

# **Patterns and Predictors of Mental Health Care Utilization Among Depressed Patients with Malignant Spine Tumors**

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**INTRODUCTION:** Patients diagnosed with cancer frequently experience elevated rates of depression, which can adversely affect quality of life and overall prognosis. Among cancer types, those with malignant spine tumors face unique challenges due to neurological deficits, chronic pain, functional impairment, and often poor prognosis, all factors that may contribute to even higher rates of depression. Despite this elevated risk, there is limited research assessing the utilization of psychological interventions in patients with malignant spine tumors. This study aims to comprehensively analyze the rates of psychiatric evaluation, psychotherapy, and selective serotonin reuptake inhibitor (SSRI) utilization among patients diagnosed with malignant spine tumors who subsequently develop depression, as well as to identify demographic factors associated with intervention use. Understanding these patterns may highlight gaps in care and inform strategies to improve psychological support in this population.

## **METHODS:**

A retrospective analysis was conducted using the PearlDiver Mariner database covering 2010 through 2023. Patients with a diagnosis of primary malignant spine tumor were identified using ICD codes. From this cohort, patients who were subsequently diagnosed with depression were included. These individuals were broken down into three psychological intervention groups – psychiatric evaluation, psychotherapy, and SSRI prescription – and the rates of utilization were determined. Demographic variables including age group, gender, geographic region, insurance type, and mean family income were extracted to evaluate their relationship with intervention utilization. Multivariate logistic regression analyses were performed to calculate odds ratios and identify demographic factors associated with receipt of each psychological intervention.

## **RESULTS:**

Among 38,741 patients diagnosed with a primary malignant spine tumor, 8,747 (22.6%) received a subsequent diagnosis of depression. Of these, 5,128 patients (58.6%) received at least one form of psychological intervention. Intervention utilization was most common in the 60-64 age group (n = 681), followed by 55-59 (n = 614) and 50-54 (n = 534). Regionally, the South accounted for the largest proportion of patients receiving interventions (n = 1,799). Intervention rates were higher among females (n = 3,062) compared to males (n = 2,066). Regarding insurance plans, patients with commercial coverage had the highest intervention utilization (n = 3,581), followed by Medicare (n = 739). Breaking down by intervention type, SSRI prescription was the most frequently utilized intervention (n = 3,984 patients), with more females (n = 2,474) receiving SSRIs compared to males (n = 1510). The 60-64 age group had the greatest SSRI use (n = 508), and the South region demonstrated the highest utilization (n = 1,480). Psychiatric evaluation was received by 1,763 patients, with female (n = 980) utilization slightly more than male (n = 783). The 55-59 age group had the highest psychiatric evaluation count (n = 200), predominantly in the Northeast (n = 545). Psychotherapy was utilized by 1,441 patients, with females (n = 812) representing a larger portion than males (n = 629). The 55-59 age group had the highest psychotherapy engagement (n = 152), and the Northeast region showed the greatest utilization (n = 434). Multivariate regression analysis revealed that increasing age was significantly associated with decreased odds of receiving any psychological intervention (OR 0.98, 95% CI 0.98-0.99, p < 0.001). Male gender was associated with significantly lower odds of receiving any intervention overall (OR 0.84, 95% CI 0.76-0.93, p < 0.001) and SSRI prescriptions specifically (OR 0.73, 95% CI 0.66-0.80, p < 0.001). No significant gender differences were observed for psychiatric evaluation or psychotherapy. Mean family income and insurance plan type did not significantly influence the odds of receiving SSRIs or psychotherapy; however, a slight positive association was found between higher mean family income and psychiatric evaluation utilization (OR 1.0, 95% CI 1.0-1.0, p < 0.001).

**DISCUSSION AND CONCLUSION:** Among patients with malignant spine tumors who develop depression, a majority receive some form of psychological intervention, though rates vary substantially by intervention type, demographic factors, and region. SSRI prescription is the most frequently utilized intervention, while psychotherapy engagement remains relatively low. The observed lower odds of intervention in males and older patients highlight demographic factors that may contribute to gaps in care. The modest influence of socioeconomic factors on psychiatric evaluation suggests financial or access barriers may be less pronounced for pharmacologic treatment but could affect non-pharmacologic services. These findings underscore the need for improved screening, referral, and tailored interventions to ensure equitable and comprehensive mental health care for this population. Future studies should analyze barriers to mental health care access and evaluate interventions to improve access and engagement with mental health resources, ultimately aiming to enhance patient well-being and quality of life.