Diagnosing & Treating Working-Aged Adults With Chronic Musculoskeletal Pain

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Subspecialty Certified Pain Medicine

Disclosures

Paul Coelho,MD: No financial relationships to disclose.

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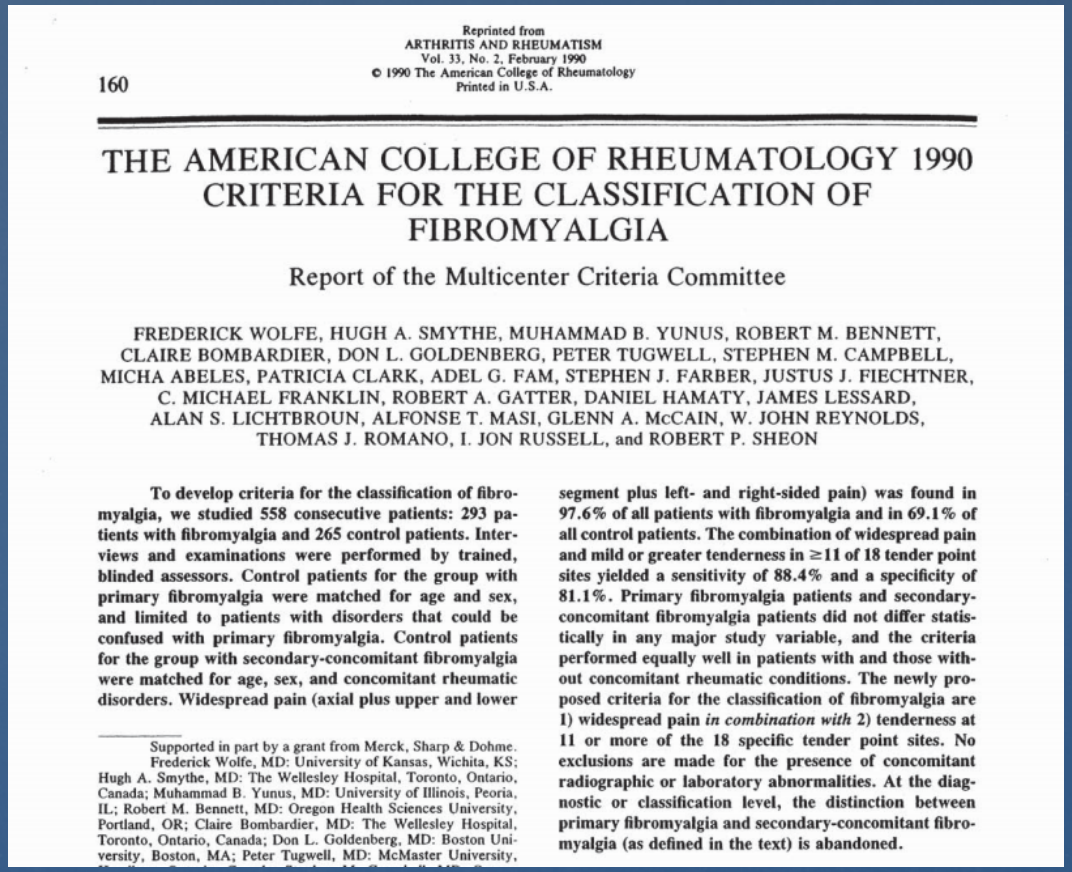
1980 Model of MSK Pain

Nociceptive	Neuropathic
Primarily due to inflammation or mechanical damage in periphery.	Damage or entrapment of peripheral nerves.
NSAID, Opioid Responsive	Responds to both peripheral and central pharmacological therapy.
Responds to procedures.	Does not respond to procedures.
Behavioral factors minor	Behavioral factors minor
Examples: Osteoarthritis, Rheumatoid Arthritis, Cancer Pain	Examples: Diabetic neuropathy, post-herpetic neuralgia

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/

1990 FMS

Average Age = 45



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ARTHRITIS AND RHEUMATISM
Vol. 33, No. 2, February 1990

Printed in U.S.A.

