Minimal clinically important difference for measures of fatigue, cough and sputum

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Fatigue, cough and sputum are highly prevalent in patients with chronic obstructive pulmonary disease (COPD). Pulmonary rehabilitation (PR) has shown to be effective in managing these symptoms. However, the interpretation of the magnitude of PR effects is hindered by the lack of cut-off points to identify clinical improvement.

This study established minimal clinically important differences (MCIDs) for the checklist of individual strength – fatigue subscale (CIS-20 FS), functional assessment of cancer therapy – fatigue (FACIT-F), Leicester cough questionnaire (LCQ) and cough and sputum assessment questionnaire (CASA-Q), in patients with COPD following PR.

All measures were assessed pre/post 12 weeks of PR. MCIDs were calculated using anchor- and distribution-based methods. Global rating of change, COPD assessment test and St. George's respiratory questionnaire were used as anchors. Pooled values were obtained using Meta XL with a quality effects model weighting 2/3 for anchor and 1/3 for distribution-based methods.

49 patients with COPD (81.6% male, 69.8±7.4 yrs, FEV1 49.4±19.2%predicted) were included. The pooled MCIDs were: 7.3 for the CIS-20 FS, 4.2 for the FACIT-F, 1.3 for the LCQ, 10 for CASA-Q cough symptoms/impact and sputum symptoms domains and 7.8 for sputum impact (Fig.1).

MCIDs found in this study can be used by health professionals to interpret PR effects in relieving fatigue, cough and sputum and guide future interventions.
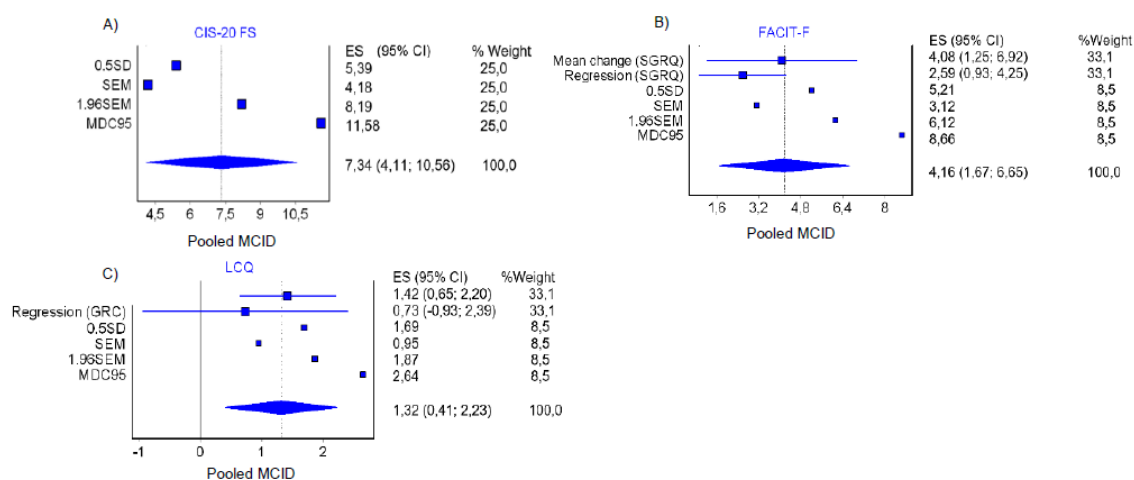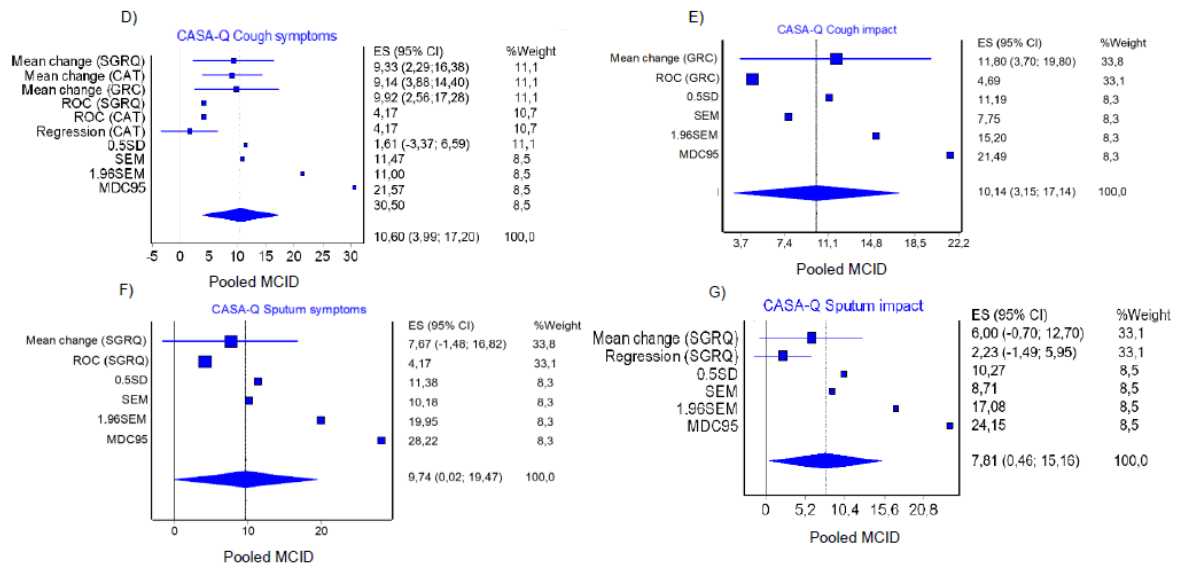
Figure 1: Plot of the pooled MCID for the A) CIS-20 FS; B) FACIT – F; C) LCQ D) CASA-Q cough symptoms; E) CASA-Q cough impact; F) CASAQ sputum symptoms and G) CASA-Q sputum impact. Plots represent the MCID estimates, and when appropriate the estimates include the 95% confidence interval.

Legend: CIS-20 FS – Checklist of individual strength fatigue subscale; FACIT-F – Functional Assessment of Cancer Therapy – Fatigue; LCQ – Leicester cough questionnaire; CASA-Q – Cough ad Sputum Assessment Questionnaire; GRC – Global rating of change; CAT – COPD assessment test; SGRQ – St George's Respiratory Questionnaire; ROC – Receiver operating characteristic curves; SD – standard deviation; SEM – standard error measurement; MDC – minimal detectable change; ES – effect size; MCID - minimal clinically important difference.