

## **Pelvic Physical Therapy Distance Journal Club**

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**Article 1:** The impact of anxiety on postoperative pain following pelvic reconstructive surgery. Moss, C., Pandya, P.R., Yanek, L., et al. *International Urogynecology Journal* 34, 1551-1557, 2023. <https://doi.org/10.1007/s00192-022-05423-y>

**Introduction:** Surgical recovery is influenced not only by physical factors but also by mental well-being. Lifetime prevalence of anxiety is 29%. Women are 1.6x more likely to experience anxiety in their lifetime compared to men. In the context of pelvic floor disorders, 30.9% of affected women have preoperative anxiety, with 7.4% of this anxiety specifically linked to their pelvic floor condition. There is limited and conflicting data on pre-op anxiety and post-op pain. The hypothesis of this study is that patients with preoperative anxiety are more likely to experience heightened postoperative pain.

**Aim:** This study aimed to illustrate the relationship between preoperative anxiety and postoperative pain in patients undergoing pelvic reconstructive surgery, utilizing established anxiety and pain questionnaires.

**Study Design:** This was a prospective study involving 149 patients scheduled for various pelvic surgeries, conducted between September 2018 and June 2019.

**Methods:** Patients were contacted within 2 weeks before surgery and assessed for eligibility; eligible patients verbally consented to participation

**Inclusions:** The study included patients undergoing procedures such as hysterectomy, or for prolapse, stress incontinence, and to implant for sacral neuromodulation.

**Exclusions:** Patients receiving Botox injections.

**Tools:** Two primary tools were employed in this study:

**Beck Anxiety Inventory (BAI):** A 21-item questionnaire measuring state and trait anxiety, with little overlap with depression, and responsive to changes over time. Scores ranged from 0-3 on a Likert scale, using a composite score of 0-63. It classified anxiety as none or normal (0-9), mild to moderate (10-18), moderate to severe (19-29) and severe anxiety (30-63).

**Surgical Pain Scales (SPS):** These were used to assess pain levels before and 14 days after surgery. SPS is specifically for women undergoing pelvic reconstructive surgery, evaluating pain at rest, during normal activities, and on a VAS (0-10) scale. Strenuous activity pain was not assessed within the first two weeks post-op (due to post-op restrictions). Also, small variations in sample size by item were caused by "NA" answers to some questions.

Statistical analysis was conducted using SAS v9.4. Because post op pain scores (primary outcomes) were skewed to low, each question on SPS was dichotomized to compare scores between those reporting 0-1 pain and those reporting 2-10 pain.

Potential confounders were evaluated through bivariate analysis, considering demographic and perioperative characteristics, comparing high anxiety scores (>9) with no or normal anxiety scores (0-9). They used Wilcoxon rank-sum for continuous and Chi-squared for categorical variables. The association between anxiety and postoperative pain greater than minimal (2 or greater) was analyzed using multivariate logistic regression, adjusted for age. A post hoc power analysis was conducted due to non-normal pain responses.

**Results:** (Figure 1): The study enrollment flow diagram indicated an initial enrollment of 308 patients, with 129 completing the final survey. Median age:59, BMI: 27, parity: 2, 80% white, 99% non-Hispanic, 99% with HS or greater education level.

Preoperative anxiety was 26.8%, with scores assessed approximately two weeks before surgery. Scores weren't normally distributed: 73% were in the no or normal anxiety range and the median BAI score of was 4 (anxiety is >9).

Patients with anxiety tended to be younger (median age: 53 vs. 60.8 in the no/normal anxiety group). Median pain scores were higher in the anxious group, both immediately post-op and at day 14, with particular differences observed in "pain at rest" and "worst pain" (Figure 3).

Pain scores were skewed toward minimal pain, both pre- and post-op for all three pain measurements on the SPS.

Multivariate logistic regression (assessing association between pre-op anxiety and post-op pain scores) indicated a statistically significant association between anxiety and pain only for the question "worst pain experienced" at day 14 (OR 1.53, 95% CI 1.00-2.34). (Table 2).

Linear progression models (looking at change in pain), did not find an association between anxiety and change in pain in any of the 3 pain questions. Also, there was less change in pain, pre- to post-op in older women.

**Discussion:** Historically, the literature has presented conflicting findings regarding the association between pre-op anxiety and post-op pain. The study's observed anxiety levels were 26.8%, consistent with the general population.

The study findings suggest an association between preoperative anxiety and postoperative pain. However, the small study size and the wide distribution of pain scores limited more extensive analysis between high pre-operative anxiety and pain scores. The traditional pre-op interventions (such as anti-anxiety medications) did not yield significant differences in postoperative pain, emphasizing the need for well-designed studies to enhance outcomes for this surgical population.

**Strengths:** This study used a prospective multicenter design and validated questionnaires to assess anxiety and pain, including a pain scale specific to women undergoing pelvic reconstructive surgery. The study also accounted for potential confounders, such as age, demographics, and perioperative characteristics.

**Weaknesses:** They state their study population was nearly homogeneous, which may affect generalizability, particularly among minority women. Most participants reported less than

severe post-op pain, reducing statistical power. Anxiety and pain were dichotomized for analysis, potentially grouping less clinically significant responses with more significant ones. This classification may have decreased the clinical relevance of the association. It is also possible that participants who completed surveys on the day of the procedure had misleading elevation of preoperative anxiety scores due to imminent surgery. Also, the sample size was too small to identify significant associations for the first two questions on the SPS, given their non-normal distributions.

**Conclusion/Summary:** Pelvic reconstructive surgeons should be cognizant of the prevalence of at least mild preoperative anxiety in a substantial portion of their patients. Notably, younger individuals tend to exhibit preoperative anxiety, and when accounting for age, women with more preoperative anxiety appear more likely to experience increased postoperative pain. This observation can inform perioperative management decisions.

**Clinical Application:** Understanding this association and identifying patients who may be at risk of increased postoperative pain may help pelvic reconstructive surgeons (and PTs involved with these patients pre-op) with preoperative counseling and identifying patients at risk for challenges in the management of postoperative pain.

**Discussion Questions:**

- 1) Given these results, would you consider administering an anxiety questionnaire to preoperative patients? Do you typically use fear or anxiety questionnaires in your practice?
- 2) Do you see a role for physical therapy in preparing patients for surgery? If so, what methods or techniques would/do you use?
- 3) Have you noticed increased reports of pain in patients who also report anxiety?
- 4) How do you perceive the possible impact of trauma on anxiety and pain, such as among any minority groups with historical and ongoing trauma?

Additional: Screening tools mentioned in the article are not freely available. However, you can access the Childbirth Fear Questionnaire [; <https://www.mdpi.com/1660-4601/19/4/2223>]. References to the Beck Anxiety Inventory and other measures may require fees for access. For further reading on screening for fear before childbirth, you can refer to an additional article [; <https://doi.org/10.3390/ijerph19042223>]. Screening for Perinatal Anxiety Using the Childbirth Fear Questionnaire: A New Measure of Fear of Childbirth. Nicole Fairbrother, Fanie Collardeu, et al. *Int. J. Environ. Res. Public Health* **2022**, *19*(4), 2223

Beck Anxiety Inventory: link in article below and a fee required to access BAI).

doi: 10.1002/acr.20561

VAS for surgical pain assessment: PMID: 16038823 DOI: [10.1016/j.jamcollsurg.2005.03.034](https://doi.org/10.1016/j.jamcollsurg.2005.03.034)