THE AMERICAN COLLEGE OF RHEUMATOLOGY 1990 CRITERIA FOR THE CLASSIFICATION OF FIBROMYALGIA

Report of the Multicenter Criteria Committee

FREDERICK WOLFE, HUGH A. SMYTHE, MUHAMMAD B. YUNUS, ROBERT M. BENNETT, CLAIRE BOMBARDIER, DON L. GOLDENBERG, PETER TUGWELL, STEPHEN M. CAMPBELL, MICHA ABELES, PATRICIA CLARK, ADEL G. FAM, STEPHEN J. FARBER, JUSTUS J. FIECHTNER, C. MICHAEL FRANKLIN, ROBERT A. GATTER, DANIEL HAMATY, JAMES LESSARD, ALAN S. LICHTBROUN, ALFONSE T. MASI, GLENN A. McCAIN, W. JOHN REYNOLDS, THOMAS J. ROMANO, I. JON RUSSELL, and ROBERT P. SHEON

To develop criteria for the classification of fibromyalgia, we studied 558 consecutive patients: 293 patients with fibromyalgia and 265 control patients. Interviews and examinations were performed by trained, blinded assessors. Control patients for the group with primary fibromyalgia were matched for age and sex, and limited to patients with disorders that could be confused with primary fibromyalgia. Control patients for the group with secondary-concomitant fibromyalgia were matched for age, sex, and concomitant rheumatic disorders. Widespread pain (axial plus upper and lower segment plus left- and right-sided pain) was found in 97.6% of all patients with fibromyalgia and in 69.1% of all control patients. The combination of widespread pain and mild or greater tenderness in ≥11 of 18 tender point sites yielded a sensitivity of 88.4% and a specificity of 81.1%. Primary fibromyalgia patients and secondary-concomitant fibromyalgia patients did not differ statistically in any major study variable, and the criteria performed equally well in patients with and those without concomitant rheumatic conditions. The newly proposed criteria for the classification of fibromyalgia are 1) widespread pain *in combination with* 2) tenderness at 11 or more of the 18 specific tender point sites. No exclusions are made for the presence of concomitant radiographic or laboratory abnormalities. At the diagnostic or classification level, the distinction between primary fibromyalgia and secondary-concomitant fibromyalgia (as defined in the text) is abandoned.

Supported in part by a grant from Merck, Sharp & Dohme.
Frederick Wolfe, MD: University of Kansas, Wichita, KS; Hugh A. Smythe, MD: The Wellesley Hospital, Toronto, Ontario, Canada; Muhammad B. Yunus, MD: University of Illinois, Peoria, IL; Robert M. Bennett, MD: Oregon Health Sciences University, Portland, OR; Claire Bombardier, MD: The Wellesley Hospital, Toronto, Ontario, Canada; Don L. Goldenberg, MD: Boston University, Boston, MA; Peter Tugwell, MD: McMaster University,

https://www.rheumatology.org/Portals/0/Files/1990_Criteria_for_Classification_Fibro.pdf

1990 Model of MSK Pain

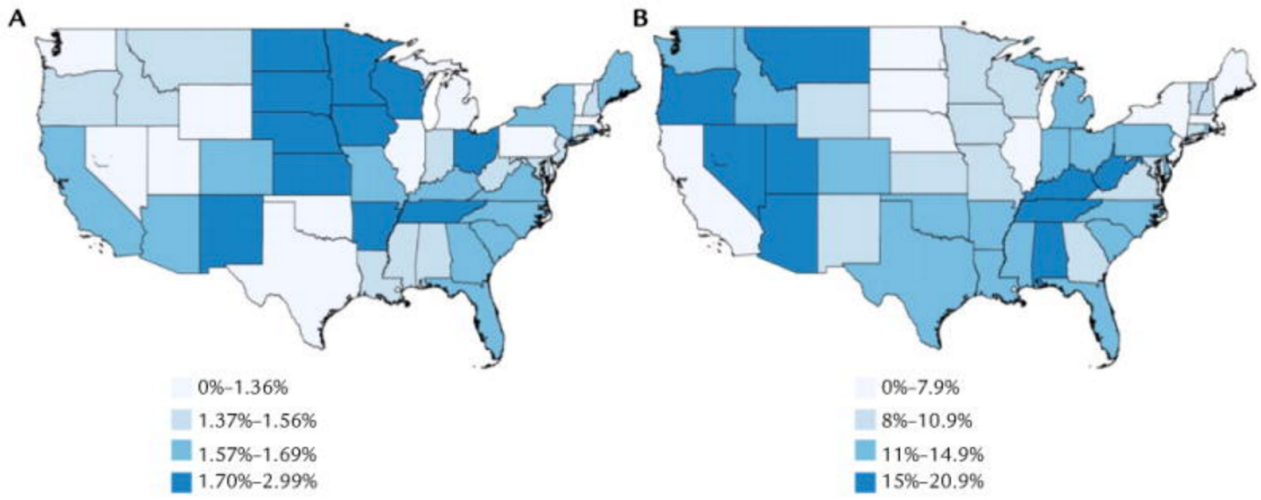
Nociceptive	Neuropathic	Central
Primarily due to inflammation or mechanical damage in	Damage or entrapment of peripheral nerves.	Primarily due to a central disturbance in pain processing.
NSAID, Opioid Responsive	Responds to both peripheral and central pharmacological therapy.	Tricyclic Compounds. **Opioid effectiveness questioned**
Responds to procedures	Does not respond to procedures	Does not respond to procedures
Behavioral factors minor.	Behavioral factors minor.	Behavioral factors more prominent.
Examples: Osteoarthritis, Rheumatoid Arthritis, Cancer Pain	Examples: Diabetic neuropathy, Post-herpetic neuralgia.	Examples: FMS, IBS, Tension HA, idiopathic LBP

