



Anxiety Sensitivity in Patients Attending Pulmonary Rehabilitation

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BACKGROUND

- Pulmonary disease is associated with significant functional impairment and poor life quality.
- Anxiety disorders are common in patients with pulmonary disease.
- **Anxiety sensitivity (AS)** is the fearful appraisal of anxiety and related bodily sensations and can amplify the experience of physical sensations and emotional distress
- AS may be a psychological factor that contributes to the maintenance of pulmonary disease processes and related psychological distress
- **Study Aim:** To evaluate AS in patients attending pulmonary rehabilitation in association with:
 - Anxiety and depression symptoms
 - Health-related quality of life
 - Pulmonary functioning

METHOD

- **Patients** (n = 48) were enrolled in an 18-week outpatient pulmonary rehabilitation program that involved 2x/week multi-component treatment sessions
- **Procedures:** AS was assessed during the initial weeks of program initiation, and admission data were extracted from electronic medical records.
- **Measures**
 - Anxiety Sensitivity Index-3 (ASI-3)
 - Generalized Anxiety Disorder-7 (GAD-7)
 - Patient Health Questionnaire-9 (PHQ-9)
 - Chronic Respiratory Disease Questionnaire (CRQ)
 - Emotional functioning
 - Disease mastery
 - Dyspnea
 - Fatigue
 - Pulmonary Functioning:
 - Forced expiratory volume, one second (FEV₁)
 - Forced expiratory volume/forced vital (FEV₁/FVC)

STATISTICAL ANALYSES

- Hierarchical multiple regression analyses were used to test the association between AS and each criterion variable, after adjusting for age and sex.
- Given the relatively small sample, Cohen's *f*² was used as an effect size estimate, where 0.02, 0.15, and 0.35 are considered small, medium and large effects, respectively.

TABLE 1. PATIENT CHARACTERISTICS

Demographics	N = 48
Age	69.3 ± 10.8
Sex	60.4% male
Admission Diagnosis	n (%)
Chronic obstructive pulmonary disease	25 (52.1%)
Idiopathic pulmonary fibrosis	5 (10.4%)
Pulmonary hypertension	5 (10.4%)
Asthma	4 (8.3%)
Interstitial lung disease	3 (6.3%)
Emphysema	3 (6.3%)
Bronchiectasis	2 (4.2%)
Lung cancer	1 (2.1%)
Psychological Characteristics	Mean ± SD
Anxiety sensitivity (ASI-3)	14.4 ± 13.4
Anxiety severity (GAD-7)	6.0 ± 5.6
Depression severity (PHQ-9)	7.9 ± 5.6
Health-Related Quality of Life	Mean ± SD
CRQ – Emotional functioning	4.4 ± 1.3
CRQ – Disease mastery	4.3 ± 1.0
CRQ – Dyspnea	3.4 ± 1.1
CRQ – Fatigue	3.6 ± 1.1
Pulmonary Functioning	Mean ± SD
FEV ₁	57.2 ± 22.2
FEV ₁ /FVC	0.57 ± 0.17

TABLE 2. HIERARCHICAL REGRESSION RESULTS

Criterion Variables	R ²	b	t	p	f ²
Anxiety severity	.30	.26	4.94	<.001	.42
Depression severity	.21	.22	4.12	<.001	.26
HrQoL - Emotional functioning	.35	-.07	-5.55	<.001	.54
HrQoL - Disease mastery	.31	-.05	-5.08	.051	.45
HrQoL – Dyspnea	.07	-.03	-1.95	.058	.08
HrQoL – Fatigue	.07	-.03	-2.01	.051	.08
FEV ₁	.03	-.31	-1.10	.276	.03
FEV ₁ /FVC	.05	-.01	-1.49	.145	.05

Note: all models adjusted for age and sex (results not displayed)

SUMMARY AND IMPLICATIONS

- This is the first study to our knowledge to evaluate AS in patients attending pulmonary rehabilitation
- On average, AS was clinically-elevated in this sample of patients with various pulmonary conditions
- AS was incrementally associated with:
 - Anxiety and depression severity (large effect sizes)
 - Lower health-related quality of life due to poor emotional functioning and disease management (large effect sizes), and to a lesser extent dyspnea and fatigue (small effects)
 - Lower pulmonary functioning (small effects)
- AS is a promising therapeutic target that, if reduced in this patient population, could attenuate reactivity to anxiety and bodily sensations and, in turn, produce improvements in psychological distress and disease management indicated by health-related quality of life and pulmonary functioning.

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