Chronic Pain Comorbidity Patterns and the Roles of Health Care Visits and Social Support: A Profile Approach

Shin Ye Kim, Ph.D.[1], Jaehoon Lee, Ph.D.[1], Ravi Prasad, Ph.D.[2], & Dianna Boone, M.A.[1]
[1]Texas Tech University, [2]Stanford University

Stanford MEDICINE | Division of Pain Medicine

Introduction

Background

- Chronic pain affects approximately 8% of the population in developed countries annually (Andrew, Derry, Taylor, Straube, & Phillips, 2014) and at least 100 million adults in the U.S. (Gaskin & Richard, 2012).
- People suffering from chronic pain may experience comorbid disorders such as depression, somatic disorders, and anxiety (Feingold, Brill, Goor-Aryeh, Delayahu, & Lev-Ran, 2016). However, the causal mechanism among these disorders is unclear (Rayner, Hotopf, Petkova, Matcham, Simpson, & McCracken, 2016).
- While consistency is found regarding social support acting as a protective factor against chronic pain (e.g., Valente, Ribeiro, & Jensen, 2009), there are some studies suggesting that social support acts as a reinforcer of pain behavior (Lopez-Martinez, Esteve-Zarzaga, Ramirez-Maestre, 2008.)
- Most comorbidity research on chronic pain relies on a variable-centered approach, such as correlations between pain and internalizing symptoms. The current study employs a person-centered approach (Von Eye and Wiedermann, 2015) to test for meaningful subgroups of people with pain comorbidities based on their levels of chronic pain, depression, anxiety, and somatic symptoms. We also examined how health care provider visits and various social supports relate uniquely to profiles of people with different comorbidity levels.

Purpose

- 1) To identify different profiles of chronic pain with comorbid internalizing syndromes (anxiety, depression, and somatic amplification) by using latent profile analysis with a large and representative sample of older adults.
- 2) To investigate how the number of health care visits (medical doctor and mental health professionals)and various social supports (family, friends, colleague, spouse/partner, coworker, supervisor, religion).

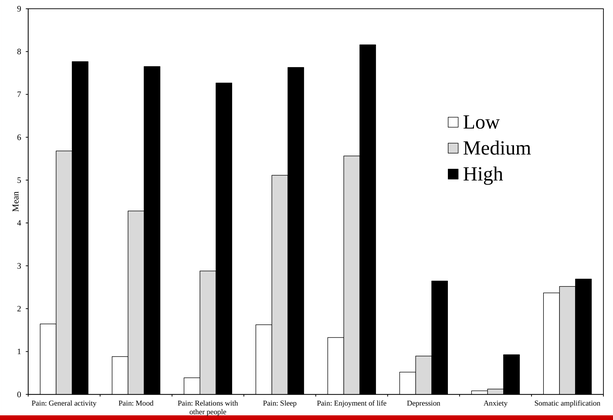
Method

Participants

- N = 1,027
- The current study used a subset of the data from the National Survey of Midlife Development in the United States (MIDUS-3), a national survey conducted in 2013 of non-institutionalized English-speaking US adults aged 25-74.
- All participants used in the study experienced some form of chronic pain.
- 41.9% were male and 58.1% were female (mean age=65.2 years, SD=11.2).
- Participants' self-identified race was 89.2 % White, 3.3% Black and/or African American, 1.2% Native American or Alaskan Islander, 0.2% Asian, 0.1% Native Hawaiian or Pacific Islander, and 5.0% other.

Measures

- Chronic pain and its impact were assessed via questions about how much pain influenced general activity, mood, relations with other people, sleep, and enjoyment of life.
- To examine depression and anxiety, a structured clinical interview developed from the World Health Organization's Composite International Diagnostic Interview (CIDI; Whittchen, 1994) was administered to each participant .Information regarding somatic amplification was collected and consisted of five items to assess each participant's awareness of bodily symptoms.
- Social support was examined for the following relationships: family members (not including one's spouse or partner), friends, spouse/partner, coworker, supervisor, and religion.
- Items related to doctor and mental health professional visits, meditation, prayer, and spiritual practices were also examined.



Results

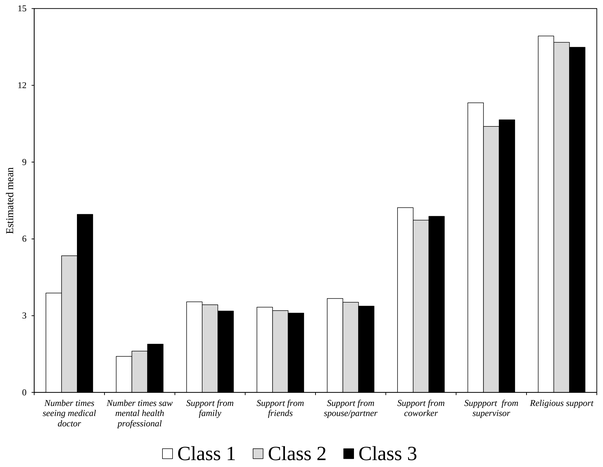
- Three classes (Low Comorbidity, Medium Comorbidity, and High Comorbidity) were identified as best representing the profiles of pain, depression, anxiety, and somatic amplification in 1,027 adults with chronic pain.