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/

Variation in Opioid Rx'ing For FMS 2007-2009

Mean Age = 44.7

Figure



(A) Prevalence of fibromyalgia. (B) Patients with fibromyalgia receiving chronic opioid therapy. Patients were classified by using International Classification of Diseases, Ninth Revision, Clinical Modification code 729.1.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4346177/

High Dose CNP Patients Often Those With FMS

Reg Anesth Pain Med. 2014 Jan-Feb;39(1):13-7. doi: 10.1097/AAP.0000000000000024.

Characteristics of chronic pain patients who take opioids and persistently report high pain intensity.

Wasserman RA[1], Brummett CM, Goesling J, Tsodikov A, Hassett AL.

Author information

Mean Age = 49

Abstract

BACKGROUND AND OBJECTIVES: The use of self-report questionnaires to detect characteristics of altered central pain processing, as seen in centralized pain disorders such as fibromyalgia, allow for the epidemiological studies of pain patients. Here, we assessed the relationship between reporting high levels of pain while taking opioids and the presence of characteristics associated with centralized pain.

METHODS: We evaluated 582 patients taking opioid medications using validated measures of clinical pain, neuropathic pain symptoms, mood, and functioning. A multivariate linear regression model was used to assess the association between levels of pain while taking opioids and presenting with characteristics consistent with having centralized pain.

RESULTS: We found that 49% of patients taking opioids continued to report severe pain (≥ 7/10). In multivariate analysis, factors associated with having higher levels of pain in opioid users included higher fibromyalgia survey scores ($P = 0.001$), more neuropathic pain symptoms ($P < 0.001$), and higher levels of depression ($P = 0.002$). Although only 3.2% were given a primary diagnosis of fibromyalgia by their physician, 40.8% met American College of Rheumatology survey criteria for fibromyalgia.

CONCLUSIONS: Our findings suggest that patients with persistently high pain scores despite opioid therapy are more likely than those with lower levels of pain to present with characteristics associated with having centralized pain. This study cannot determine whether these characteristics were present before (fibromyalgia-like patient) or after the initiation of opioids (opioid-induced hyperalgesia). Regardless, patients with a centralized pain phenotype are thought to be less responsive to opioids and may merit alternative approaches.

PMID: 24310048 [PubMed - indexed for MEDLINE] PMCID: PMC3960717 **Free PMC Article**

http://www.ncbi.nlm.nih.gov/pubmed/24310048

Opioids & FMS: Once Started Seldom Stopped

N = 96K Pt's with FMS 59% Received Opioids

Pain Pract. 2015 Oct 7. doi: 10.1111/papr.12364. [Epub ahead of print]

Evaluating Guideline-recommended Pain Medication Use Among Patients with Newly Diagnosed Fibromyalgia.

Halpern R[1], Shah SN[2], Cappelleri JC[3], Masters ET[2], Clair A[2].

⊕ **Author information**

Average Age = 47

Abstract

OBJECTIVES: To compare pain medication treatment changes across cohorts of newly diagnosed patients with fibromyalgia (FM) treated with guideline-recommended medications or opioids.

