

# **A Brief Cognitive-Behavioural Approach to Reducing Anxiety Sensitivity Decreases Pain-Related Anxiety**

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# Anxiety Sensitivity (AS)

- ❖ Fear of physiological sensations commonly associated with anxiety (i.e., increased heart rate, increased respiration, or difficulty concentrating) (Reiss, 1991).
- ❖ High AS individuals have tendency to misinterpret and then catastrophize about these sensations.
- ❖ High AS found to be a risk factor for various forms of psychopathology, such as anxiety disorders (Schmidt et al., 1997) and chronic pain (Asmundson et al., 2003).

# AS & Chronic Pain

- ❖ **Kuch et al. (1991):** 38% of 141 panic disorder patients reported chronic pain. These patients reported significantly higher AS levels than patients without chronic pain.
- ❖ **Asmundson & Norton (1993):** regardless of pain severity, high AS (vs. low AS) chronic pain patients reported more negative experiences while experiencing pain (i.e., cognitive anxiety, fear of pain, and avoidance behaviour).
- ❖ **Asmundson & Taylor (1996):** AS accounted for 30% variance in fear of pain which, in turn, accounted for 68% of avoidance behaviour in sample of chronic pain patients.

# AS & Acute Pain

- ❖ **Keogh & Birkby (1999):** high (vs. low) AS healthy women reported more sensory pain. No differences in pain threshold or tolerance, suggesting AS affects how pain is perceived.
- ❖ **Keogh & Mansoor (2001):** high (vs. low) AS healthy women reported more sensory and affective pain. No differences in pain threshold or tolerance.
- ❖ **Uman, Stewart, Watt, & Johnston (2006):** high (vs. low) AS healthy women reported greater fear and perceived pain. High AS appears to color the way individuals conceptualize the more subjective component of pain.

# Treatment of AS

- ❖ AS levels lowered when panic disordered patients successfully treated with cognitive behavioural therapy (CBT) [Telch et al., 1993; Penava et al., 1998].
- ❖ Limited research done on efficacy of this therapeutic approach with non-clinical samples with high AS.
- ❖ Schmidt et al. (2007): risk reduction group showed 30% reduction in AS versus control group maintained at 1-year follow-up.

# Brief CBT [Watt et al., 2006]

- ❖ Brief CBT designed specifically to reduce clinically elevated AS.
- ❖ Three 1-hour sessions run over 3 consecutive days.
- ❖ Three components:
  - Day 1. Psycho-education
  - Day 2. Cognitive restructuring
  - Day 3. Exposure technique (i.e., running)

# Present Study

## **Objective:**

- To test the effects of participating in a brief CBT on pain-related anxiety in high AS participants.

## **Rationale:**

- The present study was guided by the hypothesis that a program designed to reduce AS levels could result in a decrease in anxiety related to pain sensations.
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# Method

## Participants

- ❖ 186 of 221 female undergraduates who had participated in the overall CBT study volunteered to take part in a separate post-treatment assessment session regarding pain anxiety

## Measures

- ❖ Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992)
- ❖ Pain Anxiety Symptoms Scale-20 (PASS; McCracken & Dinghra, 2002)

# 4 Conditions

<b>High AS –CBT</b> N=42	<b>Low AS –CBT</b> N=50
<b>High AS –Control</b> N=51	<b>Low AS –Control</b> N=43

# Results

**Hypothesis 1**: High AS participants would report more pain-related anxiety pre-intervention as compared to low AS participants.

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**Table 1.**

	<b>High AS N=39</b>	<b>Low AS N=50</b>
<b>PASS Total</b>	46.60	21.18*
<b>Avoidance</b>	11.82	6.71*
<b>Fearful Thinking</b>	8.51	2.84*
<b>Cognitive Anxiety</b>	15.58	7.42*
<b>Physiological Responses to Pain</b>	10.69	4.22*

