

SUPPLEMENTARY

Supplementary Table 1. Anatomical Therapeutic Classification (ATC) codes

Medication	ATC codes
Systemic glucocorticoids	H02AB
Betamethasone	H02AB01
Dexamethasone	H02AB02
Methylprednisolone	H02AB04
Prednisolone	H02AB06
Prednisone	H02AB07
Triamcinolone	H02AB08
Hydrocortisone	H02AB09
Inhaled medications	
Salmeterol	R03AC12
Formeterol	R03AC13
Indacaterol	R03AC18
Olodaterol	R03AC19
Tiotropium	R03BB04
Aclidinium	R03BB05
Glycopyrronium	R03BB06
Umeclidinium	R03BB07
Salmeterol and fluticasone	R03AK06
Formeterol and budesonide	R03AK07
Formeterol and beclomethasone	R03AK08
Vilanterol and fluticasone	R03AK10
Formeterol and fluticasone	R03AK11
Beclomethasone	R03BA01
Budesonide	R03BA02
Flunisolide	R03BA03
Fluticasone	R03BA05
Mometasone	R03BA07
Ciclesonide	R03BA08
Vilanterol and umeclidinium	R03AL03
Indacaterol and glycopyrronium	R03AL04
Formeterol and aclidinium	R03AL05
Olodaterol and tiotropium	R03AL06
Beclomethasone	R03BA01
Budesonide	R03BA02
Flunisolide	R03BA03
Fluticasone	R03BA05
Mometasone	R03BA07
Ciclesonide	R03BA08

Supplementary Table 2. Equivalency table presenting systemic glucocorticoids and corresponding prednisolone conversion factors.

	Equivalent glucocorticoid dose	Prednisolone conversion factor
Cortisone	25	0.2
Cortisol	20	0.25
Methylprednisolone	4	1.25
Prednisolone	5	1
Prednisone	5	1
Triamcinolone	4	1.25
Dexamethasone	0.75	6.67
Betamethasone	0.6	8.33

Cumulative dose calculation:

The cumulative dose was calculated by multiplying the number of pills/injections, dose per pill/injection, and prednisolone conversion factor for each prescription and then adding them up across all prescriptions.

Supplementary Table 3. Prevalence of lifestyle factors according to current new use and current continuing use of glucocorticoid in women and men. Percentages are weighted

	Women		Men	
	Current new use N (%)	Current continuing use N (%)	Current new use N (%)	Current continuing use N (%)
All	78 (100)	223 (100)	77 (100)	185 (100)
Median age (range), years	59 (26-88)	67 (28-94)	59 (28-92)	68 (32-94)
Body Mass Index				
< 18.5	<5 (-)	14 (6.3)	<5 (-)	5 (4.8)
18.5-24	42 (51)	84 (34)	23 (25)	65 (37)
25-29	21 (30)	68 (31)	35 (50)	81 (38)
≥30	8 (8.2)	42 (21)	17 (20)	30 (18)
Missing	<5 (-)	15 (8.1)	<5 (-)	<5 (-)
Smoking				
Current	20 (25)	46 (18)	22 (32)	42 (25)
Former	26 (31)	85 (37)	39 (47)	87 (42)
Never	30 (43)	77 (39)	15 (20)	52 (30)
Missing	<5 (-)	15 (5.8)	<5 (-)	<5 (2.5)
Diet				
Unhealthy	< 5 (-)	25 (11)	16 (18)	31 (14)
Reasonably healthy	49 (63)	132 (62)	51 (71)	108 (58)
Healthy	22 (28)	50 (20)	8 (7.4)	30 (16)
Missing	< 5 (-)	16 (5.9)	<5 (-)	16 (12)
Alcohol intake				
Low risk consumption	65 (86)	166 (77)	55 (71)	129 (70)
High risk consumption	12 (13)	31 (12)	18 (19)	44 (22)
Missing	<5 (-)	26 (11)	<5 (-)	12 (8.0)
Participation in regular leisure time physical activity				
No	38 (46)	133 (63)	50 (65)	125 (65)
Yes	39 (53)	82 (34)	26 (33)	56 (32)
Missing	<5 (-)	<5 (-)	<5 (-)	<5 (-)

Current new use: First-ever redemption of a prescription ≤ 90 days before completing the questionnaire. Current continuing use: First-ever prescription redemption more than 90 days before completing the questionnaire, but most recent prescription ≤ 90 days.

