

## Fatigue is Highly Prevalent in Patients with Asthma and Contributes to the Burden of Disease

Supplementary material

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## Online Data Supplement

### Title

Fatigue is highly prevalent in patients with asthma and contributes to the burden of disease

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**Table S1.** Spearman rank correlation coefficients of demographical, health status and disease-specific characteristics with fatigue in asthmatic patients ( $n = 733$ ).

Demographical, health status and disease-specific characteristics	CIS-Fatigue (p)	
	Correlation coefficient	p-value
Gender (male)	$\rho$ 0.139	< <b>0.001</b>
Age (years)	$\rho$ -0.115	<b>0.002</b>
Weight (kg)	$\rho$ 0.030	0.414
Waist circumference <sup>a</sup> (cm)	$\rho$ 0.087	0.022
BMI (kg/m <sup>2</sup> )	$\rho$ 0.132	< <b>0.001</b>
Exacerbations last 12 months <sup>b</sup> (n)	$\rho$ 0.200	< <b>0.001</b>
Hospitalization last 12 months <sup>c</sup> (n)	$\rho$ 0.091	0.026
Smoking status <sup>d</sup> (current smoker)	$\rho$ -0.030	0.432
Level of education <sup>e</sup> (secondary general education or higher)	$\rho$ 0.145	< <b>0.001</b>
Employment status <sup>f</sup> (paid work)	$\rho$ -0.007	0.848
6MWT <sup>g</sup> (m)	$\rho$ -0.243	< <b>0.001</b>
FEV1 (L)	$\rho$ -0.083	0.025
FVC (L)	$\rho$ -0.158	< <b>0.001</b>
FEV1/VC*100 (%)	$\rho$ 0.133	< <b>0.001</b>
CCI <sup>h</sup> (p)	$\rho$ 0.070	0.162
MRC-Dyspnea <sup>i</sup> (p)	$\rho$ 0.435	< <b>0.001</b>
AQLQ <sup>j</sup> (p)	$\rho$ -0.554	< <b>0.001</b>
AQLQ symptoms <sup>j</sup> (p)	$\rho$ -0.477	< <b>0.001</b>
AQLQ activity limitation <sup>j</sup> (p)	$\rho$ -0.591	< <b>0.001</b>
AQLQ emotional function <sup>j</sup> (p)	$\rho$ -0.361	< <b>0.001</b>
AQLQ environmental exposure <sup>j</sup> (p)	$\rho$ -0.345	< <b>0.001</b>
ACQ <sup>k</sup> (p)	$\rho$ 0.455	< <b>0.001</b>

P-value in bold indicates a significant association with fatigue ( $p < 0.01$ ). Alphabetic characters in superscript indicates a sample size deviant from  $n = 733$  with: a.  $n = 696$ , b.  $n = 631$ , c.  $n = 601$ , d.  $n = 684$ , e.  $n = 686$ , f.  $n = 676$ , g.  $n = 652$ , h.  $n = 397$ , i.  $n = 532$ , j.  $n = 653$ , and k.  $n = 664$ . Abbreviations: AQLQ: Asthma Quality of Life Questionnaire; ACQ: Asthma Control Questionnaire; BMI: Body Mass Index; CIS-Fatigue: Checklist Individual Strength-Fatigue; CCI: Charlson Comorbidity Index; FEV1: Forced Expiratory Volume in one second; FEV1/VC\*100: Tiffeneau index; FVC: Forced Vital Capacity; n: number of

subjects; p: points; MRC-Dyspnea: Medical Research Council-Dyspnea; QoL: Quality of life; 6MWT: Six-Minute Walk Test.

**Table S2.** Multiple stepwise regression analysis of the significant variables associated with CIS-Fatigue.

Model	Adjusted R <sup>2</sup>	Predictors	Unstandardized coefficients		Standardized coefficients beta	t-value	Significant value
			B	SE			
1.	0.210	(Constant)	27.783	1.259		22.071	< 0.001
		ACQ	6.205	0.613	0.461	10.116	< 0.001
2.	0.275	(Constant)	25.118	1.287		19.510	< 0.001
		ACQ	4.280	0.672	0.318	6.373	< 0.001
		MRC-Dyspnea	2.978	0.503	0.295	5.915	< 0.001
3.	0.289	(Constant)	29.485	1.982		14.873	< 0.001
		ACQ	4.103	0.668	0.305	6.141	< 0.001
		MRC-Dyspnea	3.288	0.510	0.326	6.445	< 0.001
		Age	-0.098	0.034	-0.127	-2.877	0.004

Abbreviations: ACQ: Asthma Control Questionnaire; CIS-Fatigue: Checklist Individual Strength-Fatigue; MRC-Dyspnea: Medical Research Council-Dyspnea; SE: Standard Error.

