

The Relationship Between Pain Catastrophizing, Sleep, and Fatigue, in Chronic Pain Patients

Leann Balcerzak BSN-s, Lisa Wawryzek BSN-s, Gina Bellavia, PhD, MEd, & Yu-Ping Chang PhD, RN, FGSA



Introduction

Pain Catastrophizing (PC) is a common phenomenon in chronic pain patients and is the irrational exaggeration of negativity represented by:

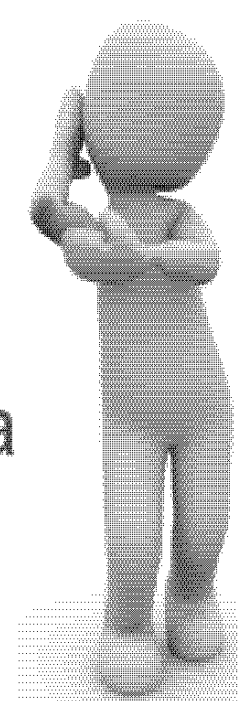
- Rumination
- Magnification
- Helplessness

HYPOTHESIS

Increased pain catastrophizing will be associated with increased pain intensity, increased fatigue, and decreased sleep quality

Purpose

Examine the association between pain catastrophizing thinking, sleep, and fatigue in a sample of chronic pain patients enrolled within a larger behavioral intervention study



THEORETICAL FRAMEWORK

Theory of cognitive appraisal proposed by Lazarus and Folkman

- Appraisal of a stressor determines stress response

Methods

DESIGN

- Baseline cross-sectional data (n=39) collected from a study examining the effect of mindfulness-based stress reduction (MBSR) for chronic pain and substance abuse used for analysis

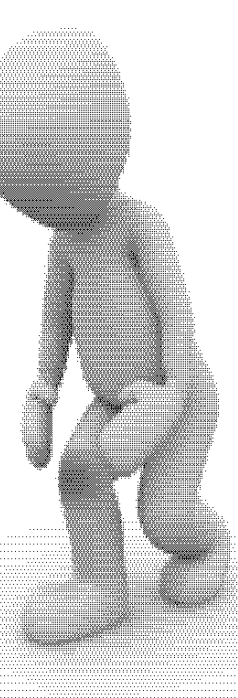
RECRUITMENT

- Participants recruited from and consented at two primary care offices and a pain management clinic in Western NY (WNY)

INCLUSION CRITERIA EXCLUSION CRITERIA

- | | |
|--|--|
| <ul style="list-style-type: none"> Chronic pain patient Currently taking opioids for chronic pain Score >7 on depression measure (PHQ-9) ≥18 years of age English Speaking | <ul style="list-style-type: none"> Currently receiving mindfulness training or counseling outside of the study History of heroin injection Mental crisis or suicidal ideation |
|--|--|

IRB Approval Obtained



MEASURES: Self-Report & Actigraphy

- Catastrophizing: Pain Catastrophizing Scale (PCS)
- Pain Severity & Interference: Brief Pain Inventory (BPI)
- Sleep:

- a) Pittsburgh Sleep Quality index (PSQI)
- b) Epworth Sleepiness Scale (ESS)
- c) FACIT Fatigue Scale
- d) Sleep Hygiene Index (SHI)

- Respironics Actiwatch Spectrum Plus Actigraphy

- a) Hours in bed
- b) Hours asleep
- c) Sleep onset latency
- d) Sleep efficiency
- e) Wake after sleep onset (WASO)
- f) Number of awakenings



Results

STATISTICAL ANALYSIS

- Descriptive Statistics and Pearson's Correlation Coefficient used for data analysis
- Cronbach's Alpha used to determine measure reliability

Demographic Analysis (N=39)			
		N	%
Sex	Male	16	41
	Female	23	59
Race	White	28	73.7
	Black or African American	8	21.1
	American Indian, Alaska Native	1	2.6
	Other	1	2.6
Relationship Status (n=38)	Married	10	26.3
	Separated	1	2.6
	Never been married	10	31.6
	Divorced	9	28.9
	Member of an unmarried couple	8	10.5
Highest level of Education	Did not finish high school	3	7.7
	High school	10	25.6
	Beyond High School	26	66.7
Employment	Full Time for Wages	3	7.7
	Retired or retired and working part time for wages	10	25.7
	Stay at home caretaker/homemaker	15	38.5
	Other	11	28.2
	Income needs	More than enough money to meet the family needs	5
	Just enough money to meet the family needs	17	43.6
	Do not have enough money to meet the family needs	17	43.6
	Mean ± SD		Range
Age (yrs.)	49.90 ± 10.43		29-69 (yrs.)