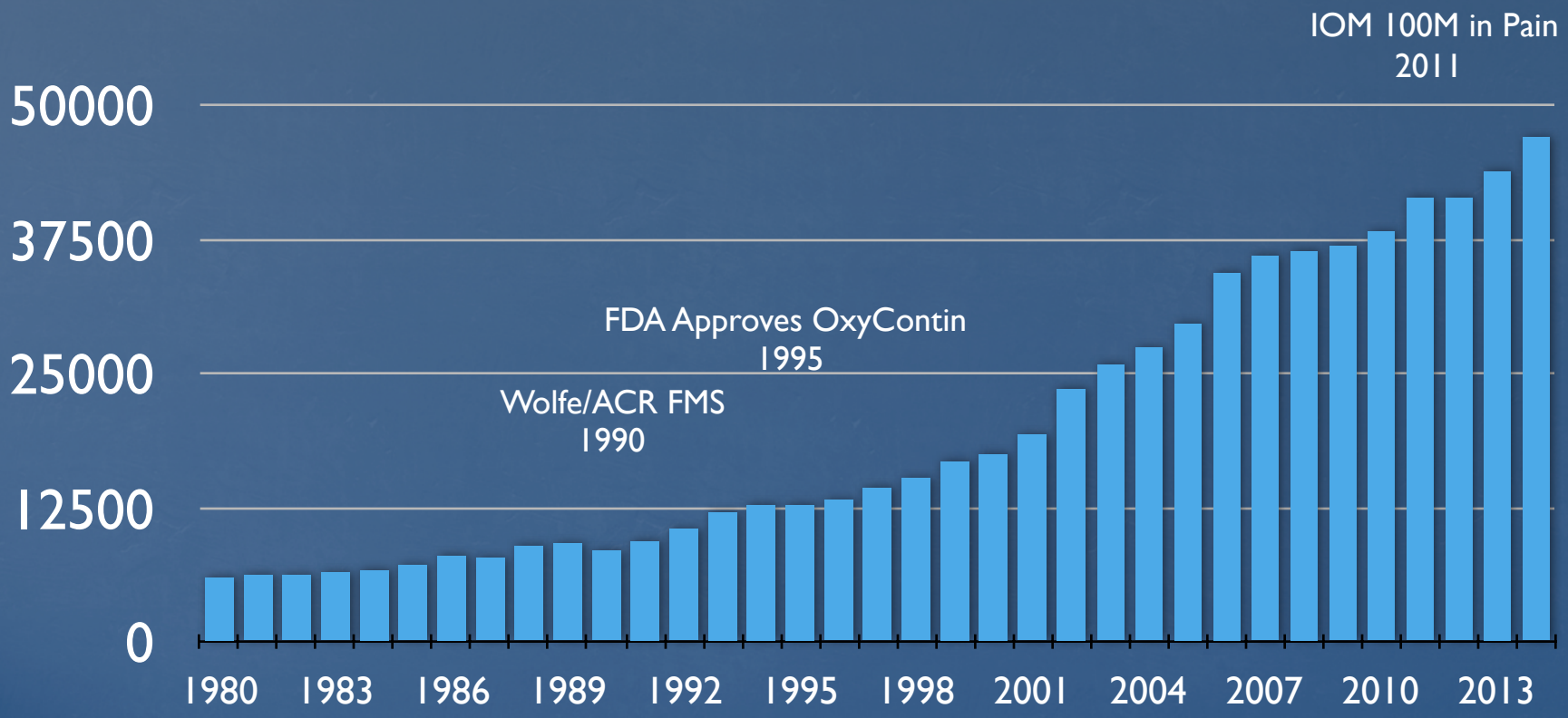
METHODS AND DESIGN: Retrospective claims data analysis examined adult commercial health plan members newly diagnosed with FM (initial diagnosis = index date) from January 2008 to February 2012. Patients had 6-month pre-index and 12-month postindex periods and received pain medication within 6 months postindex; cohorts were based on the first postindex medication. Guideline-recommended medication cohorts were anti-epileptic drug (AED), serotonin-norepinephrine reuptake inhibitor (SNRI), selective serotonin reuptake inhibitor (SSRI), and tricyclic antidepressant (TCA). Short-acting and long-acting opioid (SAO, LAO) cohorts were also identified. Pairwise comparisons with the SAO cohort were conducted. Cox proportional hazards regressions modeled the likelihood of receiving guideline-recommended therapy.

RESULTS: The final sample was 96,175 patients (mean age 47.3 years; 72.5% female), distributed into SAO (57%), SSRI (22%), AED (10%), SNRI (6%), TCA (3%), and LAO (2%) cohorts. The SAO cohort had the most discontinuation (49% vs. 6% to 22%, $P < 0.01$) and the least augmentation (29% vs. 35% to 50%, $P < 0.01$). Regression analyses indicated that patients with (vs. without) pre-index guideline-recommended medications were 2 to 4 times more likely to receive them postindex. Patients in the opioid cohorts were about half as likely to receive subsequent guideline-recommended medications.

