

# Depression and Anxiety Do Not Prolong Length of Stay After Meningioma Resection



Anne Lally BA<sup>1,2</sup>, Sayak Ghosh BS<sup>1,2</sup>, Isabella Pecorari BS<sup>1,2</sup>, Vijay Agarwal MD<sup>1,2</sup>  
<sup>1</sup>Albert Einstein College of Medicine, <sup>2</sup>Montefiore Medical Center

## Abstract

Adverse effects from depression and anxiety have been observed in orthopedic and general surgery procedures.<sup>1,2</sup> In addition, social vulnerability has been shown to impact recovery after surgery.<sup>3</sup> In addition, The multi-directional relationship between social vulnerability, mental health, and length of stay (LOS) following meningioma resection has not been examined. The goal of this study is to determine if SVI and post-operative mental illness are predictors of LOS following meningioma resection.

## Methods

- Retrospective analysis of patients who underwent resection of pituitary adenomas at Montefiore Medical Center between 2018–2023
- Social vulnerability index (SVI) scores were recorded for each patient from the Centers for Disease Control Agency for Toxic Substances and Disease Registry.
- Mann Whitney U tests were performed for continuous variables
- Statistical significance is defined as  $p < 0.05$
- Multiple regression was conducted using age, SVI, post-operative anxiety, and post-operative depression, and significant univariate variables as potential predictors of LOS
- Race is not included in the regression as it is accounted for in the SVI score.

| Factor             | Number | % or Standard Deviation |
|--------------------|--------|-------------------------|
| Age                | 62.8   | 13.6                    |
| Female Sex         | 68     | 69%                     |
| Race               |        |                         |
| Asian              | 3      | 3%                      |
| Black              | 37     | 37%                     |
| Other              | 39     | 39%                     |
| White              | 20     | 20%                     |
| BMI                | 32.4   | 7.66                    |
| BMI ≥ 30           | 42     | 42%                     |
| SVI                | 0.766  | 0.287                   |
| SVI Over 0.5       | 79     | 80%                     |
| Tumor Grade        |        |                         |
| Grade 1            | 74     | 75%                     |
| Grade 2            | 23     | 23%                     |
| Grade 3            | 2      | 2%                      |
| Post-Op Depression | 22     | 22%                     |
| Post-Op Anxiety    | 21     | 21%                     |
| Diabetes           | 30     | 30%                     |
| Hypertension       | 63     | 64%                     |

Table 1. Patient Demographics and Clinical Characteristics

## REFERENCES

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## Results & Discussion

A total of 99 patients met inclusion criteria. The mean LOS was  $8.26 \pm 1.61$  days. High social vulnerability (SVI > 0.5) was not associated with depression ( $p < 0.7668$ ). Patients with low social vulnerability were more likely to be anxious ( $p = 0.0318$ ). Complications after surgery included postoperative DVT (n=4), hemorrhage (n=4), seizure (n=4), PE (n=1), UTI (n=3), myocardial infarction (n=1), and surgical revision (n=1).

