P104 Differential responsiveness and minimally important differences of patient-reported outcomes: Truth or artefact?

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Objective: Responsiveness and minimally important difference (MID) are critical for interpreting changes in patient-reported outcomes (PROs) during treatment evaluation. A recent review (Cheng et al., 2024) reported larger anchor-based MIDs in surgical compared to non-surgical populations. However, it remains unclear whether this difference reflects baseline scores, treatment type, or patient characteristics. We aimed to compare the responsiveness and MID of EQ-5D and ODI across perioperative and 1-year postoperative periods using data from a spine surgery registry.

Methods: We analysed EQ-5D-3L, ODI, and SF-36 (item 1) data from 603 lumbar spine surgery patients (mean age: 57.1 years; 54.4% female) at three timepoints: preoperative (TP0), 1-year (TP1), and 2-year (TP2) postoperative. Responsiveness of the EQ index, EQ VAS, and ODI was assessed using standardized response means (SRMs). MIDs were estimated using mean change and logistic regression approaches. Analyses covered TP0–TP1 (perioperative) and TP1–TP2 (postoperative) periods. SF-36 item 1 defined changes in health status. Subgroup analyses included patients with low baseline EQ index (≤0.5), VAS (≤50), or high ODI (≥40).

Results: EQ VAS was responsive to both improvement and deterioration in both periods (SRM perioperative: 1.22, 0.54; postoperative: 0.61, 0.99). EQ index showed responsiveness postoperatively but indicated improvement in the perioperative period even among patients reporting no change or deterioration (SRM: 1.16, 0.84, 0.6). Mean change-derived MIDs were higher perioperatively than postoperatively (EQ index: 0.42 vs 0.09; VAS: 16.7 vs 6.8). Among those with low baseline scores, perioperative MIDs remained elevated (EQ index: 0.80; VAS: 26.1) compared to postoperative (EQ index: 0.04; VAS: 9.1). ODI results followed similar trends; logistic regression-derived MIDs showed consistent patterns.

Conclusions: Both treatment type and baseline score influence responsiveness and MID estimates when self-rated global health is used to define change. Ceiling effects may explain the impact of baseline scores, while response shift—changes in internal standards—may underlie the higher perioperative MIDs. These findings highlight the need for caution when using global health anchors to assess responsiveness or estimate MIDs for function-based measures like PROPr in surgical populations.