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**Table SI.** Demographics and clinical characteristics of patients included in the study

		<b>N=15159*</b>	<b>%</b>
Sex	Male	10107	66.7%
	Female	5052	33.3%
Age (years)	18 - 34	2814	18.6%
	35 - 49	5227	34.5%
	50 - 64	4811	31.7%
	65+	2307	15.2%
BMI (kg/m <sup>2</sup> )	<25.0	5301	36.3%
	25.0 - 29.9	6084	41.7%
	30.0 - 35.0	2348	16.1%
	35.0+	851	5.8%
Smoking habits	Never	5990	40.4%
	Yes	5983	40.4%
	Ex-smoker	2847	19.2%
Alcohol consumption	Never	8950	61.8%
	Regular drinker	5251	36.3%
	Ex-drinker	276	1.9%
Main comorbidities**	PsA	3551	23.4%
	PPP	269	1.8%
	Tuberculosis	705	4.7%
	Type II diabetes <sup>‡</sup>	633	4.2%
	Arterial hypertension <sup>‡</sup>	3110	20.5%
	Hyperlipemia <sup>‡</sup>	1375	9.1%
	Metabolic syndrome <sup>#</sup>	676	4.5%
	Heart disease <sup>†</sup>	516	3.4%
	Liver disease	615	4.1%
	Kidney disease	248	1.6%
	Lung disease	233	1.5%
	Neoplasm <sup>^</sup>	216	1.4%
Gastro-intestinal diseases <sup>°</sup>	159	1.0%	
No. of comorbidities	0	7021	46.3%
	1	4995	33.0%
	2	2307	15.2%
	3+	836	5.5%
Age at PsO diagnosis (years)	<18	2835	19.1%
	18 - 29	4631	31.2%
	30 - 44	4022	27.1%
	45+	3353	22.6%
PsO duration <sup>§</sup> (years)	<10	4874	32.8%
	10 - 19	4398	29.6%
	20+	5569	37.5%
Diagnostic delay (years)	0	11091	74.8%
	1+	3742	25.2%
PsO localizations**	Head	11524	76.0%
	Face	4252	28.0%

		<b>N=15159*</b>	<b>%</b>
	Trunk	12635	83.3%
	Upper/lower limbs	13761	90.8%
	Folds	3534	23.3%
	Palmoplantar	3286	21.7%
	Nail	5596	36.9%
PsO morphology**	Classic plaque lesions	12948	85.4%
	Guttate lesions	654	4.3%
	Erythrodermic features	427	2.8%
PASI	<10	1974	17.9%
	10 - 20	5294	48.0%
	20+	3769	34.1%
Pruritus intensity (VAS)	None/mild (0 - 3.9)	5158	40.9%
	Moderate (4 - 6.9)	3361	26.7%
	Strong/very strong (7 - 10)	4085	32.4%
Hospitalization for PsO in the last 5 years	No	10860	73.4%
	Yes	3945	26.6%
Previous systemic therapy for PsO	0	5998	39.6%
	1	4085	26.9%
	2	3262	21.5%
	3+	1814	12.0%
Type**	Conventional	9099	60.0%
	Biological	681	4.5%

BMI: body mass index, No: number, PASI: psoriasis area severity index, PPP: palmoplantar pustulosis, PsA: psoriatic arthritis, PsO: psoriasis, VAS: visual analogue scale [0-10]

\* Numbers may not add up to the total due to missing data

\*\* More than one category per patient is possible

^ Excluding non-melanoma skin cancer

° Including: gastritis, ulcer, Crohn's disease, colitis of various kinds

† Including: coronary artery disease, heart failure and cerebrovascular accidents

§ PsO duration since diagnosis

# Defined by metabolic syndrome criteria of International Diabetes Federation

Ç Excluding patients with metabolic syndrome

**Table SII.** Latent class analysis model selection criteria according to different number of classes

No. classes	Log-likelihood	AIC	BIC	No. parameters
1	-72780.5	145583.1	145667.0	11
2	-69019.8	138095.6	138309.1	28
3	-67131.2	134352.3	134695.5	45
4	-66339.8	132803.6	133276.4	62
5*	-66019.8	132197.6	132800.1	79
6	-66019.8	132231.6	132963.7	96
7	-69019.8	138265.6	139127.4	113
8	-69016.9	138293.9	139285.3	130