Pearson Correlation

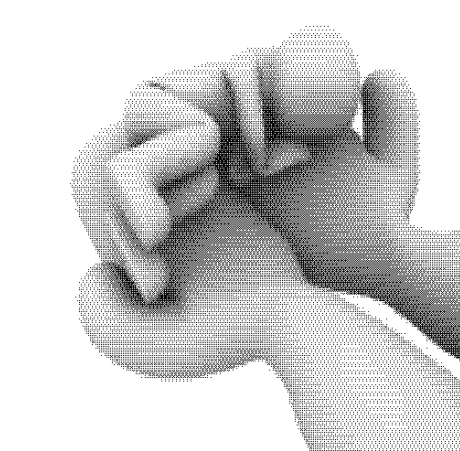
	Sleep quality (PSQI)	Sleepiness (ESS)	Sleep Hygiene (SHI)	Fatigue (FACIT)	Pain Interference (BPI)	Pain Severity (BPI)
PC (PCS)	.301	.318*	.439**	.400*	.440**	.397*
Rumination (PCS)	.208	.361*	.435**	.330*	.417**	.340*
Magnification (PCS)	.281	.296	.405*	.268	.406*	.433**
Helplessness (PCS)	.320*	.244	.382*	.443**	.395*	.348*

Pearson Correlation

	3-Night Averages					
	Hours in bed	Hours Asleep	Sleep Onset Latency	Sleep Efficiency	Wake After Sleep Onset (WASO)	Number of Awakenings
Pain Catastrophizing (PCS)	.084	.102	.011	-.004	-.025	.378*
Rumination (PCS)	.054	.098	.007	.103	-.123	.338*
Magnification (PCS)	-.042	.064	-.068	-.098	.076	.269
Helplessness (PCS)	.152	.171	.051	-.029	-.005	.392*
Pain Interference (BPI)	-.062	-.064	-.035	-.025	.033	.150
Pain Severity (BPI)	-.021	-.031	.038	.000	.050	.182

*significant at p<.05 level (2-tailed)
**significant at p<.01 level (2-tailed)

- Catastrophizing and its 3-subcales are significantly associated with pain severity and interference in the last 24 hours
- Rumination significantly associated with daytime sleepiness, sleep hygiene, and number of awakenings during the night
- Helplessness associated with sleep quality, hygiene, and fatigue
- Catastrophic thinking is associated with poorer sleep hygiene, more daytime sleepiness, more fatigue, and more nighttime awakenings



Discussion & Implications

- Improved knowledge about how catastrophic thinking may impact sleep in people with chronic pain.
- Might suggest that interventions modifying pain catastrophizing can improve sleep and clinical outcomes
- Limited previous research examining the relationship between sleep and pain catastrophizing or using objective sleep data
- Consistent with previous findings that pain catastrophizing is associated with increased pain severity

LIMITATIONS

- Small sample size
- Inaccurate self-report and missing data
- Short Actiwatch wear time
- Correlations do not determine causations of the relationships found

Conclusion

- Future studies utilizing a larger sample size and longitudinal design would be beneficial to better understand the relationship between pain catastrophizing and sleep
- May want to examine if pain catastrophizing mediates the relationship between pain and sleep
- Focus on alternative treatments such as behavioral interventions may decrease pain catastrophizing and affect sleep quality

Acknowledgements

- Patricia H. Garman Behavioral Health Nursing Endowment Fund, School of Nursing, University at Buffalo, The State University of New York & Coletta A. Klug Fund
- Special thanks to Dr. Chang for her dedication to mentorship

