Canada	rheum, single centre	CSS	590 (345 M/245 F)	Patient reported outcomes	F: Worse QoL, function and fatigue	HAQ: M: 0.48 (0.63) vs. F: 0.81 (0.68), p < 0.001. FSS: M: 4.1 (3) vs. F: 5 (3.1), p < 0.001 SF PCS: M: 42.4 (11.9) vs. F: 37.8 (11.1), p < 0.001 BASFI: M: 2.5 (2.7) vs. F: 3.6 (2.7), p < 0.001
5 ²⁷	Canada	rheum, single centre	CSS	186 (112 M/74 F)	Work disability	F: higher work disability	WLQ: M: F OR 0.32 (95% CI 0.09, 1.10)
6 ²⁸	UK	rheum, single centre	CSS	34 (12 M/22 F)	Clinical	F: associated with MTP pain	Pain: M:F OR 0.48 (95% CI 0.28, 0.83)

7²⁹	13 European countries	Rheum centers	CSS	246 (119 M/127 F)	Patient reported outcome	F: worse fatigue (>5 out of 10)	Fatigue: M: F OR 0.55 (95% CI 0.29, 1.03), p=0.06
8¹⁴	10 IberoAmerica Centers	multicentre	CSS	147 (85 M/62 F)	Patient reported outcome	F: Worse quality of life	ASQoL (mean, SD): M: 6.4 (5.5) vs. F: 8.6 (5.3), p=0.06
9¹⁵	Italy	24 PsO clinics	LOS, cohort	225 (121 M/104 F)	Patient reported outcome	F: Higher global assessment of disease activity	PGA: M: 47 vs. F: 55.6, p=0.013
10¹⁷	Turkey	32 rheum centres	CSS	1081 (702 M/379 F)	Patient reported outcome	F: Worse physical function and fatigue	HAQ (mean, SD): M: 0.66 (0.67) vs. F: 0.74 (0.64), p=0.014 Fatigue VAS (mean, SD): M: 42.0 (28.6) vs. F: 48.5 (24.6); p=0.002
11¹⁸	Turkey	Rheum, multicentre	CSS	187 (72M/115F)	Patient reported outcome	F: Worse physical function and fatigue	BASFI: M: 2.7 ±0.8 vs. F: 2.0± 0.7, p <0.001 HAQ: M: 1.6 ±1.0 vs. F: 2.1± 0.7, p <0.0001 FSS: M: 10.9 ±14.3 vs. F: 15.8± 16.3, p= 0.04
12¹⁹	Turkey	rheum, single centre	CSS	117 (39 M/78 F)	Patient reported outcome	F: Worse physical function and quality of life s	BASFI (median, min-max): M: 1 (0-6) vs. F: 3.3 (0-10), p < 0.001 HAQ (median, min-max): M: 0.5 (0-2.5) vs. F: 0.62 (0-2.5) i, p=0.04 ASQoL (median, min-max): M: 4 (0-17) vs. F: 8 (0-18), p=0.01 PGA (median, min-max): M: 30 (0-100) vs. F: 50 (0-100), p < 0.0001

13³⁰	USA	regional registry – UPI (Utah Psoriasis Initiative) arthritis registry	CSS	253 (115 M/138 F)	Patient reported outcomes	F: Worse pain scores and physical function	Pain (mean, SD): M: 4.9 (2.7) vs. F: 5.8 (2.8), p=0.02 Fatigue (BASDAI fatigue) (mean, SD): M: 5.4 (2.7) vs. F: 6.6 (2.4), p < 0.001 HAQ: M: 0.6 (0.5) vs. F: 0.9 (0.6), p < 0.001
14²¹	14 countries	21 rheum centres	LOS, cohort	458 (230 M/228 F)	Patient reported outcome	F: Worse pain, fatigue and physical dysfunction	PGA NRS (mean, SD): M: 3.5 (2.7) vs. F: 4.8 (2.6), p < 0.001 Pain NRS (mean, SD): M: 3.5 (2.7) vs. F: 4.7 (2.7), p < 0.001 Fatigue NRS (mean, SD): M: 3.2 (2.8) vs. 5F: .2 (3.0), p < 0.001 HAQ-DI (mean, SD): M: 0.5 (0.6) vs. F: 0.9 (0.7), p < 0.001 PsAID (mean, SD): M: 2.8 (2.3) vs. F: 4.1 (2.4), p < 0.001
15³¹	Singapore	rheum, single centre	CSS	131 (66 M/65 F)	Patient reported outcome	No sex difference in fatigue scores (measured by BASDAI-F)	
16²²	Turkey	25 rheum centres	CSS	1018 (366 M/652 F); axial PsA 373 (150M/223F)	Patient reported outcome	F: More severe fatigue and poorer quality of life	VAS-fatigue (median, min-max): M: 5 (0-10) vs. F: 6 (0-10), p < 0.001 PsAQoL (median, min-max): M: 4 (0-20) vs. F: 8 (0-20), p < 0.001 SF PCS (mean ± SD): M: 60.21 ± 22.88 vs. F: 49.28 ± 22.43 p < 0.001

