



Neurosurgical Forum LETTERS TO THE EDITOR

Patient satisfaction after minimally invasive spine surgery

TO THE EDITOR: We read with great interest the article by DiGiorgio et al.¹ (DiGiorgio AM, Mummaneni PV, Park P, et al. Correlation of return to work with patient satisfaction after surgery for lumbar spondylolisthesis: an analysis of the Quality Outcomes Database. *Neurosurg Focus*. 2020;48[5]:E5.). While analyzing postoperative outcome, the authors highlighted a remarkable issue in their article, that some patients were satisfied but could not return to their routine activities as before surgery. The correlation between the two scores was remarkable.

The authors have also taken into account the age, sex, smoking status, BMI, presence of comorbidities (diabetes, coronary artery disease, depression, osteoporosis), and educational level of every patient. Following the abovementioned results, patients who were satisfied with surgery and did not return to work (RTW) typically had worse preoperative back pain and Oswestry Disability Index (ODI) scores, and lower educational levels. However, the authors analyzed only 292 (48%) of 608 patients, with a wide range of follow-up duration. The comparison of the median duration of follow-up between the two groups might influence the overall result. The mean age for patients in the spondylolisthesis data set was 62 years, and the advanced age of the study population may represent an additional selection bias. The recommendation of fixation in a single-level, grade-I spondylolisthesis in an elderly population is further controversial.² Moreover, the physical demands of the patient in their respective job and the nature of the job are not taken into account, which may affect RTW.

The authors have used the North American Spine Society patient satisfaction index (NASS), ODI, quality-of-life questionnaire, and numeric rating scale for back pain (NRS-BP) and leg pain (NRS-LP). In the study, psychological and socioeconomic factors should also be added, especially in the context of developing countries. For instance, an economically and professionally stable employee may wish to extend his or her sick leave from work on the basis of persistent postoperative pain. The perception of pain is also affected by a patient's willpower (tolerance to pain).³ DiGiorgio et al. have discussed the importance of depression and educational status. A similar study by Zakira et al. showed the importance of preoperative depression in RTW and low satisfaction score.⁴

We used the same NASS in our 80 patients operated on for lumbar discectomy and found that 49 patients had an NASS score of 1, 20 patients had an NASS score of 2, and 11 had an NASS score of 3.⁵ We found that the patients' satisfaction depended on percentage change in ODI and age of the patient.⁵ We believe that the nature of the job, economic status of the patient, and duration of follow-up may further be added as predictors of RTW.

Finally, we congratulate the authors for sharing a unique work from their leading center and would like to add "return to daily activities or job" as part of every follow-up assessment protocol.

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Disclosures

The authors report no conflict of interest.

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Response

We thank Dr. Singh and coauthors for their kind remarks regarding our study. Their patient satisfaction results in a discectomy cohort¹ are similar to ours. Our patients with lower educational status were less likely to RTW despite being satisfied. We agree with Dr. Singh et al. that factors such as the nature of the work performed and socioeconomic status are predictors of RTW. Physically demanding jobs, which may be more common among those with lower educational status, may be more difficult to resume after lumbar spine surgery. Unfortunately, we did not have access to data on the nature of patients' jobs, as this is not routinely recorded in the Quality Outcomes Database (QOD). We also agree with Dr. Singh et al. that extensive socioeconomic data should routinely be recorded in future prospective databases.

Our study's limitations, notably that only 48% of patients had both RTW and satisfaction data, represent problems common in many large databases. While we explain this in the original paper, it is worth noting that the QOD has achieved excellent follow-up rates, with the spondylolisthesis group having an overall 2-year follow-up rate over 80% on the standard patient-reported outcomes.^{2,3} This is largely due to both adequate funding as well as well-trained staff at the participating sites.

Dr. Singh and coauthors mention that not all grade I spondylolisthesis cases require a fusion procedure. In our study, 44 (17.7%) of the 249 satisfied patients did not undergo arthrodesis. There was no significant difference in arthrodesis rate in the RTW and non-RTW groups (Fisher's exact test, $p = 0.676$). However, other research based on QOD data has shown that fusion surgery is predictive of long-term patient satisfaction after surgery for grade I degenerative lumbar spondylolisthesis.³

Dr. Singh and coauthors point out many factors that can lead to poor postoperative patient satisfaction. Of course, there is no single objective measure for surgical success. Each patient will have a different measure of success after surgery. Extensive preoperative counseling and setting realistic expectations with patients are necessary for patient satisfaction.⁴ Ultimately, it is informed, shared decision-making between patient and surgeon that will lead to optimal outcomes.

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