

Characteristics Associated with SGRQ in Alpha-1 Antitrypsin Deficiency-Associated Lung Disease: A Cross-Sectional Analysis



Radmila Choate¹, Kristen E. Holm^{2, 3}, Robert A. Sandhaus^{2, 3}, David M. Mannino⁴, Charlie Strange^{3,5}

¹ University of Kentucky College of Public Health, Lexington, Kentucky; ² Department of Medicine, National Jewish Health, Denver, Colorado; ³ AlphaNet, Inc., Coral Gables, Florida;

⁴ University of Kentucky College of Medicine, Lexington, Kentucky; ⁵ Division of Pulmonary, Critical Care, Allergy and Sleep Medicine, Medical University of South Carolina, Charleston, South Carolina

Introduction

- Health-related quality of life (HRQoL) is a critical outcome in clinical studies and an important measure of the patient-perceived burden of lung disease.
- The objectives of this study were to describe the HRQoL of people with AATD-associated lung disease participating in a disease management program and to evaluate factors associated with HRQoL.

Methods

- This study included data collected via structured telephone interviews between 2008 and 2019 from 4,694 participants of AlphaNet, a not-for-profit health management organization for individuals with AATD in the United States who are prescribed augmentation therapy.
- HRQoL was measured using the St. George's Respiratory Questionnaire (SGRQ). Unadjusted and adjusted generalized linear regression models were used to examine the association between SGRQ total and subscale scores and baseline variables of interest: age, sex, severity of dyspnea, productive cough, use of oxygen, and exacerbation frequency.