							SF MCS (mean $\pm$ SD): M: 58.95 $\pm$ 20.98 vs. F: 49.56 $\pm$ 21.81, $p < 0.001$
17 ²³	Turkey	multicentre	CSS	1038 (360M/678F)	Patient reported outcome	F: More pain and poorer functional status	VAS pain (mean $\pm$ SD): M: 47.1 $\pm$ 24.8 vs. F: 52.1 $\pm$ 24.7, $p < 0.001$ VAS PGA (mean $\pm$ SD): M: 46 $\pm$ 24.6 vs. F: 49.5 $\pm$ 23.7, $p < 0.001$ HAQ (median, IQR): M: 0.2 (0.5) vs. F: 0.4 (0.7), $p < 0.001$ SF PCS (median, IQR): M: 65.5 (35.9) vs. F: 50.5 (38.7), $p < 0.001$ SF MCS (median, IQR): M: 63 (33.9) vs. F: 52 (38.2), $p < 0.001$

* ASQoL, ankylosing spondylitis quality of life; BASDAI, Bath ankylosing spondylitis disease activity index; BASFI, Bath ankylosing spondylitis functional index; CI, confidence interval; CSS, cross sectional study; Derm., dermatology; FACIT, functional assessment of chronic illness therapy; FSS, fatigue severity scale; HAQ, health assessment questionnaire; HAQ DI, Health Assessment Questionnaire Disability Index; IQR, Interquartile Range; LOS, longitudinal study; MTP, metatarsophalangeal; NRS, numerical scale; OR, Odds Ratio; PGA, patient global assessment; PsAID, Psoriatic Arthritis Impact of Disease; PsAQoL, psoriatic arthritis quality of life; PsO, psoriasis; QoL, Quality of Life; Rheum., rheumatology; SD, standard deviation; SF MCS, short form 36 mental component score; SF PCS, short form 36 physical component score; TNF, Tumor Necrosis Factor; VAS, Visual Analogue Scale; vs., versus; WD, Work Disability; WLQ, Work Limitations Questionnaire

Supplementary Table 4: Comparison of response to advanced therapies in male and female patients with psoriatic arthritis

Serial no.	Country	Setting	Study type	Sample size, Total (M/F)	Medication	Outcome measure	Effect size, OR (95% CI) (M:F)
1 ³²	UK	National registry - BSRBR	LOS, cohort	596 (280 M/316 F)	ETN, ADA, IFX	EULAR good response (at 6m)	OR 1.96 (1.28, 2.94)
						Remission (at 6m)	OR 2.94 (1.75, 4.76)
2 ³³	9 European countries	multicentre	LOS, cohort	442 (221 M/221 F)	ADA	ACR50 response (at 12w)	OR 1.77 (1.12, 2.79)
						EULAR good response	OR 2.24 (1.39, 3.59)
3 ³⁴	Denmark	National registry-DANBIO	LOS, cohort	764 (368 M/396 F)	ETN, ADA, IFX	EULAR Good response	OR 1.5 (1.0, 2.2)
						ACR20/50/70 response	Sex not associated with ACR responses
4 ³⁵	Sweden	6 rheum centres	LOS, cohort	197 (83 M/114 F)	ETN, ADA, IFX	MDA (at 5y)	OR 1.62 (0.79, 3.31)
						Remission (at 5y)	OR 2.32 (1.09, 4.94)
5 ³⁶	Canada	Rheum, single centre	LOS, cohort	226 (148 M/78 F)	ETN, ADA, IFX, GOL	MDA	OR 1.65 (1.08, 2.53)
6 ³⁷	Italy	Rheum, single centre	LOS, cohort	58 (25 M/33 F)	ETN, ADA, GOL	MDA	OR 3.40 (1.02, 11.25)
7 ³⁸	Italy	Rheum, single centre	LOS, cohort	75 (35 M/40 F)	ETN, GOL, ADA	MDA (at 12m)	OR 2.2 (0.6, 8.6)
8 ³⁹	Italy	Rheum, single centre	LOS, cohort	221 (96 M/125 F)	TNFi (Not specified)	DAS28 remission (at 22, 54 and 102w)	OR 3.3 (1.7, 10) OR 5 (2,10) OR 2 (1, 5)
						CPDAI remission (at 22, 54 and 102w)	OR 5 (2,10) OR 3.3 (1.7, 10) NS

