



Do Patients with Depression or Anxiety Experience Greater Levels of Pain Catastrophizing?

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BACKGROUND

- High comorbidity of anxiety and depression well established in the literature^{1,2,3}
- Increase in depression seen post injury⁴
- Significant pain noted after ACL injury



Measuring Postinjury Depression Among Male and Female Competitive Athletes

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BACKGROUND

- Pain Catastrophizing⁵
 - Cascade of negative responses (cognitive and emotional) in anticipation of pain
 - Adversely affects pain coping behavior
- How is pain related to depression and anxiety after ACL injury?



OBJECTIVES

- Compare patients depression and or anxiety symptoms to Pain Catastrophizing Scores (PCS) before ACL reconstruction.
- **Hypothesis:** Patients with higher levels of depression and/or anxiety will demonstrate a greater PCS prior to ACL reconstruction.



METHODOLOGY

- Consecutive patients undergoing ACL Reconstruction (n=35) by a single surgeon in 2020 were prospectively followed.
- Primary and secondary ACL Reconstruction were included
- Prior surgery, patients were administered PCS and PROMIS Depression and Anxiety surveys



METHODOLOGY

PROMIS Surveys

Please respond to each question or statement by marking one box per row.

In the past 7 days...

| | | Never | Rarely | Sometimes | Often | Always |
|---------|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| EDANX01 | I felt fearful..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDANX40 | I found it hard to focus on anything other than my anxiety..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDANX41 | My worries overwhelmed me..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDANX53 | I felt uneasy..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

In the past 7 days...

| | | Never | Rarely | Sometimes | Often | Always |
|---------|-----------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| EDDEP04 | I felt worthless..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDDEP06 | I felt helpless..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDDEP20 | I felt depressed..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| EDDEP41 | I felt hopeless..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

PCS Survey

0 – not at all 1 – to a slight degree 2 – to a moderate degree 3 – to a great degree 4 – all the time

When I'm in pain ...

- 1 I worry all the time about whether the pain will end.
- 2 I feel I can't go on.
- 3 It's terrible and I think it's never going to get any better.
- 4 It's awful and I feel that it overwhelms me.
- 5 I feel I can't stand it anymore.
- 6 I become afraid that the pain will get worse.
- 7 I keep thinking of other painful events.
- 8 I anxiously want the pain to go away.
- 9 I can't seem to keep it out of my mind.
- 10 I keep thinking about how much it hurts.
- 11 I keep thinking about how badly I want the pain to stop.
- 12 There's nothing I can do to reduce the intensity of the pain.
- 13 I wonder whether something serious may happen.

...Total



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METHODOLOGY

Dear Patient,

This is Megan Simon, a research assistant of the study you recently participate in regarding your psychological health and ACL surgery. Your scores have indicated that you may benefit from psychological resources.

We cannot, and are not, using this study as any sort of diagnosis. Rather, we are simply able to observe patterns that indicate whether someone may benefit from utilizing wellness resources.

Emory Healthcare has an incredible team of doctors and counselors who are readily available for help at many of our clinic locations: <https://www.emoryhealthcare.org/emory-clinic/psychiatry/index.html>

You can book an appointment online or call Emory Clinic Psychiatry & Behavioral Sciences at 404-778-7777.

You may call or make an appointment, even if it's to only ask questions or talk.

Thank you again for your participation in our study and we hope you find these resources useful for you. Please contact me (mbsimo2@emory.edu), if you have any further questions.