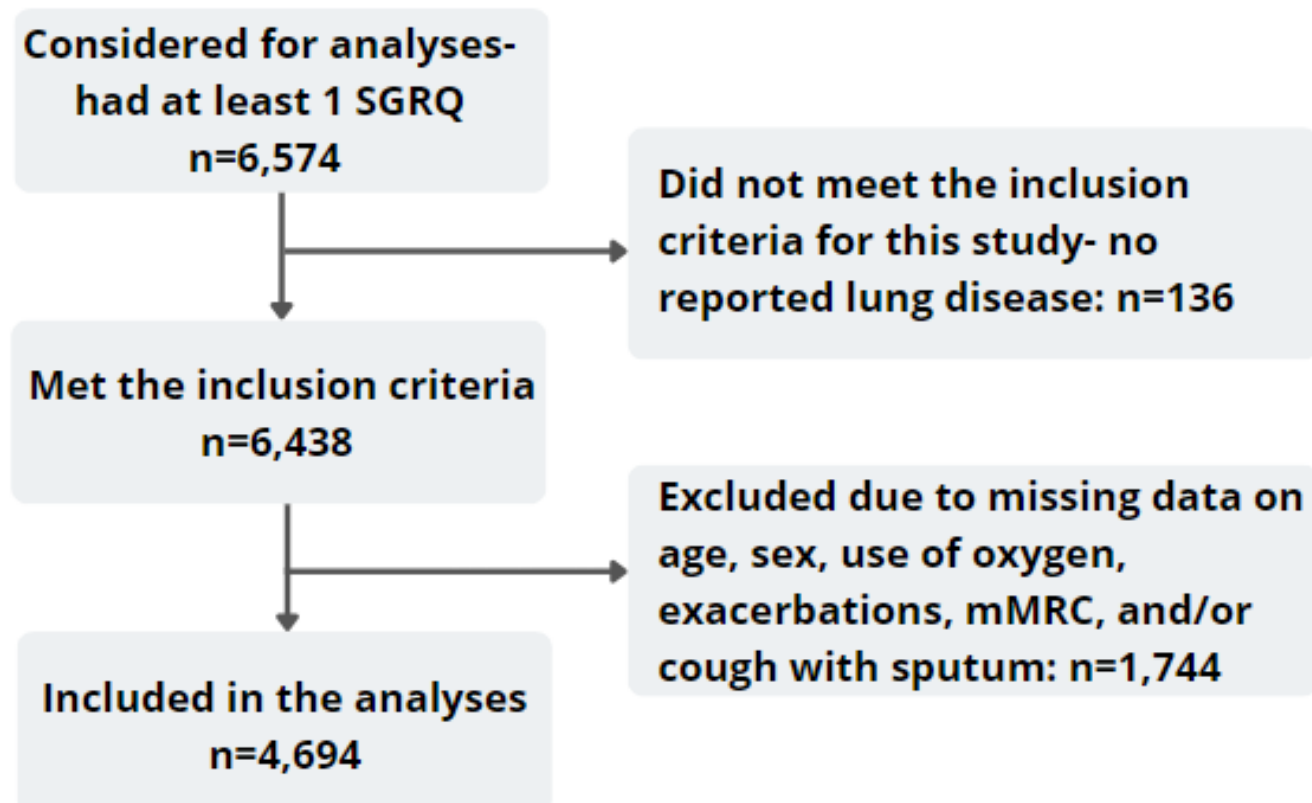


Figure 1. Study Flow Diagram

Results

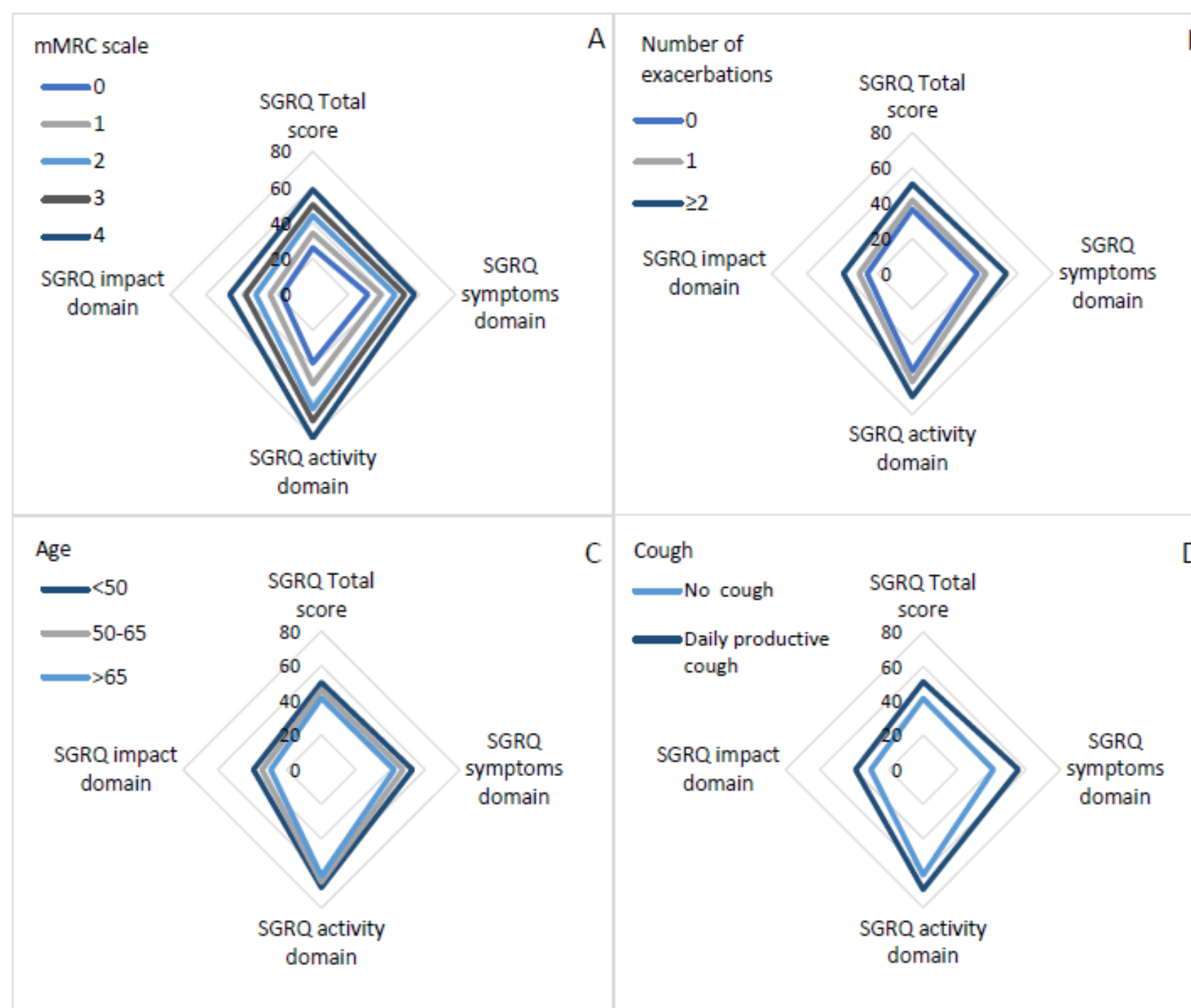


Figure 2. SGRQ Total and domain mean scores by: A) mMRC scale (see Table 1), B) exacerbations frequency in the past year, C) age categories, and D) presence of daily productive cough for at least 3 months each year over the past 2 years.

- Higher SGRQ scores indicate lower health-related quality of life. Mean SGRQ activity domain scores are higher compared to other domains.
- Differences in SGRQ scores are smaller for age categories compared to mMRC, cough, and exacerbation frequency.
- SGRQ comparisons across all groups are statistically significant, $p < .0001$.

Results (continued)

	All participants n=4694 n (%)	Unadjusted estimates β (SE)	95% CI	Adjusted estimates β (SE)	95% CI
Age, years					
<50	1065 (22.7)	Ref		Ref	
50-65	2509 (53.5)	-4.5 (0.7)	-5.8; -3.1	-3.3 (0.6)	-4.5; -2.2
>65	1120 (23.9)	-9.0 (0.8)	-10.6; -7.4	-6.4 (0.7)	-7.8; -5.1
Sex					
Male	2569 (54.7)	Ref			
Female	2125 (45.3)	-0.1 (0.6)			
