

Influence of Patient-reported Distress and Weekday of Admission on Length of Hospital Stay in Patients with Low Back Pain: A Retrospective Cohort Study

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Background: Low back pain (LBP) is often a complex problem requiring interdisciplinary management to address patients' multidimensional needs. The inpatient care for patients with LBP in primary care hospitals is a challenge. In this setting, interdisciplinary LBP management is often unavailable during the weekend. Delays in therapeutic procedures may result in prolonged length of hospital stay (LoS). The impact of delays on LoS might be strongest in patients reporting high levels of psychological distress.

Purpose: The study explores which influence the weekday of admission and distress have on LoS of inpatients with LBP.

Methods: Retrospective cohort study conducted between 1 February 2019 and 31 January 2020, in Switzerland. Included were patients with LBP admitted to a medical unit at the Winterthur Cantonal Hospital.

Instruments: The German Four-Dimensional Symptom Questionnaire (4DSQ) was used to evaluate patient-reported psychological distress. Information from the hospital electronic medical records was used to record data on LoS.⁷⁹ 52

Analysis: The statistical analysis was conducted in two parts. In part 1, a negative binominal model was fitted to LoS with weekday of admission as predictor. In part 2, the same model included weekday of admission, distress, and their interaction as covariates. Planned contrast was used in part 1 to estimate the difference in log-expected LoS between group 1 (admissions Friday/Saturday) and the reference group (admissions Sunday-Thursday). In part 2, the same contrast was used to estimate the corresponding difference in (per-unit) distress trends.

Results: We identified 173 patients with LBP. Mean LoS was 7.8 days (SD=5.59). Patients admitted on Friday (mean LoS=10.3) and Saturday (LoS=10.6) had longer stays but not those admitted on Sunday (LoS=7.1). Analysis of the weekday effect and planned contrast showed that admission on Friday or Saturday was associated with a significant increase in LoS (log ratio=0.42, 95%CI=0.21 to 0.63). 101 patients (58%) returned questionnaires, and complete data on distress was available from 86 patients (49%). According to the negative binominal model for LoS and planned contrast, the distress effect on LoS was significantly modified (difference in slopes=0.816, 95% CI=0.03 to 1.60) by dichotomic weekdays of admission (Friday/Saturday vs. Sunday-Thursday).

Conclusions and Implication: Delays in interdisciplinary LBP management over the weekend may prolong LoS. This may particularly affect patients reporting high distress. Our study provides a platform to further explore whether interdisciplinary LBP management addressing patients' multidimensional needs reduces LoS in primary care hospitals.

Keywords: pain management, mental health, low back pain, primary care, primary care hospital.

Ethics Approval: The study was approved by the Kantonale Ethikkommission Zürich (KEK ZH: 2020-01465).