AIC: Akaike information criterion, BIC: Bayesian information criterion

\* Model with the lowest BIC

**Table SIII.** Latent class analysis of PsO phenotypes, estimated class conditional probability

	Class conditional probability (95% CI)				
	LC1, 41.8% (39.5-44.1)	LC2, 31.4% (29.4-33.4)	LC3, 13.8% (12.9-14.7)	LC4, 8.4% (7.4-9.4)	LC5, 4.5% (3.8-5.3)
Estimated class proportions (95% CI)					
<i>Localization</i>					
Head	.699 (.683-.714)	.921 (.908-.933)	.374 (.348-.401)	.990 (.977-1)	.962 (.941-.983)
Face	.109 (.095-.124)	.402 (.379-.425)	.069 (.054-.083)	.710 (.661-.758)	.864 (.815-.914)
Trunk	.922 (.910-.934)	.956 (.947-.964)	.176 (.144-.208)	.926 (.905-.948)	1 (nc)
Upper/lower limbs	.978 (.971-.985)	.966 (.959-.973)	.623 (.597-.648)	.761 (.729-.794)	.994 (.986-1)
Folds	.061 (.049-.074)	.476 (.449-.503)	.097 (.081-.113)	.079 (.056-.102)	.833 (.783-.883)
Genitalia	.016 (.007-.026)	.384 (.359-.409)	.085 (.070-.101)	.00088 (.00086-.00089)	.637 (.584-.691)
Palmoplantar	.112 (.100-.123)	.257 (.236-.277)	.349 (.323-.374)	.068 (.047-.088)	.782 (.724-.840)
Nail	.232 (.216-.248)	.551 (.528-.573)	.221 (.199-.242)	.350 (.313-.387)	.860 (.820-.900)
<i>PsO morphology</i>					
Classic plaque lesions	.918 (.908-.928)	.940 (.930-.950)	.785 (.764-.806)	.345 (.291-.399)	.830 (.795-.866)
Guttate lesions	.040 (.033-.046)	.064 (.055-.073)	.014 (.008-.021)	.031 (.015-.046)	.044 (.023-.066)
Erythrodermic features	.010 (.007-.014)	.029 (.021-.036)	.004 (.001-.006)	.002 (0-.007)	.312 (.263-.360)

CI: confidence interval, LC: latent class, nc: not computable

**Table SIV.** Multivariate analysis comparing latent classes (LCs) against LC3 as reference

		<b>Multivariate analysis (LC3 ref)****</b>							
		LC1		LC2		LC4		LC5	
		OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Sex:	Male	1		1		1		1	
	Female	0.50 (0.44-0.56)	<0.001	0.50 (0.44-0.58)	<0.001	0.51 (0.43-0.60)	<0.001	0.27 (0.21-0.35)	<0.001
Age (yrs)	18-34	1		1		1		1	
	35-49	0.78 (0.65-0.93)	0.006	0.52 (0.43-0.63)	<0.001	0.20 (0.16-0.25)	<0.001	0.83 (0.58-1.16)	0.275
	50-64	0.63 (0.53-0.76)	<0.001	0.34 (0.28-0.41)	<0.001	0.05 (0.04-0.07)	<0.001	0.67 (0.47-0.96)	0.029
	65+	0.77 (0.63-0.95)	0.015	0.28 (0.23-0.36)	<0.001	0.03 (0.02-0.04)	<0.001	0.83 (0.55-1.24)	0.359
BMI (kg/m <sup>2</sup> )	<25.0	1		1		1		1	
	25.0-29.9	0.91 (0.80-1.04)	0.176	.96 (0.83-1.11)	0.540	1.70 (1.41-2.04)	<0.001	0.60 (0.47-0.77)	<0.001
	30.0-35.0	1.05 (0.88-1.26)	0.608	1.29 (1.06-1.57)	0.012	1.22 (0.92-1.60)	0.166	0.63 (0.45-0.88)	0.007
	35.0+	1.12 (0.85-1.49)	0.417	1.32 (.98-1.79)	0.070	1.13 (.73-1.76)	0.574	0.54 (0.32-0.91)	0.021
Smoking habits	Never	1		1		1		1	
	Yes	0.98 (0.86-1.12)	0.777	1.55 (1.34-1.79)	<0.001	0.87 (0.73-1.04)	0.117	2.35 (1.82-3.03)	<0.001
	Ex-smoker	0.89 (0.75-1.05)	0.161	1.40 (1.17-1.68)	<0.001	0.39 (0.30-0.52)	<0.001	1.64 (1.19-2.25)	0.002
Alcohol consump	Never	1		1		1		1	
	Regular	1.00 (0.88-1.14)	0.987	1.24 (1.08-1.43)	0.003	0.65 (0.53-0.79)	<0.001	1.47 (1.16-1.85)	0.001
	Ex-drinker	1.24 (0.75-2.03)	0.398	1.81 (1.07-3.06)	0.027	0.77 (0.35-1.70)	0.513	3.12 (1.55-6.32)	0.002
Main	PsA	0.79 (0.70-0.90)	<0.001	0.94 (0.81-1.09)	0.401	0.27 (0.21-0.34)	<0.001	1.21 (0.95-1.55)	0.122