Sincerely,
Megan Simon

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RESULTS

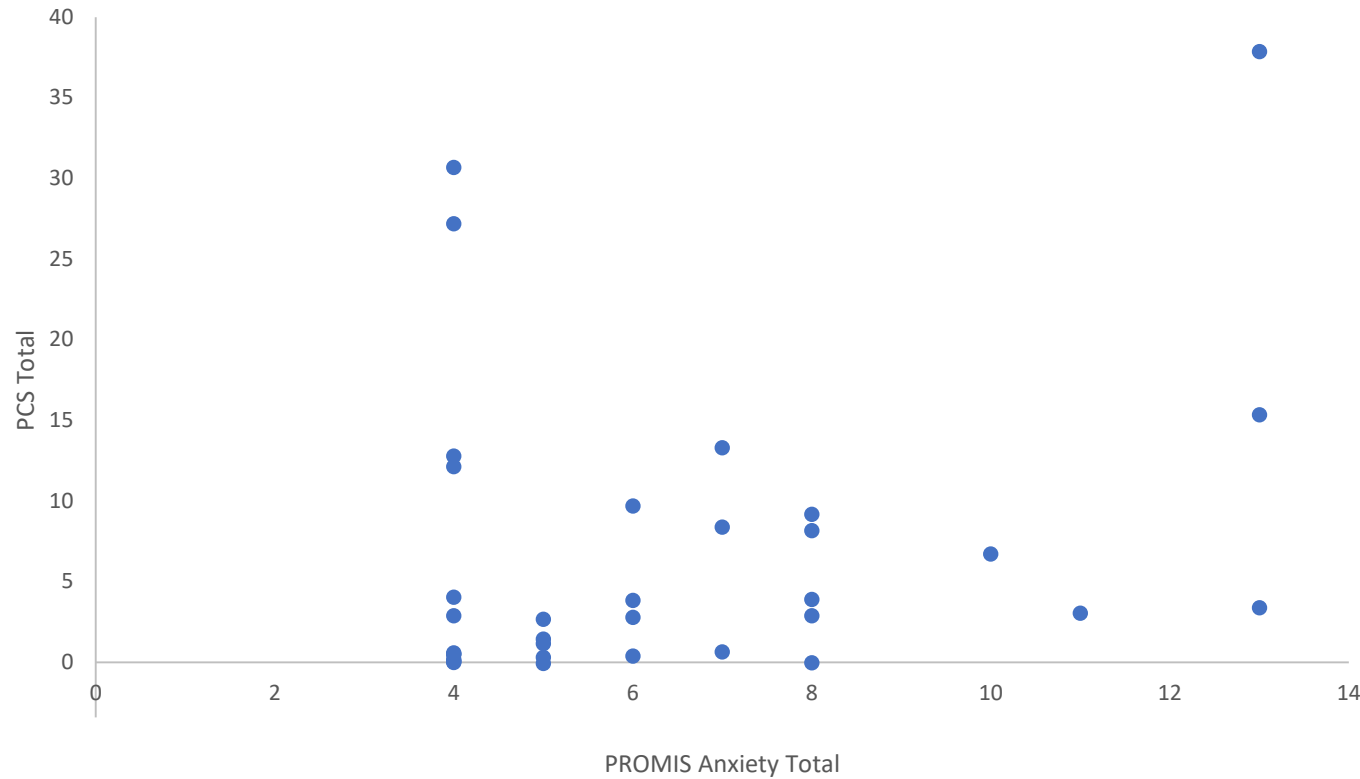
- 35 participants
 - Average age 27.5 (± 11.1)
 - Females (n=16)
 - Males (n=19)
- Moderate, Positive Correlation between Anxiety and Depression
 - $r(35) = 0.56$