CONCLUSIONS: Opioid use was widespread among patients with FM. Once patients received opioids postdiagnosis, the likelihood of receiving guideline-recommended medications was small. These real-world results indicate an opportunity may exist for improved FM management using recommended therapies in clinical practice.

http://www.ncbi.nlm.nih.gov/pubmed/26443495

US Opioid Overdose Deaths 1980-2014



http://www.cdc.gov/nchs/data/databriefs/db81_tables.pdf#1

http://www.cdc.gov/nchs/data/health_policy/AADR_drug_poisoning_involving_OA_Heroin_US_2000-2014.pdf

*http://www.cdc.gov/drugoverdose/data/overdose.html

‘Fibromyalgianess’& Comorbid Pain Syndromes

Fibromyalgia exists on a continuum
“What the results of our study showed is that we provided reasonably good evidence that fibromyalgia exists as a continuum rather than a dichotomous diagnosis.”
Wolfe

Fibromyalgia co-occurs with many pain syndromes
“Data in recent years suggest that FMS is a part of a spectrum of syndromes which I have termed “dysfunctional spectrum syndrome”.
Yunus

Prevalence of cLBP & HA In FMS

2007 Internet Survey of 2,596 people with fibromyalgia.

Frequencies of symptoms and current comorbidities ≥ 25 % *[in descending order of frequency]*

Current Symptom	Frequency
Low back pain	63%
Recurrent headaches	47%
Arthritis	46%
Muscle spasm	46%
Tingling	46%
Balance problems	45%
Irritable bowel syndrome	44%
Numbness	44%
Chronic fatigue	40%
Bloating	40%
Depression	40%
Anxiety	38%
Sinus problems	37%
Tooth disorders	32%
Restless legs	32%
Tinnitus	30%
Jaw pain	29%
Bladder problems	26%
Rashes	25%

Average Age = 47

If due to chance alone co-occurance of cLBP, cHA, & FMS expected 0.1%

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/

Prevalence of FMS In cLBP Pt's 42%

Arthritis Rheum. 2013 Dec;65(12):3285-92. doi: 10.1002/art.38178.

Prevalence of the fibromyalgia phenotype in patients with spine pain presenting to a tertiary care pain clinic and the potential treatment implications.

Brummett CM[1], Goesling J, Tsodikov A, Meraj TS, Wasserman RA, Clauw DJ, Hassett AL.

Author information

Average Age 47

Abstract

OBJECTIVE: Injections for spinal pain have high failure rates, emphasizing the importance of patient selection. It is possible that detecting the presence of a fibromyalgia (FM)-like phenotype could aid in prediction, because in these individuals a peripheral injection would not address pain due to alterations in central neurotransmission. We undertook this study to test the hypothesis that patients who have spine pain meeting survey criteria for FM would be phenotypically distinct from those who do not.

METHODS: We studied 548 patients diagnosed as having primary spine pain. All patients completed validated self-report questionnaires, including the Brief Pain Inventory, the PainDETECT questionnaire, the Hospital Anxiety and Depression Scale, measures of physical function, and the FM criteria and severity scales.

RESULTS: Forty-two percent of the patients were FM positive according to the FM criteria and severity scales. Compared with FM-negative patients, FM-positive patients were more likely to be younger, unemployed, and receiving compensation for pain and to have greater pain severity and pain interference and more neuropathic pain descriptors as well as higher levels of depression and anxiety and a lower level of physical function ($P < 0.002$ for each comparison). Female sex, neuropathic pain, pain interference, and anxiety were independently predictive of FM status in a multivariate analysis ($P < 0.01$ for all variables). Receiver operating characteristic curve analysis showed a strength of association of 0.80 as measured by the cross-validated C statistic.

CONCLUSION: Using the FM criteria and severity scales, we demonstrated profound phenotypic differences in a population of patients with spine pain. Although centralized pain cannot be confirmed with a self-report instrument alone, the pathophysiology of FM may help explain a portion of the variability of responses to spine interventions.

If due to chance alone .3 x .02 = .6%

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4345120/

Prevalence of FMS In HA Pt's 36%

Abstract ▾ Send to: ▾

Cephalalgia. 2009 Apr;29(4):453-64. doi: 10.1111/j.1468-2982.2008.01754.x. Epub 2009 Dec 15.

Fibromyalgia comorbidity in primary headaches.

de Tommaso M[1], Sardaro M, Serpino C, Costantini F, Vecchio E, Prudenzano MP, Lamberti P, Livrea P.

