

Pain-related Anxiety: Do Avoidance and Distress Play a Differential Role?

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Introduction

- Contemporary fear-anxiety-avoidance models of chronic pain (e.g., Vlaeyen & Linton, 2000) emphasize the association between pain, fear, and anxiety.
- The contribution of avoidance and distress (e.g., anxiety) to the development and maintenance of chronic pain has received considerable empirical support; however, these constructs are rarely distinguished in the chronic pain literature.
- In other forms of psychopathology, avoidance and distress occur with different frequencies and respond differently to treatment; accordingly, investigations exploring whether pain-related avoidance can be empirically distinguished from pain-related distress are warranted.
- There is evidence supporting a relationship between pain-related anxiety and anxiety sensitivity (AS; the fear of anxiety-related sensations based on the belief that they may have harmful consequences; Reiss & McNally, 1985).
- In addition to AS, other fundamental fears [i.e., illness/injury sensitivity (IIS), intolerance of uncertainty (IU), fear of pain] may influence pain-related avoidance and distress.
- The current study examined the relationships between posited fundamental fears and each of pain-related avoidance and distress.

Method

- Participants included community members ($n=144$) reporting experiencing at least three months of pain (70.3% women; age 18-62, $M=33.56$, $SD=11.90$), who participated in a large questionnaire-based study approved by the University Research Ethics Board.
- Demographics were supplemented with:
 - Anxiety Sensitivity Index-3 (ASI-3; Taylor et al., 2007)
 - Intolerance of Uncertainty Scale-Short Form (IUS-12; Carleton et al., 2007)
 - Illness/Injury Sensitivity Index-Revised (ISI-R; Carleton et al., 2006)
 - Pain Anxiety Symptoms Scale-20 (PASS-20; McCracken & Dhingra, 2002)
 - Pain-related Avoidance and Distress Scale
 - An experimenter-designed questionnaire measuring avoidance and distress associated with activities because of pain.
- Regression analyses were used to assess the variance accounted for in each of pain-related avoidance and distress by the total scores of the ASI-3, IUS-12, ISI-R, and PASS-20.
- Regression analyses were also used to assess the variance accounted for in each of pain-related avoidance and distress by each of the subscale scores from the ASI-3, IUS-12, ISI-R, and PASS-20.

Results

- Means and standard deviations are presented in Table 1.
- There were statistically significant differences ($p<.05$) between men and women on several of the dependent variables; as such, hierarchical regression analyses were used to control for sex in step one and assess the variance accounted for by all of the dependent variables in step two.
- Results of the hierarchical regression analyses suggested that the fundamental fears (total scores) accounted for 30% of the variance in pain-related avoidance and 29% of the variance in pain-related distress.
- The PASS-20 total score was significantly associated ($p<.05$) with both pain-related avoidance ($r=.45$) and distress ($r=.42$; see Table 2).
- Subsequent hierarchical regression analyses suggested that the fundamental fears (subscale scores) accounted for 43% of the variance in pain-related avoidance and 40% of the variance in pain-related distress.
- The PASS-20 physiological symptoms subscale was a significant predictor ($p<.05$) of pain-related avoidance ($r=.30$) and distress ($r=.21$); in contrast, the escape/avoidance subscale was only a significant predictor ($r=.17$; $p<.05$) of pain-related avoidance (see Table 3).

Discussion

- The present study investigated the predictive roles of the fundamental fears for pain-related avoidance and distress.
- The regression analyses suggested that, in general, fear of pain (as measured by the PASS-20) has a significant relationship with pain-related avoidance and distress. This is consistent with previous findings showing that the PASS is positively correlated with pain and self-reported disability (e.g., Crombez et al., 1999; McCracken & Gross, 1995).
- The results also suggest that physiological anxiety associated with pain (e.g., trembling, dizziness, racing heart) is significantly associated with the amount of distress individuals experience because of their pain, and how often individuals avoid activities because of their pain.
- Relative to pain-related fear, none of the other fundamental fears (i.e., AS, IU, IIS) were significantly associated with either pain-related avoidance or distress.
- Future research should focus on assessing the relationships between fundamental fears and pain-related avoidance and distress in treatment-seeking samples.
- These findings contribute to a growing body of evidence suggesting that interventions targeting anxiety symptoms may help to reduce level of distress and impairment (e.g., behavioural avoidance) associated with chronic pain.

Table 1. Descriptive Statistics (total scores)

	ASI-3	IUS-12	ISI-R	PASS-20	PAIN-D	PAIN-A
<i>n</i>	144	123	118	123	144	144
<i>M</i>	19.05	27.96	12.08	34.83	49.92	42.03
<i>SD</i>	15.36	10.77	9.87	23.51	32.01	34.92
<i>Skew</i>	1.10	.57	.73	.63	.56	.72
<i>Kurtosis</i>	.85	-.56	-.26	-.13	-.32	-.02

ASI-3: Anxiety Sensitivity Index-3; IUS-12: Intolerance of Uncertainty Scale-Short Form; ISI-R: Illness/Injury Sensitivity Index-Revised; PASS-20: Pain Anxiety Symptoms Scale-20; PAIN-D: Pain-related Avoidance and Distress Scale – Distress; PAIN-A: Pain-related Avoidance and Distress Scale - Avoidance

Table 2: Total Score Hierarchical Regression Analyses

Model	Independent Variables	Dependent Variable					
		PAIN-D			PAIN-A		
		$R^2 \Delta$	<i>F</i>	β	$R^2 \Delta$	<i>F</i>	β
1	SEX	.06		.13	.04		.10
2	ASI-3	.29	11.72*	-.02	.30	11.45*	-.06
	IUS-12			-.04			-.10
	ISI-R			-.01			.01
	PASS-20			.58*			.63*

* $p<.05$

Table 3: Subscale Score Hierarchical Regression Analyses

Model	Independent Variables	Dependent Variables					
		PAIN-D			PAIN-A		
		$R^2 \Delta$	<i>F</i>	β	$R^2 \Delta$	<i>F</i>	β
1	SEX	.06		.13	.04		.07
2	ASI-som	.40	7.52*	.09	.43	7.64*	.10
	ASI-cog			-.19			-.24
	ASI-soc			.07			.09
	IUS-pro			.18			.14
	IUS-inh			-.17			-.21
	ISI-inj			.03			.05
	ISI-ill			.04			.07
	PASS-cog			-.08			-.03
	PASS-esc			.22			.28*
	PASS-fea			-.08			-.13
PASS-phy	.54*	.51*					

* $p<.05$