SUPPLEMENTAL MATERIAL

Table S1. Baseline characteristics of the total sample and subgroups of healthy population, fixed-ratio-only and lower limit of normal-defined airway obstruction.

Patient characteristics	Total sample	Healthy individuals#	Fixed ratio only (FR-only)	Lower limit of normal (LLN)	P-values		
	(n=10,329)	(n=8,475)	(n=912)	(n=946)	Healthy vs. FR-only	Healthy vs. LLN	FR-only vs. LLN
Sex (male), No. (%)	5,849 (48%)	4,067 (48%)	531 (58%)	407 (43%)	**<0.001**	0.004	**<0.001**
Age, mean (SD)	58.4 (9.6)	57.5 (9.4)	65.2 (7.4)	59.4 (9.5)	**<0.001**	**<0.001**	**<0.001**
Body Mass Index (BMI)							
Overall, mean (SD)	*26.6 (4.4)*	*26.7 (4.4)*	*26.5 (4.1)*	*25.6 (4.4)*	0.13	**<0.001**	**<0.001**
Underweight, n (%)	85 (1)	56 (1)	5 (1)	18 (2)	0.83	**<0.001**	0.01
Normal weight, n (%)	4,320 (38)	3,116 (37)	350 (38)	444 (47)	0.39	**<0.001**	**<0.001**
Overweight, n (%)	4,868 (43)	3,674 (44)	394 (43)	344 (36)	0.85	**<0.001**	0.003
Obese, n (%)	2,097 (18)	1,574 (19)	161 (18)	137 (15)	0.46	0.002	0.06
Smoking, n (%)							
Current smoking	2,273 (20)	1,354 (16)	260 (29)	420 (45)	**<0.001**	**<0.001**	**<0.001**
Former smoking	4,262 (37)	3,132 (37)	376 (41)	334 (36)	0.016	0.31	0.01
Never smoking	4,842 (43)	3,926 (47)	273 (30)	186 (20)	**<0.001**	**<0.001**	**<0.001**
Pack-years, mean (SD)	19.2 (18.0)	16.9 (16.3)	25.1 (20.1)	27.6 (20.8)	**<0.001**	**<0.001**	0.02

All individuals with LLN-AO had also FR-AO. The number of individuals with FR-AO only was 912. Thus, the comparison between the groups; healthy individuals (n=8,475), FR-AO only (n=912), and LLN-AO (n=946). The percentages are for available data and not the total number.

P-values < 0.0015 are emphasised in bold as they meet significance after Bonferroni correction for multiple comparisons.

Table S2.   Associations between airway obstruction defined by fixed ratio and lower limit of normal and clinical outcomes.

| | Healthy individuals (n=8,475) | Model 1 Airway obstruction | | Model 2 Airway obstruction |
		Fixed ratio (n=1,854)	Lower limit of normal (n=946)	FR+/LLN- (n=912) (ref.) vs. FR+/LLN+ (n=942)
Shortness of breath	N (%) OR (95% CI)	N (%) OR (95% CI)	N (%) OR (95% CI)	Ref. (%) vs. LLN (%) OR (95% CI)
- at rest	180 (2.1) **1.00**	66 (3.6) **1.62 (1.19-2.18)**	44 (4.7) **2.05 (1.45-2.89)**	(2.4) vs. (4.7) **1.77 (1.04-2.99)**
- during daily activity	52 (0.6) **1.00**	33 (1.8) **2.49 (1.58-3.93)**	22 (2.3) **3.46 (2.07-5.77)**	(1.2) vs. (2.3) 1.85 (0.88-3.89)
- during exercise	849 (10.1) **1.00**	359 (19.5) **2.02 (1.75-2.32)**	229 (24.4) **2.74 (2.31-3.25)**	(14.4) vs. (24.5) **2.10 (1.62-2.73)**
Chronic cough	529 (6.3) **1.00**	285 (15.6) **2.42 (2.06-2.84)**	185 (19.9) **3.23 (2.67-3.90)**	(11.3) vs. (19.8) **1.90 (1.43-2.51)**
Chronic phlegm	369 (4.4) **1.00**	211 (11.5) **2.41 (2.01-2.91)**	141 (15.1) **3.28 (2.64-4.07)**	(7.7) vs. (15.1) **2.04 (1.48-2.82)**
Chronic bronchitis	232 (2.8) **1.00**	146 (8.0) **2.67 (2.13-3.33)**	101 (10.8) **3.65 (2.85-4.68)**	(5.0) vs. (10.8) **2.19 (1.49-3.22)**
Nocturnal awakening	589 (7.0) **1.00**	162 (8.7) **1.21 (1.00-1.46)***	97 (10.3) **1.44 (1.14-1.82)**	(7.1) vs. (10.3) **1.45 (1.03-2.03)**
Wheeze	305 (3.6) **1.00**	215 (11.7) **3.08 (2.53-3.73)**	151 (16.1) **4.29 (3.44-5.34)**	(7.1) vs. (16.2) **2.48 (1.78-3.44)**

Multiple logistic regression analysis adjusted for age (as a dichotomous variable dividing the study sample at <60 years and ≥60 years, sex, ever-smoking and BMI. Chronic bronchitis defined according to ERS/ATS guidelines. Daily activities: cleaning and dressing. *P-value=0.044.

Table S3.   Severity of airway obstruction according to different staging systems.

Staging	GOLD (N=1,854)		ATS/ERS 2005 (N=946)		Quanjer 2014 (N=946)	
	N (% of total)	N (% of stage) with respiratory symptoms	N (% of total)	N (% of stage) with respiratory symptoms	N (% of total)	N (% of stage) with respiratory symptoms
Mild	1,045 (56%)	283 (27%)	604 (64%)	194 (32%)	628 (66%)	204 (32%)
Moderate	704 (38%)	352 (50%)	163 (17%)	91 (56%)	122 (13%)	73 (60%)
Moderately severe	N/A	N/A	87 (9%)	57 (66%)	102 (11%)	67 (66%)
Severe	90 (5%)	76 (85%)	59 (7%)	48 (82%)	74 (8%)	58 (78%)
Very severe	15 (1%)	13 (87%)	27 (3%)	26 (96%)	20 (2%)	19 (95%)