⊕ **Author information**

Average Age 46

Abstract

Fibromyalgia syndrome (FMS) is a chronic pain condition of unknown aetiology characterized by diffuse pain and tenderness at tender points. The aim of the study was to assess the prevalence and clinical features of FMS in the different forms of primary headaches, in a tertiary headache centre. Primary headache patients (n = 217) were selected and submitted to the Total Tenderness Score, anxiety and depression scales, Migraine Disability Assessment, allodynia questionnaire, Short Form 36 Health Survey and the Medical Outcomes Study-Sleep Scale. In patients with FMS, the Multidimensional Assessment of Fatigue, the Pain Visual Analog Scale, the Manual Tender Point Survey and the Fibromyalgia Impact Questionnaire were employed. FMS was present in 36.4% of patients and prevailed significantly in tension-type headache and in patients with higher headache frequency. Headache frequency, pericranial muscle tenderness, anxiety and sleep inadequacy were especially associated with FMS comorbidity. In the FMS patients, fatigue and pain at tender points were significantly correlated with headache frequency. FMS seems increasingly prevalent with increased headache frequency, for the facilitation of central sensitization phenomena favoured by anxiety and sleep disturbances.

If due to chance alone .2 x .02 = .4%

http://www.ncbi.nlm.nih.gov/pubmed/19170692

HA & cLBP As Predictors of FMS

BMC Musculoskelet Disord. 2016 Jan 15;17(1):29.

Predictors of fibromyalgia: a population-based twin cohort study.

Markkula RA[1], Kalso EA[2,3], Kaprio JA[4,5,6].

Author information

Mean Age 28

Abstract

BACKGROUND: Fibromyalgia (FM) is a pain syndrome, the mechanisms and predictors of which are still unclear. We have earlier validated a set of FM-symptom questions for detecting possible FM in an epidemiological survey and thereby identified a cluster with "possible FM". This study explores prospectively predictors for membership of that FM-symptom cluster.

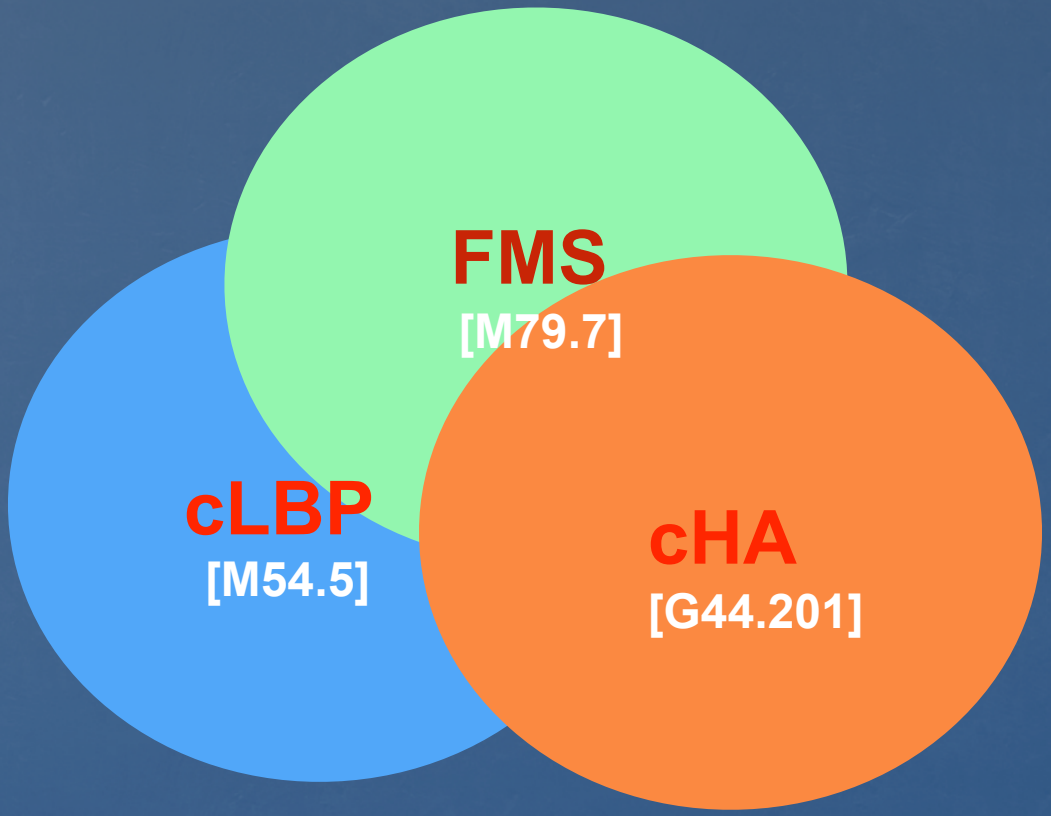
METHODS: A population-based sample of 8343 subjects of the older Finnish Twin Cohort replied to health questionnaires in 1975, 1981, and 1990. Their answers to the set of FM-symptom questions in 1990 classified them in three latent classes (LC): LC1 with no or few symptoms, LC2 with some symptoms, and LC3 with many FM symptoms. We analysed putative predictors for these symptom classes using baseline (1975 and 1981) data on regional pain, headache, migraine, sleeping, body mass index (BMI), physical activity, smoking, and zygosity, adjusted for age, gender, and education. Those with a high likelihood of having fibromyalgia at baseline were excluded from the analysis. In the final multivariate regression model, regional pain, sleeping problems, and overweight were all predictors for membership in the class with many FM symptoms.