Supplementary Table 4. Age-adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs) for lifestyle factors comparing glucocorticoid users to never users, stratified by sex.

Category	aPR (95% CI)	
	Women	Men
Obesity		
Current new use	0.7 (0.3 to 1.4)	1.4 (0.9 to 2.3)
Current continuing use	1.7 (1.2 to 1.6)	1.4 (1.0 to 1.3)
Ever smoking		
Current new use	1.1 (0.9 to 1.4)	1.3 (1.1 to 1.4)
Current continuing use	1.1 (1.0 to 1.1)	1.0 (1.0 to 1.1)
High risk alcohol consumption		
Current new use	0.6 (0.9 to 1.0)	0.9 (0.8 to 1.4)
Current continuing use	0.6 (0.3 to 1.0)	1.1 (0.9 to 1.2)
Unhealthy diet		
Current new use	0.6 (0.2 to 1.9)	1.1 (0.7 to 1.9)
Current continuing use	1.5 (0.9 to 2.4)	1.0 (0.9 to 1.1)
No participation in regular leisure time physical activity		
Current new use	0.9 (0.7 to 1.3)	1.2 (1.0 to 1.4)
Current continuing use	1.3 (1.0 to 1.1)	1.1 (1.0 to 1.3)

Current new use: First-ever redemption of a prescription \leq 90 days before completing the questionnaire. Current continuing use: First-ever prescription redemption more than 90 days before completing the questionnaire, but most recent prescription \leq 90 days.

Supplementary Table 5. Age- and sex- adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs) for lifestyle factors comparing glucocorticoid users to never users, stratified by potential chronic obstructive pulmonary disease (COPD).

Characteristics	aPR (95% CI)	
	Potential COPD	No COPD
Obesity		
Ever	1.1 (0.9-1.3)	1.3 (1.2-1.4)
Current	1.0 (0.7-1.5)	1.2 (1.0-1.6)
Recent	1.0 (0.7-1.4)	1.3 (1.1-1.6)
Former	1.0 (0.8-1.4)	1.2 (1.1-1.4)
Smoking		
Ever	1.1 (1.0-1.1)	1.0 (1.0-1.1)
Current	1.1 (0.9-1.2)	1.1 (1.0-1.2)
Recent	1.1 (1.0-1.3)	1.1 (1.0-1.1)
Former	1.0 (1.0-1.1)	1.0 (1.0-1.1)
High risk alcohol consumption		
Ever	0.9 (0.7-1.1)	0.9 (0.9-1.0)
Current	1.0 (0.7-1.5)	0.8 (0.6-1.0)
Recent	0.6 (0.4-1.0)	0.9 (0.7-1.0)
Former	0.9 (0.7-1.2)	1.0 (0.9-1.1)
Unhealthy diet		
Ever	1.1 (0.8-1.6)	1.0 (0.9-1.1)
Current	1.6 (1.0-2.5)	0.9 (0.6-1.2)
Recent	1.3 (0.8-2.0)	1.0 (0.7-1.2)
Former	0.8 (0.6-1.3)	1.0 (0.9-1.2)
No leisure time physical activity		
Ever	1.1 (1.0-1.2)	1.0 (1.0-1.1)
Current	1.2 (1.1-1.4)	1.1 (1.0-1.2)
Recent	1.2 (1.0-1.3)	1.1 (1.0-1.2)
Former	1.1 (1.0-1.2)	1.0 (0.9-1.0)

Potential COPD was defined as at least two prescriptions for a long-acting beta2 agonist (LABA), a long-acting muscarinic receptor antagonist (LAMA), or an inhaled corticosteroid (ICS) (or combination thereof) after age 40, and no prescriptions for these agents redeemed at or before age 40.

