**Supplement 4** – Analytic sensitivity analyses by removing studies with pre-specified characteristics.

|  |  |  |  |
| --- | --- | --- | --- |
| **Outcome** | **Main results**  | **Results after removing study(ies)** | **Study(ies) removed [reason for removal)** |
| **k, n** | **I2,P value** | **SMD (95% CI)** | **k, n** | **I2,P value** | **SMD (95% CI)** |
| 6MWD | 5, 6506 | 99.6%, p<0.001 | 0.91 (-1.63 to 3.44) | 4, 275 | 0.0%, p=0.58 | 0.11 (-0.24 to 0.47) | Removed Lou et al. (2015) [48 months follow-up] or [outlier results] or [over-represented study] |
| SGRQ Total | 5, 382 | 69.5%, p=0.01 | **-0.73 (-1.29 to -0.18)** | 3, 332 | 84.1%, p=0.001 | -0.78 (-2.22 to 0.66) | Removed Man et al. (2004) [3 months follow-up] and Murphy et al. (2005) [6 weeks follow-up] |
| 4, 349 | 70.1%, p=0.02 | -0.62 (-1.23 to -0.01) | Removed Varas et al. (2018) [Control group with self-management program] |
| SGRQ Symptoms | 4, 268 | 42.9%, p=0.15 | -0.08 (-0.82 to 0.65) | 3, 235 | 33.8%, p=0.22 | 0.05 (-0.92 to 1.02) | Removed Varas et al. (2018) [Control group with self-management program] |
| SGRQ Activity | 4, 268 | 0.0%, p=0.68 | **-0.40 (-0.72 to -0.08)** | 3, 235 | 0.0%, p=0.59 | -0.44 (-0.89 to 0.01) | Removed Varas et al. (2018) [Control group with self-management program] |
| SGRQ Impacts | 4, 268 | 68.0%, p=0.02 | -0.81 (-1.69 to 0.07) | 3, 235 | 19.2%, p=0.29 | -0.55 (-1.33 to 0.23) | Removed Varas et al. (2018) [Control group with self-management program] |
| CRQ Dyspnoea | 6, 550 | 14.1%, p=0.32 | **0.36 (0.03 to 0.69)** | 4, 239 | 0.0%, p=0.96 | **0.29 (0.15 to 0.43)** | Removed Casey et al. (2013) and Man et al. (2004) [3 months follow-up] |
| 5, 411 | 31.2%, p=0.21 | 0.39 (-0.07 to 0.86) | Removed Effing et al. (2011) [Control group with self-management program] |
| CRQ Fatigue | 6, 550 | 25.0%, p=0.25 | 0.22 (-0.15 to 0.59) | 4, 239 | 0.0%, p=0.81 | 0.08 (-0.17 to 0.34) | Removed Casey et al. (2013) and Man et al. (2004) [3 months follow-up] |
| 5, 411 | 36.6%, p=0.18 | 0.27 (-0.23 to 0.77) | Removed Effing et al. (2011) [Control group with self-management program] |
| CRQ Emotional | 6, 550 | 24.5%, p=0.25 | 0.22 (-0.11 to 0.54) | 4, 239 | 0.0%, p=0.80 | 0.17 (-0.09 to 0.43) | Removed Casey et al. (2013) and Man et al. (2004) [3 months follow-up] |
| 5, 411 | 39.5%, p=0.16 | 0.27 (-0.18 to 0.71) | Removed Effing et al. (2011) [Control group with self-management program] |
| CRQ Mastery | 6, 550 | 39.9%, p=0.14 | 0.23 (-0.21 to 0.68) | 4, 239 | 0.0%, p=0.91 | 0.08 (-0.10 to 0.27) | Removed Casey et al. (2013) and Man et al. (2004) [3 months follow-up] |
| 5, 411 | 51.0%, p=0.09 | 0.27 (-0.34 to 0.88) | Removed Effing et al. (2011) [Control group with self-management program] |
| mMRC | 5, 6569 | 99.6%, p<0.001 | -0.05 (-2.24 to 2.14) | 3, 332 | 99.7%, p<0.001 | -0.92 (-3.69 to 1.85) | Removed Lou et al. (2015) [48 months follow-up] and Murphy et al. (2005) [6 weeks follow-up] |
| 4, 6536 | 99.7%, p<0.001 | 0.03 (-3.19 to 3.24) | Removed Varas et al. (2018) [Control group with self-management program] |
| 4, 348 | 95.3%, p<0.001 | -0.77 (-2.33 to 0.78) | Removed Lou et al. (2015) [outlier results] or [over-represented study] |
| FEV1% | 4, 6457 | 0.0%, p=0.45 | 0.17 (-0.17 to 0.51) | 2, 51 | 0.0%, p=0.50 | -0.18 (-2.80 to 2.44) | Removed van Wetering et al. (2009) [4 months follow-up] and Lou et al. (2015) [48 months follow-up] |
| 3, 226 | 23.2%, p=0.27 | 0.12 (-0.71 to 0.95) | Removed Lou et al. (2015) [ [over-represented study] |

**Legend:** k – number of studies; n – sample size; I2 – I-square (heterogeneity); SMD – standardized mean difference; CI – confidence interval; 6MWD – 6-minute walking distance; mMRC - Modified Medical Research Council Dyspnea Scale; CRQ - Chronic respiratory disease questionnaire; SGRQ - Saint George’s respiratory questionnaire; FEV1% - forced expiratory volume in 1 s (percentage of the predicted value).

**Boldface** values indicate statistically significant SMD