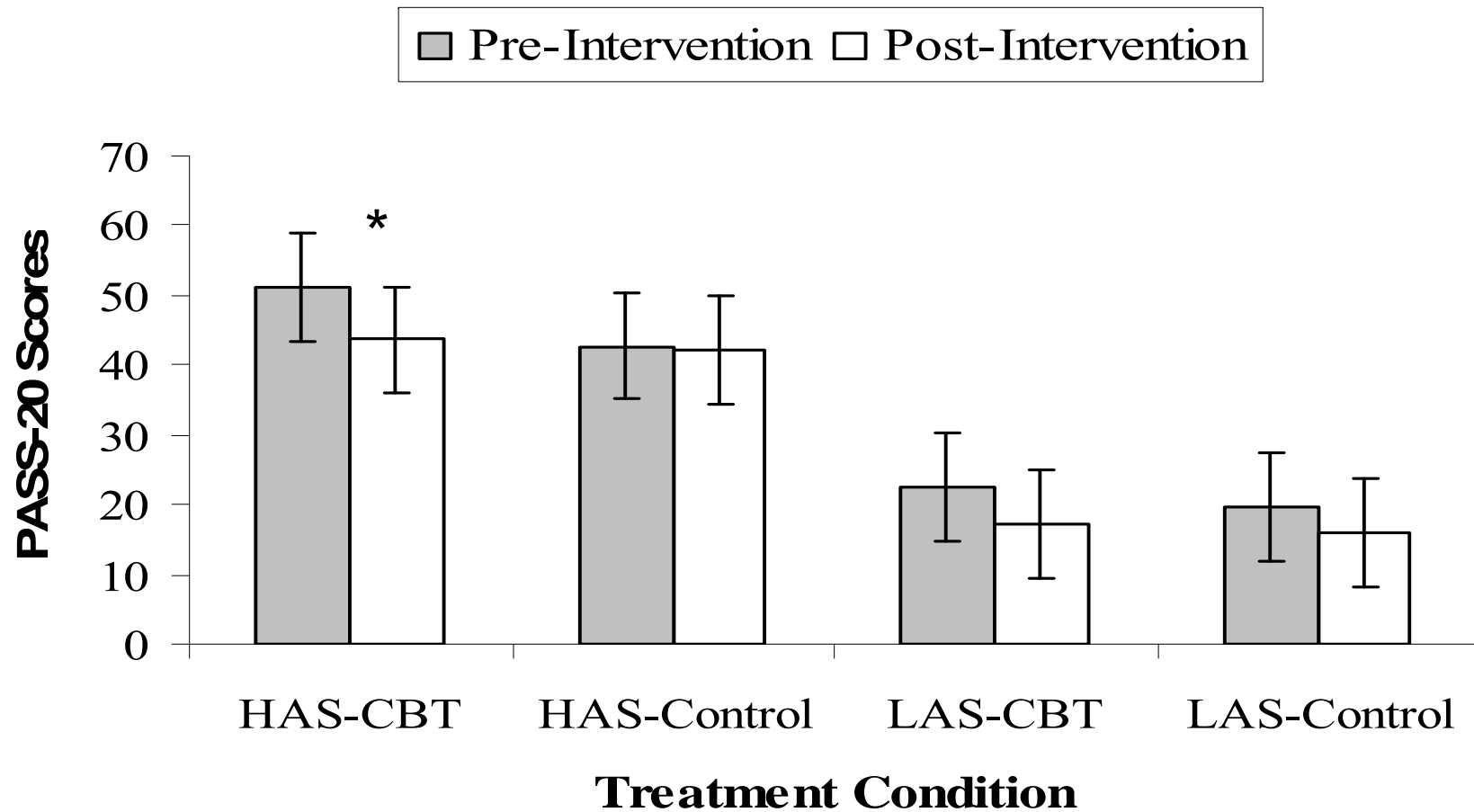
\*p<.0001

# Results

**Hypothesis 2:** High (vs. Low) AS participants in the CBT (vs. NST) condition would reveal greater reduction in pain-related anxiety Post- (vs. Pre-) intervention.

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**Figure 1: Changes in Pain Anxiety Pre- to Post-Intervention**



*Cohen's d = 0.45*

# Results

**Hypothesis 3**: Change in AS levels from pre- to post-intervention expected to mediate the expected effects of CBT in reducing pain anxiety in High AS women.

## Table 2. Mediation Analyses

AS Group	Treatment Condition	PASS-20-Change Scores <u>w/out</u> Covariate	ASI-Change Scores	PASS-20-Change Scores <u>with</u> Covariate
		M (SE)	M (SE)	M (SE)
HAS	CBT	<b>8.1 (1.5)<sup>a</sup></b>	<b>6.7 (0.6)<sup>b</sup></b>	7.4 (1.5)
	NST	<b>1.1 (1.3)<sup>a</sup></b>	4.9 (0.7)	0.8 (1.3)
LAS	CBT	4.9 (1.3)	<b>3.0 (0.7)<sup>b</sup></b>	5.3 (1.3)
	NST	3.7 (1.5)	3.9 (0.8)	3.9 (1.5)

# Summary & Conclusions

- ✓ High AS young women reported significantly higher pain-related anxiety pre-intervention
    - ↑ cognitive anxiety, ↑ fearful appraisals of pain, ↑ escape/avoidance behaviour, & ↑ physiological anxiety
  
  - ✓ Moderate effect found for brief CBT intervention (average  $d = 0.55$ ).
    - High AS – CBT condition showed significant reduction in overall pain-related anxiety as compared to High AS in control (NST) condition or Low AS in either condition
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# Summary & Conclusions

- ✓ Mediator analyses supported intervening role of AS in explaining fear of pain.
    - CBT effects on fear of pain among high AS participants eliminated when controlling for AS change due to intervention
  - ✓ CBT targeting AS seems advisable approach to pain management
    - Prevention of chronic pain
    - Reduce use of analgesics
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# Future Research

- Educational component:
    - focus on pain?
  - Exposure component:
    - fear of sensations or feared pain-related activities?
  - Direct treatment (via graded in vivo exposure to feared pain-related activities) vs. Indirect (via treatment of AS)?
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# Limitations

- Lack of follow-up
  - Homogeneity of sample
  - Self-report measures
  - Lack of data related to medical & psychiatric diagnostic status
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# Implications of Findings

- Implications for treatment of acute and chronic pain. Research has shown that anxiety related to pain symptoms is associated with suffering and disability of chronic pain (see Asmundson, 1999).
  - Strategies learned via participation in this brief CBT intervention could help pain sufferers to avoid misinterpreting & catastrophizing about pain symptoms.
  - The cognitive restructuring component of the brief CBT would be practical to run in a variety of settings such as clinics or hospital settings.
  - Brief nature of intervention is attractive option for healthcare.
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*Thank you for listening.*

*Any questions?*