| | ANX | DEP | PCS |
|-------|------|------|------|
| AVE | 6.34 | 4.89 | 6.09 |
| STDEV | 2.79 | 2.15 | 9.05 |



RESULTS

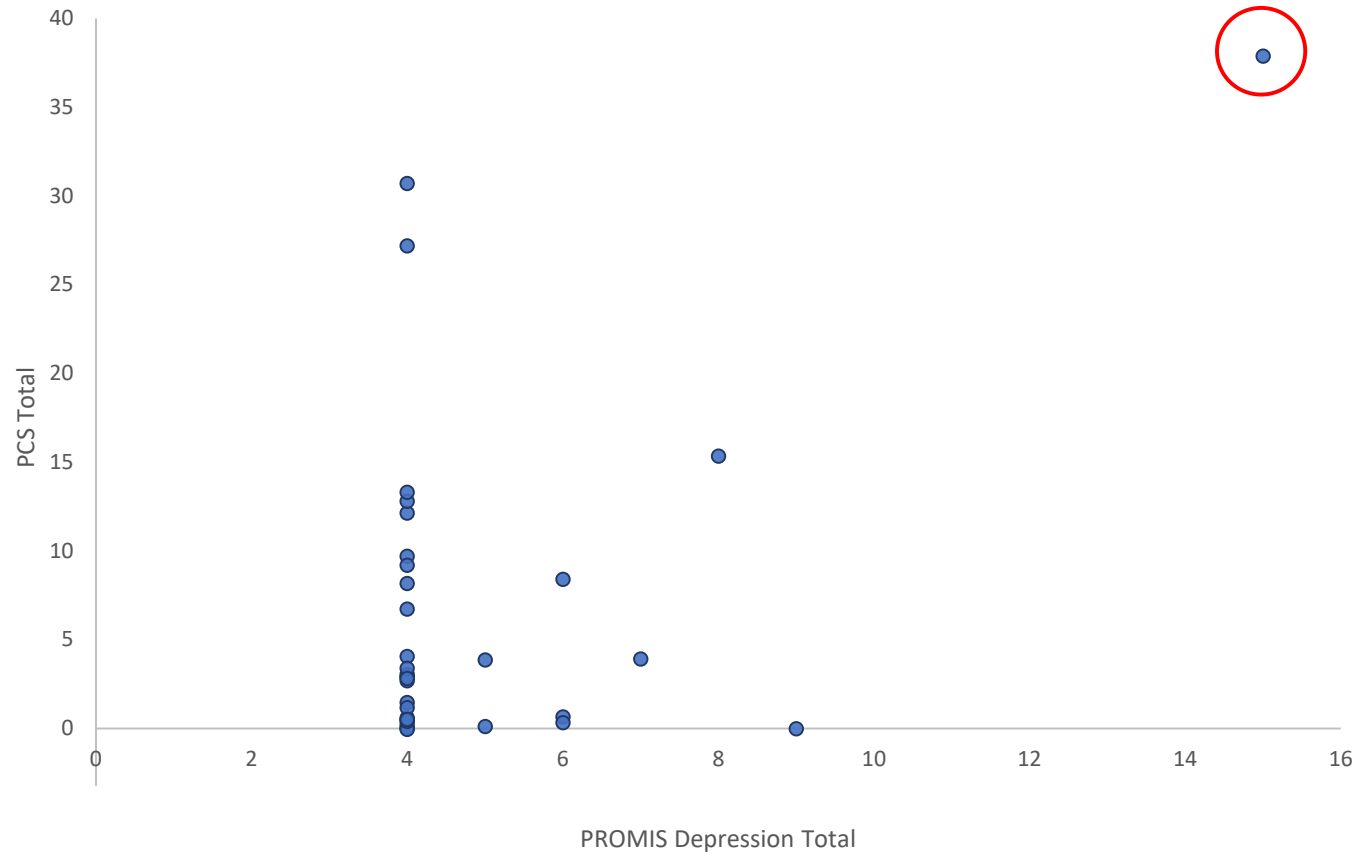
Pain vs Anxiety Scores



Weak, Positive Correlation
between Anxiety and PCS
 $r(35) = 0.28$

RESULTS

Pain vs Depression Scores



Moderate, Positive Correlation
between Depression and PCS
 $r(35) = 0.47$

CONCLUSIONS

Findings

- Moderate correlations between depression and PCS
- Considerations for patients with pre-existing depression/anxiety

Limitations

- Sample size
- Survey administration during pre-op

Clinical Implications

- Administration of depression and anxiety questionnaires prior to surgery

Future Research

- RCT - relationship between depression/anxiety and opioid use



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THANK YOU!



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