

Independent of disease activity, increased pain vigilance predicts greater anxiety and pain catastrophizing in youth with IBD

Pain Vigilance in Youth with Inflammatory Bowel Disease

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BACKGROUND

- Around 70% of youth with IBD experience pain, usually secondary to flares of active inflammation.
- 13% continue to experience pain in disease remission.
- Attention is one cognitive construct involved in the aetiology and maintenance of chronic pain.
- Vigilance to pain is an attentional mechanism where one is predisposed to select and attend to pain-related stimuli.
- In youth with primary chronic pain increased pain vigilance, or hypervigilance, as assessed via self-report (PVAQ-C)^a or experimental paradigms (dot-probe), has shown associations with greater disability and poor psychological outcomes.
- Pain can be the first indicator of disease progression in IBD. Vigilance to pain may be protective during relapse, allowing for prompt assessment and management.
- In remission, vigilance to pain may be unhelpful - interfering with adaptive behaviour, increasing distress and disability and impeding treatment goals, similar to youth with primary chronic pain.
- In youth with IBD, increased anxiety and depression have been associated with greater pain intensity and pain-catastrophising, highlighting that there are clear psychological and cognitive components to pain in IBD, beyond biological factors.
- Pain vigilance may be one cognitive factor contributing to the pain experience in youth with IBD in both adaptive and maladaptive ways.

METHODS



Examine pain vigilance in youth with IBD, using the PVAQ-C, and elucidate the associations between pain vigilance and patient outcomes.



46 youth; 57% female
12-17 years; Mean age: 14.76
Diagnosis of IBD; 73% Crohn's Disease
English speaking and living with a primary caregiver
Not undergoing treatment for a comorbid illness
Current steroid regime \leq 1mg/kg/day
No neurocognitive/developmental delay



IBD outpatient clinic at Sydney Children's Hospital, NSW Australia



Child-report questionnaires
Pain characteristics
Pain Vigilance and Awareness Questionnaire (PVAQ-C)
PROMIS paediatric-25 profile
IBD-Specific Anxiety Scale
Pain Catastrophising Scale

Physician Assessment
Disease Activity Index (PCDAI/PUCAI)

Medical records:
Demographics, diagnosis, clinical history

RESULTS

01

Overall, PVAQ-C mean scores (30.31, sd 13.74) observed as lower than in a study of paediatric primary chronic pain (38.63, sd 14.82)^a, indicating less vigilance to pain in youth with IBD.

No differences in pain vigilance scores between groups:
1. Active disease (40%) vs. Remission (t -0.97, p 0.34)
2. Experiencing pain the last week (52%) vs. No pain (t 1.04, p 0.30)

02

Across the whole sample, correlations showed increased pain vigilance was significantly associated with greater:

Disability (r 0.31, 0.04)
General anxiety (r 0.34, p0.02)
IBD-specific anxiety (r 0.35, p 0.02)
Pain catastrophising (r 0.54, p <0.001)

03

A series of hierarchical regression analyses showed pain vigilance remained a significant predictor of general and IBD-specific anxiety and pain-catastrophising when controlling for age, sex, and disease activity.

Anxiety		IBD-specific anxiety		Disability		Pain-catastrophising	
β	R ²	β	R ²	β	R ²	β	R ²
Step 1		0.265**		0.197*		0.111	
Age	0.212	0.208	0.204	-0.044	0.271	0.274	0.080
Sex	-0.451*	-0.385**	-0.408*	0.327*	-0.059	-0.051	
Step 2		0.010		0.062		0.271	
Age	0.207	0.204	0.204	-0.028	0.271	0.271	0.084
Sex	-0.406*	-0.408*	-0.408*	0.374*	-0.059	-0.059	
Disease	0.099	0.251	0.251	-0.403*	0.064	0.064	
Step 3		0.073*		0.092*		0.313	
Age	0.139	0.138	0.138	0.012	0.156	0.156	0.288
Sex	-0.467*	-0.411*	-0.411*	0.371*	-0.077	-0.077	
Disease	0.070	0.206	0.206	-0.369*	0.008	0.008	
PVAQ-C	0.280*	0.313*	0.313*	0.211	0.470*	0.470*	

* p < 0.05, Sex coded as Female 0, Male 1

DISCUSSION

- In line with research in youth with chronic pain, **increased pain vigilance predicts greater pain-catastrophising.**
- The evidence extends on current research, showing **pain vigilance predicts increased general and IBD-specific anxiety.**
- Hypervigilance to pain may contribute to anxiety in youth with chronic disease due to the constant scanning for pain-related information making it difficult to focus on non-threatening stimuli. Alternatively, increased anxiety may predispose youth to becoming hypervigilant for pain.
- Contrasting previous research, there was **no predictive relationship between pain vigilance and disability.** Given the significant correlation between the variables, it may be that hypervigilance exerts an indirect effect on disability, mediated by biopsychosocial factors including pain intensity, coping and negative pain cognitions.
- Unexpectedly, there were **no differences in pain vigilance regardless of recent pain or active disease.** IBD pain that is interpreted as disease-related may capture less attention than pain which has no clear cause (i.e. primary chronic pain). Alternatively, attention to disease-related pain may involve different attentional processes not captured by measures calibrated for primary chronic pain.

FUTURE RESEARCH

- Further measure validation in healthy and chronic disease populations is required.
- Consider whether modifying measures to include questions on disease-related pain enhances its sensitivity and specificity.
- Identifying causal associations between pain vigilance and patient outcomes may provide:
 - (1) Evidence for the inclusion of a pain vigilance screener in IBD clinics.
 - (2) Potential targets for pain management, including psychoeducation around hypervigilance and interventions to modify attentional processes.

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