Supplementary Table 6. Prevalence ratios (PRs) and 95% confidence intervals (CIs) for lifestyle factors comparing glucocorticoid users to never users in women, stratified by age group.

Category	PR (95% CI)			
	25-44 years of age	45 to 64 years of age	≥65 years of age	All
Obesity				
Ever	1.40 (1.13-1.72)	1.41 (1.21-1.65)	1.33 (1.07-1.65)	1.37 (1.23-1.52)
Current	1.37 (0.41-2.78)	1.56 (1.01-2.39)	1.32 (0.87-2.03)	1.33 (1.00-1.77)
Recent	1.86 (1.32-2.63)	1.95 (1.49-2.54)	1.72 (0.65-1.91)	1.66 (1.36-2.02)
Former	1.28 (0.99-1.65)	1.24 (1.03-1.49)	1.42 (1.10-1.84)	1.29 (1.13-1.47)
Smoking				
Ever	0.98 (0.87-1.10)	1.10 (1.03-1.17)	1.06 (0.96-1.16)	1.09 (1.04-1.14)
Current	1.34 (0.97-1.86)	1.19 (1.02-1.40)	1.14 (0.86-1.26)	1.16 (1.03-1.31)
Recent	0.89 (0.84-1.12)	1.08 (0.95-1.22)	1.26 (1.07-1.47)	1.11 (1.01-1.23)
Former	0.97 (0.85-1.12)	1.09 (1.02-1.17)	1.00 (0.89-1.12)	1.07 (1.01-1.13)
High risk alcohol consumption				
Ever	0.74 (0.56-0.98)	0.90 (0.80-1.03)	0.71 (0.57-0.89)	0.86 (0.78-0.96)
Current	0.47 (0.10-2.20)	0.76 (0.48-1.22)	0.53 (0.31-0.90)	0.65 (0.46-0.92)
Recent	0.78 (0.45-1.37)	0.69 (0.51-0.94)	0.58 (0.33-1.02)	0.71 (0.56-0.91)
Former	0.75 (0.54-1.04)	0.98 (0.85-1.13)	0.82 (0.64-1.06)	0.95 (0.84-1.07)
Unhealthy diet				
Ever	1.18 (0.86-1.63)	1.10 (0.79-1.44)	1.28 (0.95-1.72)	1.18 (0.99-1.41)
Current	0.61 (0.19-1.97)	1.55 (0.77-3.12)	1.48 (0.85-2.55)	1.45 (0.96-2.20)
Recent	1.11 (0.55-2.26)	1.21 (0.65-2.24)	1.22 (0.65-2.28)	1.17 (0.81-1.70)
Former	1.26 (0.88-1.80)	0.96 (0.67-1.38)	1.23 (0.86-1.76)	1.14 (0.92-1.40)
No leisure time physical activity				
Ever	0.98 (0.87-1.11)	1.13 (1.04-1.21)	1.11 (1.03-1.21)	1.12 (1.07-1.18)
Current	1.43 (1.05-1.96)	1.32 (1.09-1.58)	1.16 (1.00-1.36)	1.33 (1.19-1.49)
Recent	1.12 (0.81-1.29)	1.18 (1.01-1.19)	1.28 (1.11-1.47)	1.20 (1.09-1.33)
Former	0.93 (0.81-1.08)	1.09 (0.99-1.19)	1.05 (0.95-1.17)	1.06 (1.00-1.13)

Never use: Persons who never redeemed a prescription for a systemic glucocorticoid before completing the questionnaire. Ever use: At least one redemption of a prescription for a systemic glucocorticoid before completing the questionnaire. Current use: Redemption of a prescription for a systemic glucocorticoid ≤ 90 days before completing the questionnaire. Recent use: Redemption of a prescription for a systemic glucocorticoid 91-365 days before completing the questionnaire. Former use: Redemption of a prescription for a systemic glucocorticoid > 365 days before completing the questionnaire.

