

Factors Associated with High Pain Catastrophizing in Patients Undergoing Hip Arthroscopy for Femoroacetabular Impingement Syndrome

Introduction

- ❖ Pain catastrophizing is defined as an exaggerated negative mental state in response to actual or anticipated pain
- ❖ It has been shown to significantly impact post surgical outcomes
- ❖ It can be measured with a clinically useful 13 item psychometric assessment called a Pain Catastrophizing Scale (PCS)
- ❖ Possible PCS scores range from 0 – 52
- ❖ The purpose of this study was to determine which patient specific factors, if any, are associated with elevated PCS scores

Methods

- ❖ Patients seen by a single surgeon between May 2018 and October 2019 were included in the study and retrospectively analyzed
- ❖ Patients were included if they had completed a preoperative questionnaire which included PCS, as well as SF-12 mental and physical health assessment scores
- ❖ Patient specific variables were recorded (**fig. 1**)
- ❖ Patients were dichotomized according to PCS score
- ❖ Those with PCS \geq 70th percentile were categorized as “High Catastrophizing”
- ❖ Multiple logistic regression was performed to identify variables associated with “High Catastrophizing”

Figure 1: Patient Specific Variables Considered

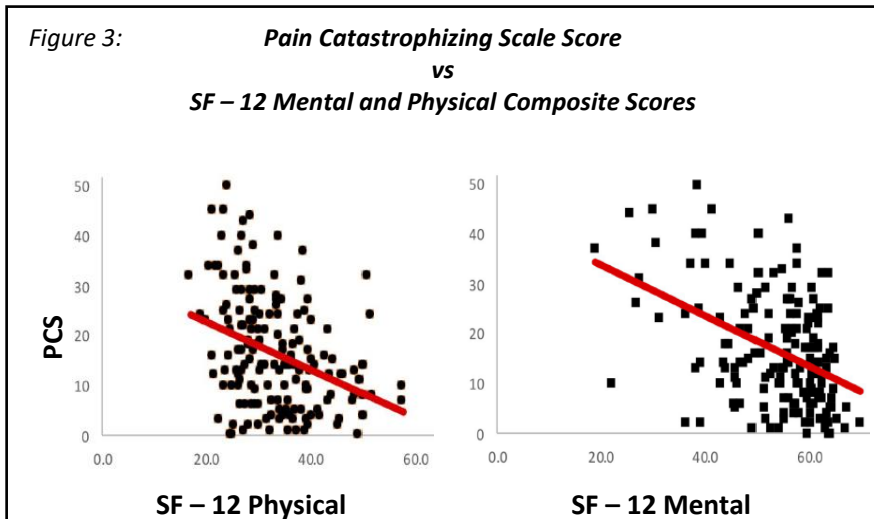
| | | | | |
|-------------------|---------------------|-----------------------------|---------------------------|-----------------------------|
| Age | Gender | BMI | VAS | Tobacco Use |
| Pre-op opioid use | Number of Allergies | Hx of depression or anxiety | SF-12 mental health score | SF-12 physical health score |

Results

- ❖ **168** patients met inclusion criteria (119 females, 49 males)
- ❖ Mean PCS Score: **16.5** \pm 11.3 (Range 0 – 50)
- ❖ PCS score of **22** corresponded to the 70th percentile
- ❖ **52 / 168** (30 %) patients were classified as “High Catastrophizing”
- ❖ **62 / 168** (36.9 %) patients had a history of depression or anxiety

Figure 2: Factors Associated with High Pain Catastrophizing

| | Mean \pm SD (Range) | P |
|----------------------------------|-------------------------------|---------|
| SF – 12 Mental | 53.8 \pm 9.7 (18.36 – 69.7) | < 0.005 |
| SF – 12 Physical | 33.2 \pm 8.2 (16.8 – 57.4) | < 0.005 |
| History of Depression or Anxiety | N/A | < 0.005 |



Conclusions

- ❖ Patients with poorer mental and physical health, as assessed by SF – 12 scores, as well as those with a history of depression or anxiety are more likely to have higher pain catastrophizing scores
- ❖ Age, Gender, BMI, VAS, tobacco use, number of allergies, and preoperative opioid use were not independently associated with elevated pain catastrophizing scores

References

1. Ayers DC, Franklin PD, Ring DC. The Role of Emotional Health in Functional Outcomes After Orthopaedic Surgery: Extending the Biopsychosocial Model to Orthopaedics. *J Bone Jt Surgery-American Vol.* 2013;95(21):e165-1-7. doi:10.2106/JBJS.L.00799
2. Hayashi K, Morishima T, Ikemoto T, et al. Pain Catastrophizing Is Independently Associated with Quality of Life in Patients with Severe Hip Osteoarthritis. *Pain Med.* 2018;00(0):1-8. doi:10.1093/pm/pny265
3. Sieberg CB, Klajn J, Wong C, Bowen G, Simons LE, Millis MB. Predictors and trajectories of chronic postoperative pain following hip preservation surgery. *J Hip Preserv Surg.* 2017;4(1):45-53. doi:10.1093/jhps/hnx003
4. Westermann RW, Lynch TS, Jones MH, et al. Predictors of Hip Pain and Function in Femoroacetabular Impingement: A Prospective Cohort Analysis. *Orthop J Sport Med.* 2017;5(9):1-8. doi:10.1177/2325967117726521
5. Jacobs CA, Burnham JM, Jochimsen KN, Molina D, Hamilton DA, Duncan ST. Preoperative Symptoms in Femoroacetabular Impingement Patients Are More Related to Mental Health Scores Than the Severity of Labral Tear or Magnitude of Bony Deformity. *J Arthroplasty.* 2017;32(12):3603-3606. doi:10.1016/j.arth.2017.06.053
6. Potter MQ, Wylie JD, Sun GS, Beckmann JT, Aoki SK. Psychological distress reduces preoperative self-assessment scores in femoroacetabular impingement patients. *Clin Orthop Relat Res.* 2014;472(6):1886-1892. doi:10.1007/s11999-014-3531-z
7. Khan RS, Ahmed K, Blakeway E, et al. Catastrophizing: A predictive factor for postoperative pain. *Am J Surg.* 2011;201(1):122-131. doi:10.1016/j.amjsurg.2010.02.007
8. Sobol-Kwapinska M, Babel P, Plotek W, Stelcer B. Psychological correlates of acute postsurgical pain: A systematic review and meta-analysis. *Eur J Pain (United Kingdom).* 2016;20(10):1573-1586. doi:10.1002/ejp.886
9. Sullivan MJ. The Pain Catastrophizing Scale: clinical applications. https://sullivan-painresearch.mcgill.ca/pdf/pcs/PCManual_English.pdf. Published 1995. Accessed May 30, 2019.
10. Sullivan MJL, Bishop S, Pivik J. The Pain Catastrophizing Scale: Development and validation. *Psychol Assess.* 1995;7(4):524-532.
11. Scott W, Wideman TH, Sullivan MJL. Clinically Meaningful Scores on Pain Catastrophizing Before and After Multidisciplinary Rehabilitation. *Clin J Pain.* 2014;30(3):183-190. doi:10.1097/AJP.0b013e31828eee6c
12. Sochacki KR, Brown L, Cenkus K, Di Stasi S, Harris JD, Ellis TJ. Preoperative Depression Is Negatively Associated With Function and Predicts Poorer Outcomes After Hip Arthroscopy for Femoroacetabular Impingement. *Arthrosc - J Arthrosc Relat Surg.* 2018;34(8):2368-2374. doi:10.1016/j.arthro.2018.03.020

