



Are pain intensity measures interchangeable? agreement among ODI, SRS-22, and COMI in chronic low back pain with and without scoliosis

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Abstract

Purpose Pain intensity in chronic low back pain (CLBP) is often assessed using pain items embedded in multidimensional patient-reported outcome measures (PROMs), but differences in scale format and recall period may limit score interchangeability. The purpose of this study was to evaluate the association and agreement among three commonly used pain intensity items derived from ODI, SRS-22, and COMI in adults with CLBP, with and without scoliosis.

Methods Secondary cross-sectional analysis of an observational cohort. From 1,092 eligible subjects (552 scoliosis-associated LBP; 540 non-scoliosis LBP), we included participants with complete pain items: ODI Item 1 (pain “at the moment”, 1–6), SRS-22 pain item (past month, 1–5), and COMI pain (maximum of back/leg pain over the past week, 0–10). Agreement was assessed using Spearman’s rho, Kendall’s W, and intraclass correlation coefficients (ICC), overall and by pathology group and sex.

Results The final sample included 417 adults (88% female; mean age 65 ± 10 years): 319 SLBP and 98 LBP. Across all subjects, correlations were moderate to strong (ρ 0.50–0.70) with substantial ordinal agreement ($W=0.74$) but only moderate quantitative concordance ($ICC=0.45$). Estimates were similar in SLBP and LBP (ρ 0.49–0.70; W 0.74–0.79; ICC 0.43–0.53) and did not differ by sex.

Conclusions Pain items from ODI, SRS-22, and COMI rank patients similarly but yield non-interchangeable absolute scores in CLBP, irrespective of scoliosis. Consistent instrument selection is recommended when comparing or pooling pain outcomes.

Keywords Low back pain · Scoliosis · Pain measurement · Patient-reported outcome measures · ODI · SRS-22 · COMI

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