

# Patients With Major Depressive Disorder and Undiagnosed Depression Are at Risk for Inferior Outcomes After MPFL Reconstruction

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**INTRODUCTION:** Patellar stabilization surgery is commonly performed in patients with recurrent patellar dislocations and associated instability. However, despite overall outcomes being positive, there remains limited information on the effects of underlying mental health conditions on outcome measures. Given the rising prevalence and number of undiagnosed number of patients with mental health conditions such as major depressive disorder (MDD), recognition that those with patellar instability who require MPFL reconstruction (MFPL-R) may be at risk for inferior post-operative outcomes if they also have a mental health disorder. The purpose of this study is to assess how mental health disorders such as MDD, or unrecognized depression can affect pre- and post-operative outcomes in patients undergoing MPFL-R. We hypothesize that underlying mental health disorders may lead to worse outcomes.

**METHODS:** A retrospective IRB-approved chart review of patients undergoing MPFL-R from 2015-2023 was performed. Demographic data, diagnosed mental health disorders such as MDD, complications, necessity of contralateral MPFL-R, and pre- and post-operative Patient Reported Outcomes Measurement Information Systems (PROMIS) scores were collected. Patients without a formal diagnosis of MDD, but with a pre-op PROMIS-Depression T-score greater than 52.5 were considered PROMIS-depressed. Kruskal-Wallis and chi-squared tests were used to compare continuous and categorical cohort descriptive statistics, respectively. Regression models were used to investigate the association between PROMIS scores and presence of mental health disorders and ability to achieve minimum clinically important difference (MCID).

**RESULTS:** 187 patients met inclusion criteria, with descriptives shown in Table One. Of note, 30 patients had MDD, and 39 patients were considered PROMIS-Depressed. Patients with a mental health disorder were more likely to have an underlying connective tissue disease ( $p = 0.03$ ) and require longer follow-up (512 vs 713 days,  $p < 0.05$ ). The presence of a mental health disorder led to significantly worse pre- and post-operative PROMIS scores (Table Two), however there were no differences in the change in PROMIS scores after surgery nor was there a difference in ability to achieve MCID. When divided by patients with no mental health disorder, MDD, or PROMIS-Depression, PROMIS-Depressed patients reported significantly worse pre- and post-operative PROMIS scores compared to all other groups ( $p < 0.005$ , Table Three). However, there were no differences in change in PROMIS scores after surgery (physical function  $p = 0.94$ , pain interference  $p = 0.16$ , depression  $p = 0.31$  respectively). There were also no differences in odds of achieving MCID for each PROMIS variable amongst all cohorts. Regression analysis showed an association between underlying mental health disorders or PROMIS-depressed patients and need for additional procedures and/or worse average PROMIS scores in all domains ( $p < 0.05$ , Table Three).

## DISCUSSION AND CONCLUSION:

The most important finding in our study is that underlying mental health disorders do not affect odds of achieving MCID after undergoing patellar stabilization surgery, however they do lead to worse pre- and post-operative PROMIS scores and prevented patients from deriving more improvement from their surgery. This finding was exacerbated in patients who were PROMIS-depressed. Overall, our cohort improved with surgery, but both diagnosed and undiagnosed MDD adversely affected patient outcomes. Requiring a TTO or having an underlying connective tissue disorders may present as additional risk factors. These findings highlight the importance of identifying and addressing mental health in this patient population, who may be susceptible to inferior long-term outcomes.

Table One: Demographic information comparing patients with and without mental health disorders.

Table Two: Outcome information comparing patients with and without mental health disorders

Table Three: Outcome information comparing patients without mental disorders to those with MDD and PROMIS-Depressed.

Table Four: Logistic regression analysis of variables in their relation to post-operative outcomes. \*\*\*, p-value  $< 0.001$ ; \*\*, p-value  $< 0.01$ ; \*, p-value  $< 0.05$