Model	Entropy	VLMR (*p*)	aLMR (*p*)	AIC	aBIC
1-class	-	-	-	44116	44144
2-class	.90	.002	.002	41334	41378
3-class	.89	.036	.037	40513	40572
4-class	.90	.063	.066	38789	38864

VLMR = Vuong–Lo–Mendell–Rubin likelihood-ratio test (LRT), aLMR = adjusted Lo–Mendell–Rubin LRT, AIC = Akaike Information Criteria, aBIC = sample-size adjusted Bayesian Information Criterion.

- The degree of comorbidity was significantly associated with the level of support from other people.
- The support from family was the lowest in the *High Comorbidity* class followed by the *Medium Comorbidity* class and then the *Low Comorbidity* class (all three Bonferroni-corrected $p < .05$).
- The participants in the *High Comorbidity* class reported significantly lower support from friends than those in the *Medium* and *Low Comorbidity* classes (both Bonferroni-corrected $p < .05$).
- Similar results were found for the support from spouse/partner (both Bonferroni-corrected $p < .05$).
- The support from coworkers and supervisors was significantly greater for the *Low Comorbidity* class than for the *Medium Comorbidity* class (both Bonferroni-corrected $p < .05$).
- The three classes were not different in terms of religious support ($p = .10$).

Three Latent Profiles Using Health Care Provider Visits and Various Social Support



Discussion

- Three classes based on level of comorbidity (low, medium, high) optimally explained the correlations among the participants' pain, depression, anxiety, and somatic amplification.
- As expected, the frequency of medical doctor visits increased in parallel with level of comorbidity; however, there were no differences in the number of visits to mental health professionals or use of relaxation or meditation techniques. These findings suggest the possibility that individuals were not using a biopsychosocial approach to manage their conditions and warrants further attention.
- Support levels were generally highest with low comorbidity, but there was not a linear reduction in support across the classes as comorbidity level increased. It is postulated that verbal and/or non-verbal pain-related behaviors may help account for this specific finding.
- The overall support system results are consistent with existing research in this domain as they clearly depict an interaction between the individual with pain and the larger social context.
- The person-centered approach is especially pertinent for practitioners who need to acknowledge and treat the whole person rather than the symptoms.
- A major limitation of this study is that the sample was mostly Caucasian (89.2%). A wide range of sociocultural variables are known to impact the pain experience but interactions between these variables and the factors studied cannot be assessed with the population examined.

References

Andrew, R., Derry, S., Taylor, R. S., Straube, S., & Phillips, C. J. (2014). The costs and consequences of adequately managed chronic non-cancer pain and chronic neuropathic pain. *Pain Practice*, *14*(1), 79-94.

Feingold, D., Brill, S., Goor-Aryeh, I., Delayahu, Y., & Lev-Ran, S. (2017). Depression and anxiety among chronic pain patients receiving prescription opioids and medical marijuana. *Journal of Affective Disorders*, *218*, 1-7.

Ferreira Valente, M. A., Pais Ribeiro, J. L., & Jensen, M. P. (2009). Coping, depression, anxiety, self-efficacy and social support: Impact on adjustment to chronic pain. *Escritos de Psicología-Psychological Writings*, *2*(3), 8-17/

Gaskin, D. J., & Richard, P. (2012). The economic costs of pain in the United States. *The Journal of Pain*, *13*(8), 715-724.

Kadam, U. T., Jordan, K., & Croft, P. R. (2005). Clinical comorbidity was specific to disease pathology, psychologic distress, and somatic symptom amplification. *Journal of Clinical Epidemiology*, *58*(9), 909-917.

López-Martínez, A. E., Esteve-Zarazaga, R., & Ramírez-Maestre, C. (2008). Perceived social support and coping responses are independent variables explaining pain adjustment among chronic pain patients. *The Journal of Pain*, *9*(4), 373-379.

Rayner, L., Hotopf, M., Petkova, H., Matcham, F., Simpson, A., & McCracken, L. M. (2016). Depression in patients with chronic pain attending a specialised pain treatment centre: prevalence and impact on health care costs. *Pain*, *157*(7), 1472.

Wittchen, H. U. (1994). Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): a critical review. *Journal of psychiatric research*, *28*(1), 57-84.