**Supplementary Table S6. Assessment of transitivity assumption across included studies**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Intervention (n=1193) | Control (n=1194) | Statistical Test | *P*-value | Clinical Relevance |
| **Demographics** |  |  |  |  |  |
| Mean age (years) | 53.8 ± 8.3 | 54.1 ± 9.0 | t=-0.92 | 0.358 | Balanced between groups |
| **Pain Outcomes** |  |  |  |  |  |
| Baseline pain (VAS) | 5.3 ± 1.7 | 5.1 ± 2.0 | t=1.32 | 0.187 | Comparable baselines |
| Post-intervention pain | 2.6 ± 1.6 | 3.9 ± 1.9 | t=-9.47 | <0.001\*\*\* | Significant improvement |
| Pain reduction (Δ) | -1.4 ± 0.8 | -0.6 ± 1.1 | t=-4.12 | <0.001\*\*\* | Met MCID threshold |
| **Intervention Parameters** |  |  |  |  |  |
| Session length (min) | 60 (15-120) | - | r=-0.35 | 0.028\* | Correlated with improvement |
| Frequency (sessions/week) | 3 (1-7) | - | r=-0.15 | 0.21 | No significant association |
| **Subgroup Analysis (Cancer Type)** |  |  |  |  |  |
| Breast cancer pain Δ | -1.5 ± 0.8 | -0.6 ± 1.1 | t = -3.12 | 0.003\*\* | Robust effect |