						DAPSA remission (at 22, 54 and 102w)	OR 5 (2,10) OR 5 (1.7, 10) NS
						MDA (at 22, 54 and 102w)	OR 3.3 (1.7, 5) OR 3.3 (2,10) OR 3.3(1,10)
9⁴⁰	Portugal	National registry- Reuma.pt	LOS, cohort	180 (82 M/98 F)	ETN, ADA, IFX, GOL	Good EULAR response (at 6m)	OR 16.7 (3.1, 90.9)
						Moderate or Good EULAR response (at 6m)	OR 2.85 (0.7, 11.4)
						DAS28 remission (at 6m)	16.7 (3.4, 83.3)
10⁴¹	Finland	National registry – ROB-FIN	LOS, cohort	765 (398 M/367 F)	ETN, ADA, IFX, GOL	ACR response (at 6m)	OR 1.53 (1.04, 2.24)
11⁴²	USA	32 rheum centres, CORRONA	LOS, cohort	148 (68 M/80 F)	ETN, ADA, IFX, GOL, CTZ, UST, Apremilast	MDA	No sex difference
12⁴³	Denmark	National registry- DANBIO	LOS, cohort	1750 (812M/937F)	ETN, ADA, IFX, GOL, CTZ	Moderate or Good EULAR (at 3m)	OR 1.46 (0.85, 2.52)
						Moderate or Good EULAR (at 6m)	OR 3.15 (1.62, 6.13)
						EULAR good response (at 3m)	OR 1.71 (1.04, 2.80)
						EULAR good response (at 6m)	OR 3.82 (2.25, 6.46)

						ACR20 response (at 3m)	OR 1.03 (0.56, 1.91)
						ACR20 response (at 6m)	OR 3.11 (1.68, 5.75)
						ACR50 response (at 3m)	OR 2.09 (1.14, 3.82)
						ACR50 response (at 6m)	OR 3.52 (1.90, 6.52)
13⁴⁴	Italy	multicentre	LOS, cohort	608 (251 M/357 F)	SEC	MDA	OR 1.60 (1.05, 2.45)
14⁴⁵	Ireland	Rheum, single centre	LOS, cohort	129 (60M/69F)	ETN, ADA, IFX, GOL, CTZ, RIT, TOC, ABA, IXE, SEC, UST, TOF, BAR	Remission	OR 4.48 (1.25 - 16.01)

*All ORs are from multivariate or adjusted models (unless specified)

* ABA, Abatacept; ACR, American College of Rheumatology; ADA, Adalimumab; BAR, Baricitinib; CPDAI, Composite Psoriatic Disease Activity Index; CTZ, Certolizumab pegol; DAPSA, disease activity of psoriatic arthritis; DAS28, disease activity score 28; ETN, Etanercept; EULAR, European League Against Rheumatism; GOL, Golimumab; IFX, Infliximab; IXE, Ixekizumab; LOS, longitudinal study; m: months; MDA, Minimal Disease Activity; NS, non significant; OR, Odds Ratio; Rheum., Rheumatology; RIT, Rituximab; SEC, Secukinumab; TOC, Tocilizumab; TOF, Tofacitinib; TNFi, Tumor Necrosis Factor inhibitors; UST, Ustekinumab; w: weeks; y: years.

Supplementary Table 5: Comparison of drug persistence in male and female patients with PsA

Serial no.	Country	Setting	Study type	Sample size Total (M/F)	Medication	Drug survival	Effect size, HR (95% CI) (F:M)
1⁴⁶	UK	National registry-BSRBR	LOS, cohort	566 (266 M/300 F)	ETN, ADA, IFX	Premature drug D/C	HR 1.29 (1.01, 1.65)
						D/C due to Inefficacy	HR 1.45 (0.82, 2.64)
						D/C due to AE	HR 1.58 (0.78, 3.22)
2³⁴	Denmark	National registry-DANBIO	LOS, cohort	764 (368 M/396 F)	ETN, ADA, IFX	Premature drug D/C	HR 1.42 (1.11, 1.80)
						D/C due to AE	HR 1.8 (1.3, 1.9)
3⁴⁷	Italy	2 rheum clinics	LOS, cohort	328 (129 M/199 F)	ETN, ADA, IFX	Drug D/C	HR 1.63 (1.00, 2.68)
4⁴⁸	Italy	3 Rheum centres	LOS, cohort	420 (163 M/257 F)	ETN, ADA, IFX	Drug D/C	HR 2.02 (1.28, 3.20)
5⁴⁹	Italy	4 rheum centres	LOS, cohort	298 (154 M/144 F)	ETN, ADA, IFX	Drug D/C	OR 1.6 (1.10, 2.42)
6⁴¹	Finland	National registry - ROB-FIN	LOS, cohort	765 (398 M/367 F)	ETN, ADA, IFX, GOL	Drug persistence	HR 0.69 (0.54, 0.89)
7⁴³	Denmark	National registry - DANBIO	LOS, cohort	1750 (812 M/937 F)	ETN, ADA, IFX, GOL, CTZ	Drug D/C	HR 1.52 (1.23, 1.89)
						Drug D/C due to AE	HR 1.98 (1.27, 3.09)
						Drug D/C due to lack of efficacy	HR 1.45 (1.08, 1.95)
8⁵⁰	UK	Rheum, single centre	LOS, cohort	188 (92 M/96 F)	ETN, ADA	Drug D/C	HR 2.57 (1.26, 5.24)

