

Disentangling Fearful Vulnerabilities to Posttraumatic Stress Disorder and Chronic Pain

R. Nicholas Carleton, M.A., & Gordon J. G. Asmundson, Ph.D.
Anxiety and Illness Behaviour Laboratory, University of Regina

Introduction

- Patients with posttraumatic stress disorder (PTSD), particularly those at high risk (e.g., veterans), commonly report chronic pain (20-80%; Asmundson et al., 2002)
- Conversely, patients with chronic musculoskeletal pain and pain-related conditions like fibromyalgia commonly report with comorbid anxiety disorders, particularly PTSD (McWilliams et al., 2003; Sareen et al., 2005)
- The mutual maintenance model implicates elements of PTSD (e.g., physiological arousal, avoidance of trauma stimuli) and chronic pain (e.g., physiological arousal, avoidance of physical exertion) exacerbate and maintain one another (Sharp & Harvey, 2001)
- Various fears (e.g., anxiety sensitivity, fear of pain) may confer vulnerabilities for developing and perpetuating both PTSD and chronic pain (Asmundson et al., 2002)
- This research assessed the relative relationships between several fears in participants with both PTSD and chronic pain, those with either condition, and healthy controls to begin delineating these interrelationships
 - Persons with both are expected to be more fearful than persons with either, who are expected to be more fearful than healthy controls
 - No difference in of fear-report patterns is expected

Method

- To explore these conjoint fears and conditions 148 undergraduates were selected from a larger sample
 - 33 Men, 18-31 years, $M = 20.8$, $SD = 3.2$
 - 115 Women, 18-49, $M = 21.4$, $SD = 5.7$
- All participants completed a self-report battery including:
 - Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1993)
 - Brief Fear of Negative Evaluation Scale-II (BFNE-II; Carleton et al., in press)
 - Illness/Injury Sensitivity Index, Revised (ISI-R; Carleton et al., 2005)
 - Intolerance of Uncertainty Index, Short Form (IUS-12; Carleton et al., in press)
 - Pain Anxiety Symptoms Scale-20 (PASS-20; McCracken & Dhingra, 2002)
 - PTSD Checklist, Civilian Version (PCL-C; Weathers et al., 1993)
- Chronic pain was assessed by self-report of persistent pain for at least 3 months. PTSD was assessed based on reported history of trauma and the PCL-C
- Participants were then divided into four groups, those with both PTSD and chronic pain (PTSD&CP; $n = 11$), those with PTSD (PTSD; $n = 35$), those with chronic pain (CP; $n = 15$), and healthy controls (HC; $n = 87$)

Results

- Participants with PTSD but no chronic pain scored significantly higher (all $p < .01$) on all measures than healthy controls
- Patterned responses did not emerge across groups, except for the healthy controls, who tended to report significantly less fear
- Significant differences remained when comparing all four groups (PTSD & CP, PTSD, CP, and HC)
 - ASI, $F(3, 147) = 40.96$, $p < .01$, $r^2 = .46$
 - BFNE-II, $F(3, 147) = 31.95$, $p < .01$, $r^2 = .40$
 - ISI-R, $F(3, 147) = 9.74$, $p < .01$, $r^2 = .17$
 - IUS-12, $F(3, 147) = 32.03$, $p < .01$, $r^2 = .40$
 - PASS, $F(3, 147) = 31.58$, $p < .01$, $r^2 = .40$
- Tukey Post hoc analyses provided significant differences; however, they were inconsistent, depending on the fear being analyzed rather than group membership (Table 1, Figure 1)
- A correlational analysis assessed the relationships between the measures and each PTSD symptom cluster†, finding minor differences between symptom clusters, with two exceptions: the ISI-R was significantly ($p < .05$) less related to symptoms relative to other fears and the PASS was significantly ($p < .05$) more related to hyperarousal than to avoidance (Table 2, Figure 2)

Discussion

- Previously found increases in various fears for persons with PTSD or CP (e.g., Asmundson & Carleton, 2005) were replicated; however, expectations that co-occurring PTSD and chronic pain would result in consistently higher fear reports were not supported
- Patterned responses did not emerge across groups, except for the healthy controls, who tended to report significantly less fear
- The complex interrelationships found here may result from heterogeneity within chronic pain interacting with PTSD symptoms in concurrent cases (Asmundson et al., 2000), suggesting future studies account for differences in chronic pain personalities
- The other fears were significantly more related to PTSD symptoms than illness/injury sensitivity, indicating either more association with chronic pain or less association with other fundamental fears than previously thought (Taylor, 1993)
- The relationship between hyperarousal symptoms in PTSD, anxiety sensitivity, intolerance of uncertainty, and fear of pain along with previously reported relationships between hyperarousal, anxiety sensitivity, and chronic pain suggests (Asmundson et al., 2002; Woods & Wineman, 2004) these fears and symptoms may be keys to the comorbidity between PTSD and chronic pain

Figure 1: Ratio Comparisons†

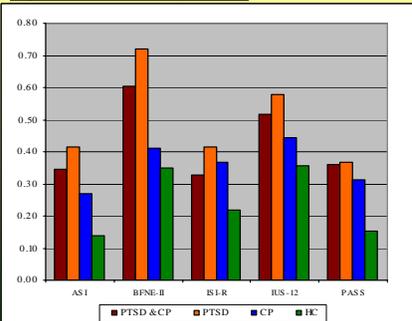


Table 1: ANOVA Group Comparisons

	Mean (SE)			
	PTSD and CP	PTSD	CP	HC
ASI	22 (3.18) _{a,b}	26.46 (2.1) _a	17.2 (2.55) _b	8.82 (0.55) _c
BFNE-II	29 (3.22) _{a,b}	34.57 (1.48) _b	19.8 (3.27) _{a,d}	16.7 (0.96) _d
ISI-R	11.82 (2.25) _{a,b}	14.86 (1.46) _a	13.27 (2.32) _a	7.8 (0.61) _b
IUS-12	30.91 (1.9) _{a,b,c}	34.6 (1.66) _b	26.53 (1.6) _c	21.39 (0.62) _d
PASS	35.91 (4.08) _a	36.89 (2.32) _a	31.13 (5.05) _a	15.2 (1.1) _d

Means with different subscripts are significantly ($p < .05$) different

Figure 2: Correlation Comparisons

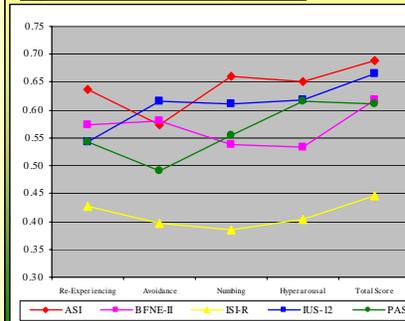


Table 2: Correlations

	ASI	BFNE-II	ISI-R	IUS-12	PASS
Re-Experiencing	.64	.57	.43	.54	.54
Avoidance	.57	.58	.40	.62	.49
Numbing	.66	.54	.38	.61	.55
Hyperarousal	.65	.53	.40	.62	.62
Total Score	.69	.62	.45	.67	.61

All correlations are significant ($p < .01$)

Correlations were compared using Cohen's r to t transformation

†Ratios are the mean score divided by the maximum possible score for the scale, allowing across group and across scale magnitude comparisons

†Four clusters were used, separating avoidance and numbing as per Asmundson, Stapleton, & Taylor, 2004