The Relationship of Unemployment and Depression with History of Spine Surgery

Abstract

Background: Chronic back pain is a known risk factor for unemployment, disability, and depression.1,2 This paper discusses the interaction of unemployment, depression, and history of prior spine surgery.

Methods: We retrospectively reviewed the charts of 629 patients who underwent spine surgery and who were between the ages of 25 and 65 years. We collected data on their employment status, history of depression, and history of prior spine surgery (yes or no). Three types of spine surgery were included in the study: lumbar microdiscectomy, anterior cervical decompression and fusion, and lumbar decompression and fusion.

Results: Approximately 29% (183) of the patients were unemployed and 32% (200) had a history of depression. Unemployment was more common among depressed patients (44% vs 27%; p < 0.001), and depression was more common among unemployed patients (41% vs 24%; p < 0.001). A history of prior spine surgery was most prevalent in unemployed female patients with a history of depression.

Conclusion: Unemployment and depression were strongly associated with a history of prior spine surgery in the female cohort of our study population.

Introduction

Unemployment is one of the major distresses that can strike a human being. Unemployment rates in the general population surge during economic recessions, but unemployment may also occur to individuals as a sequela of physical injury or disease. People losing their jobs are very likely to experience psychological tension, mainly depression and anxiety, which negatively affects their health, their family’s security, and society’s stability in general.

Chronic back pain is a known risk factor for unemployment, disability, and depression.1,2 In a difficult period of economic restraint brought on by the recession that began in 2008 and with the US experiencing approximately $30 billion in lost productivity from chronic back pain each year,3 it is relevant to investigate the interaction of unemployment and depression and their relationship with a history of spine surgery.

Materials and Methods

We retrospectively reviewed the charts of 629 patients who underwent spine surgery between 2005 and 2008 and who were between the ages of 25 and 65 years. We collected data on their employment status, history of depression, and history of prior spine surgery, which were coded as nominal variables (yes or no). Three types of spine surgery were included in the study:

- Lumbar microdiscectomy (LMD), 171 patients
- Anterior cervical decompression and fusion (ACDF), 285 patients
- Lumbar decompression and fusion (LDF), 173 patients.

The $\chi^2$ and Fisher exact tests were used to determine significant differences between the rates of unemployment, depression, and prior spine surgery. Statistical analysis and graphing was accomplished using Excel (2003; Microsoft, Redmond, WA) and SPSS Statistics (version 16; IBM, Somers, NY).

Results

Approximately 29% (183) of the 629 patients were unemployed, and 32% (200) had a history of depression. Unemployment was 36% in the LDF group, 28% in the ACDF group, and 23% in the LMD group, which was statistically different (p < 0.05). Similarly,
the percentage of those with a history of depression was highest in the LDF group (35%), with 35% in the ACDF group and 27% in the LMD group having such a history, which was not statistically significant (p > 0.05). The average ages in the LDF, ACDF, and LMD groups of working age patients were 51 years, 50 years, and 48 years, respectively (Figure 1).

Unemployment was most common among depressed patients (44% vs 27%; p < 0.001), and depression was most common among unemployed patients (41% vs 24%; p < 0.001). A history of depression was most common in unemployed women in all types of spine surgery. A history of depression was reported by 34.62% of unemployed women in the LMD group, by 49.02% of those in the ACDF group, and by 60.00% of those in the LDF group (Figure 2). The difference was significantly different (p < 0.05) between the male members of the ACDF group and the female members of the LDF group.

A history of prior spine surgery was most prevalent in unemployed women with a history of depression: in 66.67% of unemployed women in the LMD group, 48.00% of those in the ACDF group, and 59.26% of those in the LDF group (Figure 3). In the ACDF group, the rates for a history of prior spine surgery were significantly different (p < 0.01) between depressed and nondepressed, employed men and between depressed and nondepressed, unemployed women.

Discussion

Unemployment depression, which particularly affects middle-aged persons, may manifest with physical symptoms such as headache, irritability, stomachache, and sexual dysfunction in its early stages. More serious symptoms may eventually arise, including fatigue, sluggishness, loss of interest in life pleasures, and, worst of all, suicidal thoughts, plunging individuals who lose their job into a vicious cycle of frustration and defeat that makes it even harder for them to find a new job. Our study shows that unemployment and depression are common among those who have had spine surgery, with depression being more common among unemployed patients. Women admitted for spine surgery who are unemployed and report a history of depression are more likely than other patients to have had spine surgery in the past.

Recent studies document a dramatic 220% increase in the rate of spinal-fusion surgery, yet Deyo et al note that these increases “have not been accompanied by population-level improvements in patient
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outcomes or disability rates. Our study sheds light on an important factor that may be behind this lack of better spine surgery outcome: the duo of unemployment and depression. A model can be suggested where unemployment causes depression, which worsens back problems via pain-threshold modification, leading to additional spine surgeries (Figure 4). Furthermore, depression strongly affects the ability of patients to achieve a good surgery outcome with significant improvement in symptoms, disability score, and walking capacity, as demonstrated recently by Sinikallio et al.8

With an ongoing economic recession and with soaring health care expenditures, it is important to quantify efforts to improve hospital efficiency and decrease hollow overuse of health care resources.9 In view of our findings, it may be extremely useful to perform a randomized, controlled trial involving social workers and cognitive-behavioral specialists who will work with the spine-surgery population to decrease the risk of “failed back syndrome”10 by performing the right operation on the right patient, which should supposedly improve the patient’s clinical outcome, quality of life, and depression symptoms.11 It would also be useful to incorporate length of stay, consumption of hospital resources, and change in employment status in the outcome analysis of these patients.

It is important to note, however, that the discovered association between employment status,

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**Figure 3.** History of previous spine surgery in patients who have recently undergone spine surgery, by type of surgery, by employment status, by history of depression, and by sex.

ACDF = anterior cervical decompression and fusion; LDF = lumbar decompression and fusion; LMD = lumbar microdiscectomy.

**Figure 4.** Spiral deterioration of spine surgery patients with unemployment and depression.
Depression can seem worse than terminal cancer, because most cancer patients feel loved and they have hope and self-esteem.

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