RESULTS: The strongest non-genetic predictor was frequent headache (OR 8.6, CI 95 % 3.8-19.2), followed by persistent back pain (OR 4.7, CI 95 % 3.3-6.7) and persistent neck pain (OR 3.3, CI 95 % 1.8-6.0).

CONCLUSIONS: Regional pain, frequent headache, and persistent back or neck pain, sleeping problems, and overweight are predictors for having a cluster of symptoms consistent with fibromyalgia.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4715288/

Co-Morbid Pain in FMS is the Norm



http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/

Co-Morbid Pain in FMS

"Overwhelming evidence reveals that what is often labeled as a single chronic regional pain syndrome is, upon closer evaluation, a chronic illness beginning much earlier in life, where the pain merely occurs at different points of the body at different points in time and is given different labels by subspecialists focusing on "their region" of the body."

Daniel Clauw, MD

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/

Central Sensitivity Spectrum (CSS)

Hindawi Publishing Corporation
Pain Research and Treatment
Volume 2012, Article ID 584573, 8 pages
doi:10.1155/2012/584573

Review Article

The Prevalence of Fibromyalgia in Other Chronic Pain Conditions

Muhammad B. Yunus

Section of Rheumatology, Department of Medicine, University of Illinois College of Medicine at Peoria, One Illini Drive, Peoria, IL 61605, USA

Correspondence should be addressed to Muhammad B. Yunus, yunus@uic.edu

Received 3 May 2011; Accepted 15 August 2011

Academic Editor: Mary-Ann Fitzcharles

Central sensitivity syndromes (CSS) include fibromyalgia syndrome (FMS), irritable bowel syndrome, temporomandibular disorder, restless legs syndrome, chronic fatigue syndrome, and other similar chronic painful conditions that are based on central sensitization (CS). CSS are mutually associated. In this paper, prevalence of FMS among other members of CSS has been described. An important recent recognition is an increased prevalence of FMS in other chronic pain conditions with structural pathology, for example, rheumatoid arthritis, systemic lupus, ankylosing spondylitis, osteoarthritis, diabetes mellitus, and inflammatory bowel disease. Diagnosis and proper management of FMS among these diseases are of crucial importance so that unwarranted use of such medications as corticosteroids can be avoided, since FMS often occurs when RA or SLE is relatively mild.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3236313/pdf/PRT2012-584573.pdf

Central Sensitivity Spectrum Disorders

Table 2. Members of the central sensitivity syndromes (CSS) family* and an individual central sensitivity syndrome.**