		Multivariate analysis (LC3 ref)****							
		LC1		LC2		LC4		LC5	
		OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
comorb. <sup>◇</sup> (yes vs no)	PPP	0.14 (0.09-0.20)	<0.001	0.20 (0.13-0.33)	<0.001	0.05 (0.01-0.20)	<0.001	0.15 (0.06-0.37)	<0.001
	TB	0.90 (0.69-1.19)	0.476	0.86 (0.64-1.17)	0.343	0.32 (0.17-0.59)	<0.001	0.56 (0.33-0.98)	0.042
	Diabetes <sup>§</sup>	1.45 (1.07-1.98)	0.016	1.48 (1.05-2.08)	0.024	1.24 (0.74-2.08)	0.418	1.44 (0.86-2.42)	0.162
	Hypert. <sup>§</sup>	1.07 (0.92-1.25)	0.360	1.21 (1.02-1.44)	0.028	0.90 (0.70-1.16)	0.420	1.61 (1.22-2.12)	0.001
	Hyperlip. <sup>§</sup>	0.90 (0.74-1.09)	0.289	1.16 (0.93-1.44)	0.188	1.04 (0.77-1.40)	0.785	1.29 (0.90-1.84)	0.164
	Metab.syn. <sup>#</sup>	1.14 (0.84-1.55)	0.401	1.17 (0.84-1.64)	0.359	0.71 (0.41-1.22)	0.213	1.23 (0.68-2.20)	0.492
	Heart dis. <sup>†</sup>	1.02 (0.74-1.42)	0.894	1.15 (0.80-1.66)	0.441	0.89 (0.47-1.67)	0.709	1.36 (0.79-2.33)	0.273
	Liver dis.	1.20 (0.87-1.66)	0.269	1.71 (1.21-2.42)	0.002	0.62 (0.35-1.09)	0.097	1.91 (1.16-3.14)	0.011
	Kidney dis.	1.52 (0.87-2.65)	0.137	2.47 (1.38-4.43)	0.002	0.59 (0.21-1.68)	0.321	4.32 (2.07-9.04)	<0.001
	Lung dis.	1.08 (0.70-1.66)	0.735	0.92 (0.55-1.52)	0.736	0.56 (0.23-1.35)	0.198	1.20 (0.53-2.73)	0.666
	Neoplasm <sup>^</sup>	0.92 (0.58-1.48)	0.744	1.14 (0.67-1.92)	0.629	1.08 (0.48-2.39)	0.859	1.57 (0.71-3.47)	0.263
	Gastr. dis. <sup>°</sup>	0.86 (0.51-1.48)	0.595	0.99 (0.55-1.78)	0.963	1.32 (0.64-2.70)	0.45	0.43 (0.09-1.97)	0.276
No. of comorb.	0	1		1		1		1	
	1	0.84 (0.73-0.96)	0.013	1.03 (0.89-1.20)	0.691	0.50 (0.41-0.61)	<0.001	1.28 (0.98-1.66)	0.068
	2	0.80 (0.66-0.95)	0.014	1.08 (0.88-1.32)	0.461	0.36 (0.27-0.49)	<0.001	1.44 (1.03-2.02)	0.033
	3+	0.75 (0.58-0.97)	0.029	1.09 (0.82-1.46)	0.555	0.17 (0.09-0.32)	<0.001	1.90 (1.21-2.97)	0.005
Age at PsO diagnosis (years)	<18	1		1		1		1	
	18-29	0.75 (0.62-0.91)	0.004	0.74 (0.60-0.91)	0.004	0.41 (0.33-0.51)	<0.001	0.58 (0.42-0.81)	0.001

