Impact of symptoms of anxiety and depression on COPD Assessment Test (CAT) scores

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Take home message

Anxiety and depression symptoms affect health status in patients with stable COPD
Anxiety and depression are common comorbidities in patients with chronic obstructive pulmonary disease (COPD) and affect patients’ health status (1, 2). Health status in COPD patients is frequently assessed by the St. George’s Respiratory Questionnaire (SGRQ), which is a validated disease-specific questionnaire widely used in clinical trials (3), but complex and time consuming to complete and score. Consequently, the COPD Assessment Test (CAT) has been developed (4): a disease-specific health status questionnaire containing eight items with good sensitivity, reliability and responsiveness (4). CAT scores are strongly positively correlated with SGRQ scores in patients with COPD (4). Therefore, it is reasonable to hypothesize those COPD patients with symptoms of anxiety and/or depression will report higher CAT scores (=worse health status) compared to those without symptoms.

The latest version of the Global Initiative for Chronic Obstructive Lung Disease (GOLD) document (5) recommends the CAT as a tool to assess the impact of COPD on the individual patient beyond airflow limitation. Although it was known that clinically relevant symptoms of anxiety and depression are more common in patients in GOLD stage IV compared to patients in GOLD stages I and II (1), the frequency distribution of patients with symptoms of anxiety and depression across the updated GOLD classification remains unknown. Recently, Sillen and colleagues reported a prevalence of symptoms of anxiety and depression of 38% and 32% in COPD patients with GOLD D, respectively (6).

We aimed to assess the impact of symptoms of anxiety and depression on disease-specific health status as assessed by CAT in patients with COPD entering pulmonary rehabilitation. Secondary, we aimed to investigate the relationship between the updated GOLD classification and symptoms of anxiety and depression.
Demographic and clinical characteristics (number of exacerbations in the last 12 months, current medication, post-bronchodilator spirometry, and functional exercise capacity as assessed by six-minute walk distance (6MWD)) were assessed in stable patients with COPD, entering pulmonary rehabilitation at Center of Expertise on Organ Failure (CIRO+), Netherlands, and LHL Health Róros, Norway. Patients were eligible if they had a primary diagnosis of COPD (5) and were clinically stable. Patients were excluded if they had a history of other lung diseases, had undergone lung surgery or had malignancy within the last five years. The Regional Committee for Medical and Health Research Ethics in Central Norway (REK Midt 2012/1495) and the Medical Ethical Commission of the Maastricht University Medical Centre+ (MUMC+), Maastricht, the Netherlands (METC 11-3-070) approved this study.

Symptoms of anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS) (7). The scores for each subscale range from 0 (optimal) to 21 (worst) points. A score equal to or higher than 10 points on the anxiety (HADS-A) or depression (HADS-D) subscale may indicate the presence of clinically relevant symptoms (7). Disease-specific health status was assessed using the CAT (4). The score ranges from 0 (no impact) to 40 points (severe impact) (4).

Three hundred and seven patients (51 % male, age 63.9±8.6 years, FEV1 50±21 % predicted), were included. In general, the sample was slightly overweight (26.5±6.1 kg/m²) and functional exercise capacity (434±132 metres) as well as disease-specific health status (CAT: 21.1±6.5 points) were impaired. Thirty-eight (12.4%) patients reported clinically relevant symptoms of anxiety, 28 (9.1 %) patients reported clinically relevant symptoms of depression, and 50 (16.3 %) patients reported a combination of both symptoms. There were no differences in HADS-D scores between patients treated with antidepressants (n=57) compared to patients not treated with antidepressants (n=250; 7.0±4.4 points versus 6.1±4.3 points, p=0.13). Patients treated with anxiolytics (n=47) reported
higher HADS-A scores compared to patients not treated with anxiolytics (n=260; 10.0±5.1 points versus 6.6±4.1 points, p≤0.001).

Patients without symptoms of anxiety and/or depression had lower CAT scores (19.6±6.0 points) than patients with symptoms of anxiety (22.8±6.2 points, p=0.020), symptoms of depression (24.8±6.3 points, p<0.001) or both symptoms (23.2±8.8 points, p=0.002) (Figure 1a). CAT scores were modestly correlated with HADS-A scores (r=0.30, p<0.001) and HADS-D scores (r=0.35, p<0.001). There were no differences in proportion of patients with clinically relevant symptoms of anxiety and/or depression between GOLD groups A to D (Figure 1b).

The current study has two novel findings: 1) COPD patients with symptoms of anxiety and/or depression referred for pulmonary rehabilitation reported a worse disease-specific health status as assessed by CAT than patients without these symptoms; 2) the prevalence of symptoms of anxiety and depression was equally distributed across the updated GOLD groups.

Lou et al. (2) reported that SGRQ scores were comparable between patients with symptoms of anxiety and patients with symptoms of depression. Our study shows comparable findings for symptoms of anxiety or depression and CAT scores. Patients hospitalized for a COPD exacerbation with depressive symptoms (using Beck’s Depression Inventory (BDI)) reported higher CAT scores (= worse health status) than patients without depressive symptoms (8). The current study extends to these findings that symptoms of depression and/or depression affect patients’ health status in stable patients.

In the present study, 37.8 % of the patients had clinically relevant symptoms of anxiety and/or depression. This frequency is comparable to previous findings (1, 2). Antidepressants were more widely used than anxiolytics in our data. This might be explained by the fact that antidepressants
have mixed effects, and that symptoms of anxiety and depression often coincide (9). HADS-D scores were similar between patients treated with antidepressants and untreated patients, while patients treated with anxiolytics had higher HADS-A scores compared to those untreated. Psychological screening for anxiety and depression could have enlightened these findings as a HADS score of ≥10 points indicates the presence of symptoms of anxiety and depression but does not necessarily indicate a disorder (7).

Janssen et al. (1) identified a higher proportion of patients with clinically relevant symptoms of anxiety and depression in GOLD stage IV compared to patients in GOLD I and II. Recently, Lee et al. (10) reported a significantly higher proportion of patients with depression in GOLD groups B and D compared to GOLD groups A and C and concluded that “the frequency of depression differed by current symptoms, but not by the severity of the airway limitation.” However, these results are not directly comparable with our findings since depression was assessed by the patient health questionnaire-9 (PHQ-9) (10). In the present study, symptoms of anxiety and depression were equally distributed across the updated GOLD stages, indicating that the new classification does not capture clinically relevant symptoms of anxiety and depression. Accordingly, psychological symptoms should be assessed in individual COPD patients entering pulmonary rehabilitation, irrespective of GOLD group.

To conclude, patients with COPD with symptoms of anxiety and/or depression report worse disease-specific health status as assessed by CAT than patients without these symptoms. Symptoms of anxiety and depression are equally distributed across the updated GOLD groups in COPD patients referred for pulmonary rehabilitation.
References


Figure 1.

a) CAT scores stratified by HADS scores;

b) Proportion of patients reporting clinically relevant symptoms of anxiety (HADS-A ≥ 10 points) and depression (HADS-D ≥ 10 points) stratified by updated GOLD groups. GOLD A: n=6, GOLD B: n=76, GOLD C: n=119, GOLD D: n=98. p > 0.05 for all comparisons.