

TITLE: Explanatory Multivariate Modeling for Disability, Pain, and Claims in Patients with Spine Pain

ABSTRACT BODY

Purpose/Hypothesis: Neck pain is the fourth leading cause of disability in the world and is associated with high direct and indirect healthcare costs. There exists a large body of evidence investigating factors that predict outcomes in patients seeking treatment for neck pain, but there is a paucity of research regarding variables that can predict costs associated with the care of this population. Identification of patient characteristics that can predict recovery and healthcare utilization may help inform prognosis and treatment decisions. The purpose of this study is to determine patient variables that predict the degree of recovery experienced by patients seeking physical therapy treatment for neck pain as well as the associated costs of treatment.

Subjects: 250 adults seeking treatment for spine related pain. Patients either chose direct access physical therapy or traditional medical care and were related referred to physical therapy.

Materials/Methods: Patient demographics and self-report outcomes were collected from eight outpatient physical therapy clinics in Greenville, South Carolina. Total claims data was provided by Blue Cross Blue Shield of South Carolina. All 250 of the subjects were treated at the discretion of their primary physical therapist until discharge. Response to treatment was measured using the Neck Disability Index (NDI) or Oswestry Disability Index (ODI). Patients were labeled as low, high, or non-responders to treatment by achieving a minimally clinically important difference of 4-10, >10, or <4, respectively. Patients were also trichotomized into the lowest, middle, or highest tertile of cost based on the total amount of money expended on their care. Hierarchical multinomial logistic regression analysis was performed to identify variables that predicted subjects' response to treatment and variables that predicted treatment-related expenses.

Results: Statistically significant variables associated with placement into both high and low response to treatment versus no response to treatment categories included higher baseline NDI/ODI and being female. Meeting both middle and highest tertile of cost versus the lowest tertile of cost was associated with having imaging performed and having a passive approach to treatment.

Conclusions: In agreement with other studies, we found that gender and baseline disability are predictive of patient response to treatment. Individuals who receive imaging or a passive approach to treatment tend to have a higher total cost of care than those that do not. Future research should continue to examine variables that are predictive of healthcare utilization in patients with neck pain.

Clinical Relevance: Individuals with low baseline disability tend to be low-responders to treatment and may, therefore, require an alternate approach to treatment. Our data suggests that imaging is associated with a higher cost of total care. As the efficacy of imaging in this population is sparse, limiting the use of imaging could effectively reign in rising healthcare costs. Furthermore, physical therapists should utilize more active treatment approaches to similarly reduce the direct and indirect costs related to the treatment of neck pain.