Supplementary Table 7. Prevalence ratios (PRs) and 95% confidence intervals (CIs) for lifestyle factors comparing glucocorticoid users to never users in men, stratified by age group.

Category	PR (95% CI)			
	25-44 years of age	45 to 64 years of age	≥65 years of age	All
Obesity				
Ever	1.13 (0.80-1.33)	1.30 (1.11-1.52)	1.22 (0.96-1.54)	1.19 (1.05-1.34)
Current	1.12 (0.41-2.54)	1.29 (0.84-1.98)	1.46 (0.94-2.27)	1.27 (0.95-1.71)
Recent	0.83 (0.50-1.38)	1.23 (0.85-1.79)	0.91 (0.51-1.62)	0.99 (0.75-1.29)
Former	1.12 (0.83-1.51)	1.32 (1.10-1.59)	1.22 (0.92-1.62)	1.23 (1.07-1.42)
Smoking				
Ever	1.12 (1.00-1.25)	1.11 (1.06-1.18)	1.08 (1.02-1.14)	1.17 (1.12-1.22)
Current	1.47 (1.12-1.91)	1.15 (0.99-1.33)	1.02 (0.90-1.15)	1.26 (1.16-1.38)
Recent	1.16 (0.95-1.41)	1.05 (0.93-1.19)	1.11 (0.99-1.24)	1.12 (1.02-1.22)
Former	1.05 (0.92-1.21)	1.13 (1.06-1.20)	1.09 (1.03-1.16)	1.17 (1.11-1.22)
High risk alcohol consumption				
Ever	1.16 (0.92-1.47)	0.95 (0.82-1.10)	1.04 (0.86-1.26)	1.06 (0.96-1.18)
Current	1.16 (0.54-2.51)	1.19 (0.84-1.69)	0.79 (0.51-1.22)	1.06 (0.82-1.38)
Recent	1.16 (0.76-1.77)	0.67 (0.46-0.97)	1.22 (0.85-1.77)	0.97 (0.77-1.22)
Former	1.17 (0.88-1.55)	0.98 (0.83-1.16)	1.08 (0.86-1.36)	1.10 (0.96-1.24)
Unhealthy diet				
Ever	1.00 (0.79-1.27)	1.02 (0.83-1.24)	0.93 (0.72-1.19)	0.97 (0.85-1.11)
Current	1.22 (1.07-1.69)	1.04 (0.61-1.77)	1.41 (0.94-2.11)	1.01 (0.73-1.38)
Recent	1.25 (0.85-1.84)	0.69 (0.41-1.19)	0.73 (0.43-1.24)	0.96 (0.72-1.27)
Former	0.98 (0.74-1.31)	1.09 (0.88-1.37)	0.82 (0.59-1.15)	0.97 (0.83-1.13)
No leisure time physical activity				
Ever	1.02 (0.90-1.16)	1.03 (0.96-1.10)	1.06 (0.98-1.14)	1.09 (1.03-1.14)
Current	1.17 (0.79-1.73)	1.21 (1.04-1.42)	1.18 (1.04-1.34)	1.31 (1.19-1.45)
Recent	1.10 (0.87-1.37)	0.97 (0.82-1.15)	1.07 (0.91-1.25)	1.05 (0.94-1.18)
Former	0.96 (0.82-1.13)	1.01 (0.93-1.10)	1.01 (0.92-1.11)	1.05 (0.98-1.12)

Never use: Persons who never redeemed a prescription for a systemic glucocorticoid before completing the questionnaire. Ever use: At least one redemption of a prescription for a systemic glucocorticoid before completing the questionnaire. Current use: Redemption of a prescription for a systemic glucocorticoid \leq 90 days before completing the questionnaire. Recent use: Redemption of a prescription for a systemic glucocorticoid 91-365 days before completing the questionnaire. Former use: Redemption of a prescription for a systemic glucocorticoid $>$ 365 days before completing the questionnaire.