		Multivariate analysis (LC3 ref)****							
		LC1		LC2		LC4		LC5	
		OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
	30-44	0.44 (0.36-0.54)	<0.001	0.40 (0.32-0.49)	<0.001	0.04 (0.03-0.06)	<0.001	0.36 (0.25-0.51)	<0.001
	45+	0.19 (0.15-0.24)	<0.001	0.18 (0.14-0.23)	<0.001	0.004 (0.002-0.007)	<0.001	0.13 (0.08-0.19)	<0.001
PsO duration <sup>§</sup> (years)	<10	1		1		1		1	
	10-19	1.97 (1.72-2.27)	<0.001	2.33 (2.00-2.72)	<0.001	3.85 (3.08-4.81)	<0.001	2.30 (1.73-3.05)	<0.001
	20+	3.27 (2.83-3.79)	<0.001	3.87 (3.29-4.55)	<0.001	19.20 (15.37-23.99)	<0.001	4.32 (3.28-5.67)	<0.001
Diagnostic delay (years)	0	1		1		1		1	
	1+	0.83 (0.73-0.95)	0.007	1.02 (0.89-1.18)	0.748	1.41 (1.18-1.69)	<0.001	0.82 (0.64-1.06)	0.136
PASI	<10	1		1		1		1	
	10-20	2.93 (2.60-3.29)	<0.001	2.38 (2.09-2.70)	<0.001	11.58 (9.59-13.98)	<0.001	1.19 (0.86-1.65)	0.294
	20+	33.12 (22.17-49.48)	<0.001	64.54 (43.14-96.57)	<0.001	11.76 (7.05-19.61)	<0.001	146.0 (93.83-227.1)	<0.001
Pruritus intensity (VAS)	0-3.9	1		1		1		1	
	4-6.9	1.04 (0.90-1.21)	0.599	1.35 (1.15-1.58)	<0.001	0.29 (0.23-0.38)	<0.001	1.55 (1.17-2.07)	0.003
	7-10	0.89 (0.77-1.03)	0.121	1.54 (1.32-1.80)	<0.001	0.34 (0.27-0.42)	<0.001	2.33 (1.80-3.01)	<0.001
Hospit. for PsO in the last 5 years	No	1		1		1		1	
	Yes	1.37 (1.19-1.58)	<0.001	2.13 (1.83-2.48)	<0.001	0.47 (0.37-0.60)	<0.001	3.99 (3.16-5.04)	<0.001

		Multivariate analysis (LC3 ref)****							
		LC1		LC2		LC4		LC5	
		OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Prev. systemic	0	1		1		1		1	
Therapy for PsO	1	1.12 (0.98-1.29)	0.099	1.18 (1.01-1.38)	0.038	0.21 (0.17-0.26)	<0.001	1.43 (1.04-1.96)	0.027
	2	1.49 (1.26-1.75)	<0.001	2.11 (1.76-2.52)	<0.001	0.31 (0.24-0.40)	<0.001	3.29 (2.39-4.54)	<0.001
	3+	2.02 (1.57-2.61)	<0.001	3.80 (2.91-4.96)	<0.001	0.41 (0.29-0.59)	<0.001	9.00 (6.18-13.11)	<0.001
Type <sup>◇</sup> (yes vs no)	Conv.	1.31 (1.17-1.48)	<0.001	1.71 (1.50-1.95)	<0.001	0.26 (0.22-0.31)	<0.001	2.83 (2.17-3.68)	<0.001
	Bio.	2.22 (1.60-3.09)	<0.001	3.06 (2.16-4.33)	<0.001	0.89 (0.54-1.46)	0.632	8.52 (5.46-13.28)	<0.001

CI: confidence interval, No: number, OR: odds ratio, PASI: psoriasis area severity index, PPP: palmoplantar pustulosis, PsA: psoriatic arthritis, PsO: psoriasis, SD: standard deviation, TB: tuberculosis, VAS: visual analogue scale [0-10]

\* Multinomial logistic regression including the following variables: age, sex, BMI, PASI, disease duration

◇ More than one category per patient is possible

† Including: coronary artery disease, heart failure and cerebrovascular accidents

§ Psoriasis duration since diagnosis

Ç Excluding patients with the metabolic syndrome