**Table S3.** Spearman rank correlation coefficients of demographical, health status and disease-specific characteristics with disease-specific QoL in asthmatic patients (n = 653).

Demographical, health status and disease-specific characteristics	AQLQ (p)	
	Correlation coefficient	p-value
Gender (male)	$\rho$ -0.090	0.021
Age (years)	$\rho$ 0.115	< <b>0.001</b>
Weight (kg)	$\rho$ -0.071	0.070
Waist circumference <sup>a</sup> (cm)	$\rho$ -0.102	0.011
BMI (kg/m <sup>2</sup> )	$\rho$ -0.194	< <b>0.001</b>
Exacerbations last 12 months <sup>b</sup> (n)	$\rho$ -0.279	< <b>0.001</b>
Hospitalization last 12 months <sup>c</sup> (n)	$\rho$ -0.049	0.251
Smoking status <sup>d</sup> (current smoker)	$\rho$ -0.031	0.450
Level of education <sup>e</sup> (secondary general education or higher)	$\rho$ -0.156	< <b>0.001</b>
Employment status <sup>f</sup> (paid work)	$\rho$ -0.011	0.793
CIS-Fatigue (p)	$\rho$ -0.554	< <b>0.001</b>
6MWT <sup>g</sup> (m)	$\rho$ 0.287	< <b>0.001</b>
FEV1 (L)	$\rho$ 0.072	0.067
FVC(L)	$\rho$ 0.161	< <b>0.001</b>
FEV1/VC*100 (%)	$\rho$ -0.162	< <b>0.001</b>
CCI <sup>h</sup> (p)	$\rho$ -0.079	0.132
MRC-Dyspnea <sup>i</sup> (p)	$\rho$ -0.488	< <b>0.001</b>
ACQ <sup>j</sup> (p)	$\rho$ -0.777	< <b>0.001</b>

P-value in bold indicates a significant association with AQLQ (p < 0.01). Alphabetic characters in superscript indicates a sample size deviant from n = 653 with: a. n = 620, b. n = 574, c. n = 547, d. n = 612, e. n = 621, f. n = 610, g. n = 585, h. n = 361, i. n = 484, and j. n = 641. Abbreviations: AQLQ: Asthma Quality of Life Questionnaire; ACQ: Asthma Control Questionnaire; BMI: Body Mass Index; CIS-Fatigue: Checklist Individual Strengths-Fatigue; CCI: Charlson Comorbidity Index; FEV1: Forced Expiratory

Volume in one second; FEV1/VC\*100: Tiffeneau-index; FVC: Forced Vital Capacity; n: number of subjects; p: points; MRC-Dyspnea: Medical Research Council-Dyspnea; QoL: Quality of life; 6MWT: Six-Minute Walk Test.

**Table S4.** Multiple stepwise regression analysis of the significant variables associated with AQLQ.

Model	Adjusted R <sup>2</sup>	Predictors	Unstandardized coefficients		Standardized coefficients $\beta$	t-value	Significant value
			B	SE			
1.	0.298	(Constant)	6.920	0.171		40.370	< 0.001
		CIS-Fatigue	-0.053	0.004	-0.547	-12.750	< 0.001
2.	0.384	(Constant)	7.014	0.161		43.532	< 0.001
		CIS-Fatigue	-0.039	0.004	-0.397	-8.778	< 0.001
		MRC-Dyspnea	-0.322	0.044	-0.331	-7.338	< 0.001
3.	0.410	(Constant)	7.009	0.158		44.461	< 0.001
		CIS-Fatigue	-0.035	0.004	-0.362	-8.053	< 0.001
		MRC-Dyspnea	-0.319	0.043	-0.328	-7.427	< 0.001
		Exacerbations in the last 12 months	-0.133	0.031	-0.170	-4.230	< 0.001
4.	0.422	(Constant)	6.552	0.218		30.085	< 0.001
		CIS-Fatigue	-0.033	0.004	-0.339	-7.518	< 0.001
		MRC-Dyspnea	-0.348	0.044	-0.359	-7.989	< 0.001
		Exacerbations in the last 12 months	-0.135	0.031	-0.173	-4.349	< 0.001
		Age	0.009	0.003	0.121	3.011	0.003

Abbreviations: AQLQ: Asthma Quality of Life Questionnaire; CIS-Fatigue: Checklist Individual Strength-Fatigue; MRC-Dyspnea: Medical Research Council-Dyspnea; SE: Standard Error.