P22 Patient-reported outcomes and their associated factors at 1- and 2-year follow-up after lumbar spine surgery

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Objective: Degenerative lumbar conditions are a leading cause of disability worldwide, often requiring surgery when conservative treatments fail. Data on surgical outcomes from patients' perspectives and influencing factors remain limited. This study aimed to assess 1-year and 2-year Patient-Reported Outcomes (PROs) following lumbar spine surgery and identify factors associated with these outcomes.

Methods: We analysed data from 1,195 patients enrolled in the Spine Surgery Registry at a tertiary hospital in Singapore (2017–2022). All patients underwent elective lumbar surgery for stenosis, prolapsed disc, spondylolisthesis, or degenerative disc disease. PROs were collected pre-operatively and at one- (n=741) and two-year follow-ups (n=440) using the EQ-5D-3L and Oswestry Disability Index. Fifteen individual PRO items were grouped into domains: activities of daily living, functional tasks, pain/discomfort, mental health, and social functioning. Each item was coded as improved (yes/no) at follow-up. Logistic regression analyses were conducted to assess associations between nine pre-specified patient factors and PRO improvements

Results: The mean age of the patients was 58.1 years (SD 16.1). From baseline to 1-year, patients experienced the largest improvements in pain/discomfort (δ = 0.55–0.56) and social functioning (δ = 0.48–0.53), while improvements in ADLs and functional tasks were smaller, with negligible change in lifting (δ = 0.04); these effects largely persisted at 2 years. Patients with poorer baseline PROs consistently improved across all PROs at 1 year. Higher education and conditions affecting only the L4/5 spinal level were associated to better outcomes in activities of daily living, pain/discomfort, and social functioning. Higher education and prolapsed disc diagnosis were associated with functional task improvements. At 2 years, poorer baseline PROs remained influential, while the absence of comorbidities emerged as a significant factor.

Conclusion: Significant improvements in PROs were observed at one-year post-surgery, with effects plateauing by year two. Pain and social functioning showed the largest, most durable gains, while strength-based tasks like lifting remained resistant to improvement. These findings highlight the role of baseline PROs, education, and diagnosis in predicting outcomes, providing foundational evidence for developing PRO-based digital decision support tools that personalise decision-making and guide recovery expectations.