Frequency of exacerbations in the past year					
0	1060 (22.6)	Ref		Ref	
1	980 (20.9)	5.2 (0.8)	3.5; 6.8	1.8 (0.7)	0.5; 3.2
2 or more	2654 (56.5)	14.4 (0.7)	13.1; 15.7	6.1 (0.6)	5.0; 7.3
mMRC scale					
0	430 (9.2)	Ref		Ref	
1	1031 (22.0)	8.3 (0.9)	6.5; 10.1	7.2 (0.9)	4.4; 8.9
2	898 (19.1)	18.0 (1.0)	16.2; 19.9	15.0 (0.9)	13.2; 16.8
3	1002 (21.4)	24.1 (1.0)	22.2; 25.9	19.6 (0.9)	17.8; 21.4
4	1333 (28.4)	32.6 (0.9)	30.9; 34.4	26.5 (0.9)	24.7; 28.3
Regular use of oxygen					
No	2355 (50.2)	Ref		Ref	
Yes	2339 (49.8)	11.6 (0.5)	10.5; 12.6	4.6 (0.5)	3.7; 5.6
Cough with sputum					
No	2613 (55.7)	Ref		Ref	
Yes	2081 (44.3)	9.7 (0.6)	8.6; 10.7	4.5 (0.5)	3.6; 5.5

Table 1. Univariate and multivariable generalized linear regression models results for the outcome SGRQ total score

Conclusions

- In summary, our study validates the correlation between the SGRQ activities score and mMRC, and shows correlations between both total and subscale scores and clinically meaningful aspects of AATD.
- Further longitudinal studies are needed to evaluate changes in HRQoL over time in this population.