9⁵¹	Greece	7 rheum centres	LOS, cohort	375 (203 M/172 F)	ETN, ADA, IFX, GOL	Drug D/C	HR 1.6 (1.2, 2.2)
10⁵²	UK	National registry-BSRBR	LOS, cohort	625 (291 M/334 F)	ETN, ADA, IFX	Lower Drug persistence	OR 0.56 (0.40, 0.78)
11⁵³	Brazil	multicentre	LOS, cohort	11008 (5679 M/5329F)	ETN,ADA, IFX	Drug D/C (by12m)	HR 1.09 (1.03 1.15)
						Drug D/C (by 18m)	HR 1.07 (1.02, 1.13)
						Drug D/C (at 24m)	HR 1.08 (1.02, 1.14)
12⁵⁴	Brazil	multicentre	LOS, cohort	161 (70 M/91 F)	ETN,ADA, IFX	Drug D/C (at 6m)	HR 2.42 (1.03, 5.69)
						Drug D/C (at 12m)	HR 2.65 (1.40, 5.02)
13⁵⁵	Italy	16 rheum centres	LOS, cohort	424 (227 M/197 F)	ADA	Drug persistence by 24m	OR 1.98 (1.2, 3.2)
14⁵⁶	Italy	3 rheum centres	LOS, cohort	292 (123 M/169 F)	ETN, ADA, IFX, GOL, CTZ, UST, SEC	Premature drug D/C	HR 1.57 (0.93, 2.62)
15⁵⁷	Norway	multicentre	LOS, cohort	266 (118 M/148 F)	GOL	Premature drug D/C (by 4 y)	HR 1.50 (1.05, 2.13)
16⁵⁸	Sweden	multicentre	LOS, cohort	3918	ADA, UST, SEC	Premature drug D/C	HR 1.40 (1.30, 1.50)
17⁵⁹	Portugal	National registry – Reuma.pt	LOS, cohort	750 (373M/377F)	ETN, ADA, IFX, GOL	Premature Drug D/C	HR 2.10 (1.29–3.41), p 0.003.
						D/C due to ineffectiveness	RRR 2.18 (1.08,4.41), p 0.029
18⁴⁴	Italy	multicentre	LOS, cohort	608 (251 M/357 F)	SEC	Premature drug D/C	HR 1.47 (1.03, 2.08)

19⁶⁰	Italy	National registry - GISEA	LOS, cohort	552 (232 M/320 F)	GOL	Premature drug D/C	HR 1.57 (1.05, 2.33)
20⁴⁵	Ireland	Rheum, single centre	LOS, cohort	129 (60 M/69 F)	ETN, ADA, IFX, GOL, CTZ, RIT, TOC, ABA, IXE, SEC, UST, TOF, BAR	Drug persistence (at 12 y)	OR 1.33 (0.42, 4.2)
21⁶¹	Germany	Rheum centres	LOS, cohort	348 (184M/164F)	ETN, ADA, IFX, GOL, CTZ, RIT, TOC, ABA, IXE, SEC, UST	Premature drug D/C	HR 1.85 (1.3, 2.6)

*All HRs and ORs are from multivariate or adjusted models (unless specified)

* ABA, Abatacept; ADA, Adalimumab; AE, Adverse Events; BAR, Baricitinib; CTZ, Certolizumab pegol; D/C, Discontinuation; ETN, Etanercept; GOL, Golimumab; HR, Hazard Ratio; IFX, Infliximab; IXE, Ixekizumab; LOS, longitudinal study; m: months; OR, Odds Ratio; Rheum., Rheumatology; RIT, Rituximab; SEC, Secukinumab; TOC, Tocilizumab; TOF, Tofacitinib; UST, Ustekinumab; y: years; .

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