

How Stable is Stable in COPD? An Analysis of Day-to-Day EXACT Score Variability in Acute and Stable Patients with COPD

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Background: Relatively little is known about day-to-day variability of COPD in stable and acute exacerbation states. **Objective:** To examine inter- and intra-individual variability in stable patients and those with a medically-confirmed exacerbation. **Methods:** Secondary analysis of data from the Exacerbations of Chronic Pulmonary Disease Tool (EXACT) observational validation study. 188 stable patients completed the EXACT daily diary for 7 days; 222 patients with an acute exacerbation completed the diary on Days 1-28 and 60-67 from presentation. Scores on the EXACT range from 0 to 100, higher scores indicating a more severe COPD state. **Results** reported as mean \pm SD: Total population: age 65 ± 10 years, 48% male, FEV₁ 51 ± 20 % pred. EXACT scores Day 1: Stable 36.1 ± 12.7 ; Acute 47.9 ± 9.6 . Mean difference in EXACT score Day 1 to 2 in patients reporting no global change: Stable (n=76) 0.3 ± 6.4 , Acute (n=41) 1.6 ± 5.8 . Mean intra-individual SD in stable patients Days 1-7 was 5.2 ± 2.7 , with no differences by GOLD status (p=0.40). Significant differences were found in intra-individual SD in acute patients over time (F=3.32, p=0.01), with variability on Days 1-5 significantly greater than days 11-15, 16-20, and 21-28 and Days 6-10 significantly greater than Days 16-20. Table shows between-day variability expressed as SD.

Acute Days	1-5	6-10	11-15	16-20	21-28
Variability	5.5 ± 3.0	5.2 ± 3.4	$4.9 \pm 3.5^*$	$4.5 \pm 3.1^{\ddagger*}$	$4.7 \pm 3.1^{\ddagger}$

*p<0.05; \ddagger p<0.01

The SD for between-day variability in acute patients Days 60-66 was 4.7 ± 3.1 .

Conclusion: Patients with COPD experience significant day-to-day variability in their disease, in both acute and stable states, with substantial changes in variability occurring during recovery from exacerbations.

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