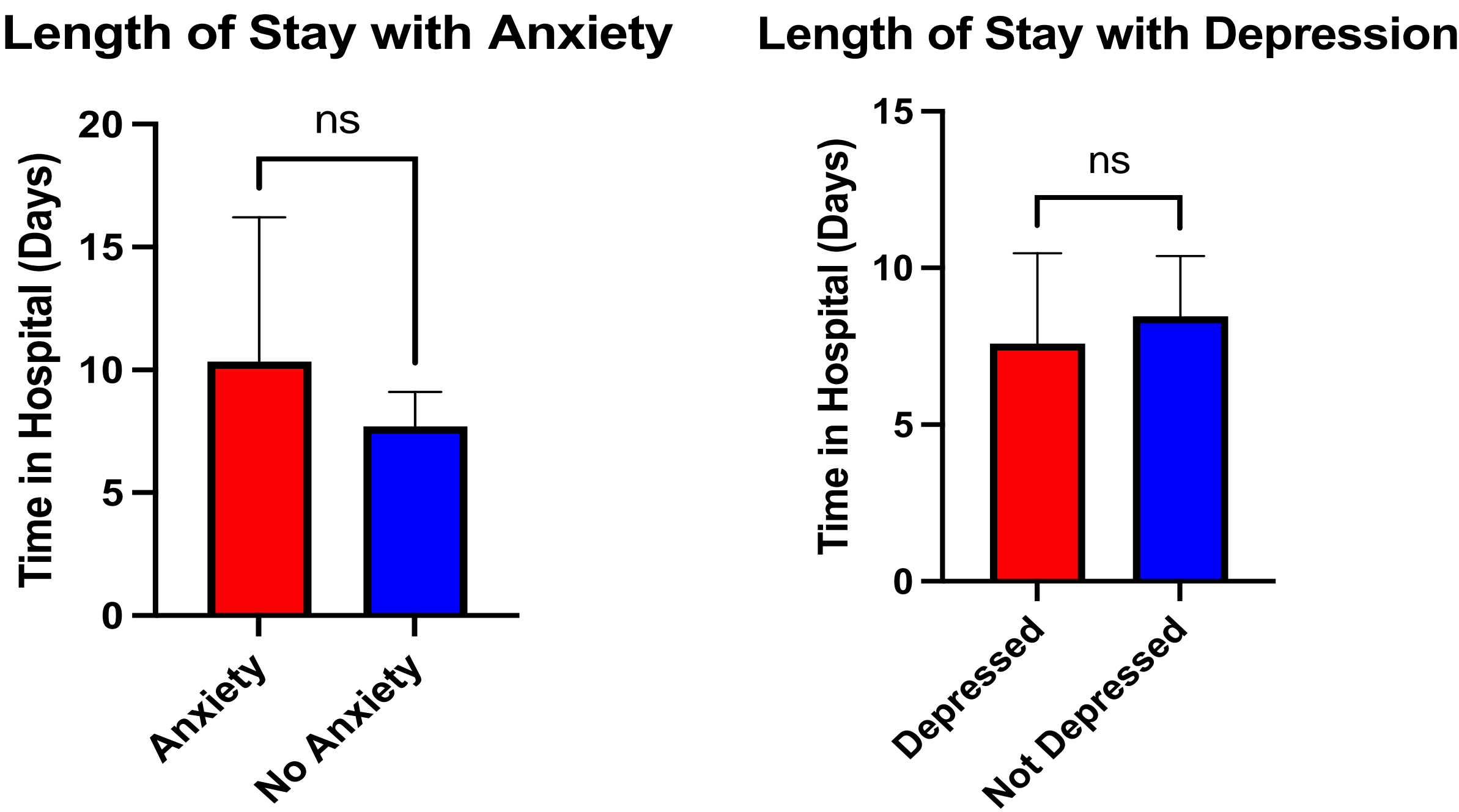


Figure 1. Length of stay following meningioma resection is not significantly different in those with anxiety and those with depression on univariate analysis.

| Variable     | Estimate | 95% CI            | P value |
|--------------|----------|-------------------|---------|
| Age          | -0.143   | -0.265 to -0.0210 | *0.0221 |
| Depression   | -4.238   | -8.87 to 0.398    | 0.0727  |
| Anxiety      | 4.409    | -0.326 to 9.144   | 0.0676  |
| SVI          | -5.738   | -11.04 to -0.436  | *0.0342 |
| Diabetes     | 2.765    | -0.690 to 6.22    | 0.1154  |
| Hypertension | 3.515    | 0.0673 to 6.963   | *0.0458 |

Table 2. Multiple linear regression shows that age, social vulnerability, and hypertension significantly impact length of stay following meningioma resection.

## Conclusions

Based on the results of this study, anxiety and depression do not have a significant impact on LOS after meningioma resection. This is different from expected based on studies on the effects of psychological disease on length of stay after orthopedic and general surgery procedures. However, under multivariate regression, patients with low social vulnerability is associated with longer rates of stay, which is unexpected based upon previous studies of health disparities.