A. CSS family

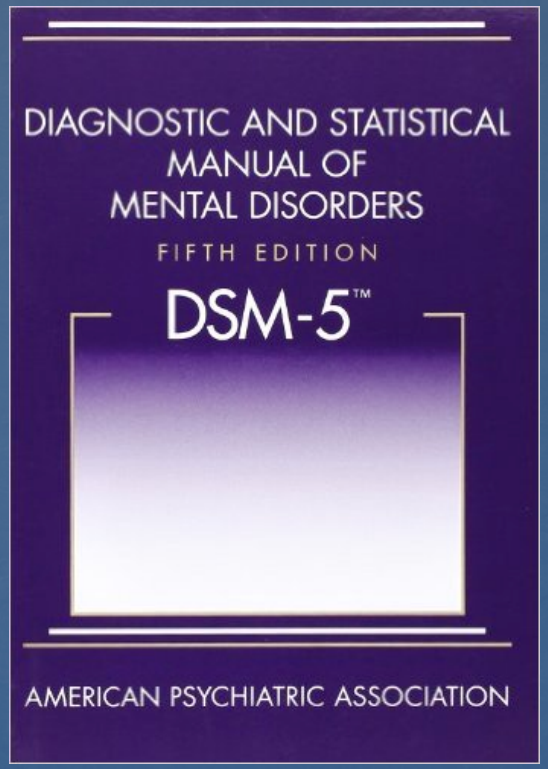
1. Fibromyalgia syndrome
2. Irritable bowel syndrome
3. Primary (dysfunctional) dyspepsia
4. Tension-type headache
5. Migraine
6. Myofascial pain syndrome
7. Myofascial temporomandibular disorder
8. Primary chronic neck pain
9. Primary low back pain
10. Restless legs syndrome
11. Periodic limb movement disorder
12. Endometriosis
13. Primary dysmenorrhea
14. Painful bladder syndrome/ interstitial cystitis
15. Vulvodynia/vulvar vestibulitis
16. Chronic prostatitis/chronic male pelvic pain
17. Posttraumatic stress disorder
18. Multiple chemical sensitivity (chemical intolerance)
19. Primary burning mouth syndrome
20. Primary chronic cough #
21. Primary chronic tinnitus/ primary chronic hearing loss #

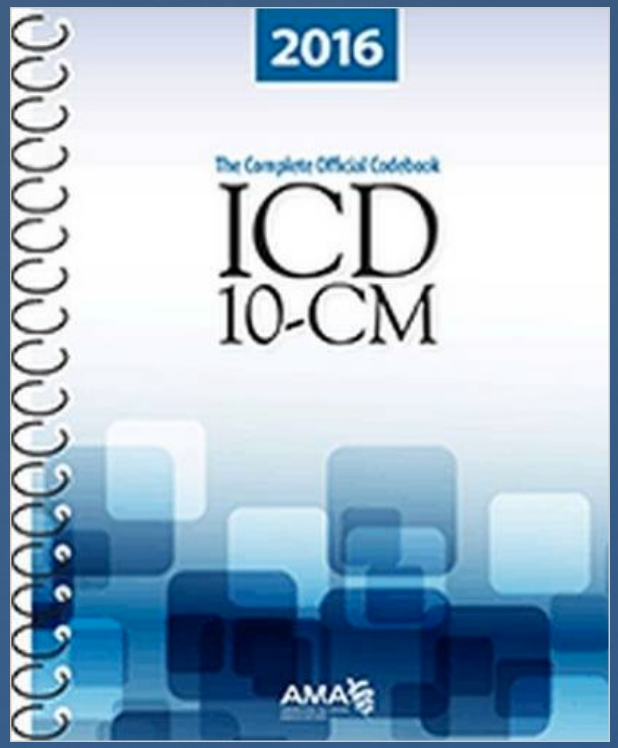
B. Individual central sensitivity syndrome

1. Complex regional pain syndrome

http://www.ncbi.nlm.nih.gov/pubmed/26138918

Coding Central Sensitivity Spectrum Disorders





DMS-V Somatic Symptom Disorder (F45.42, G89.4)

Predominant Pain

Table 2 DSM-5 diagnostic criteria for somatic symptom disorder

A. One or more somatic symptoms that are distressing or result in significant disruption of daily life.

B. Excessive thoughts, feelings, or behavio[u]rs related to the somatic symptoms or associated health concerns as manifested by at least one of the following:

1. Disproportionate and persistent thoughts about the seriousness of one's symptoms.
2. Persistently high level of anxiety about health or symptoms.
3. Excessive time and energy devoted to these symptoms or health concerns.

C. Although any one somatic symptom may not be continuously present, the state of being symptomatic is persistent (typically more than 6 months).

Specify if:

With predominant pain (previously pain disorder): This specifier is for individuals whose somatic symptoms predominantly involve pain.

Specify if:

Persistent: A persistent course is characterized by severe symptoms, marked by impairment, and long duration (more than 6 months).

Specify current severity:

Mild: Only one of the symptoms specified in Criterion B is fulfilled.

Moderate: Two or more of the symptoms specified in Criterion B are fulfilled.

Severe: Two or more of the symptoms specified in Criterion B are fulfilled, plus there are multiple somatic complaints (or one very severe symptom).

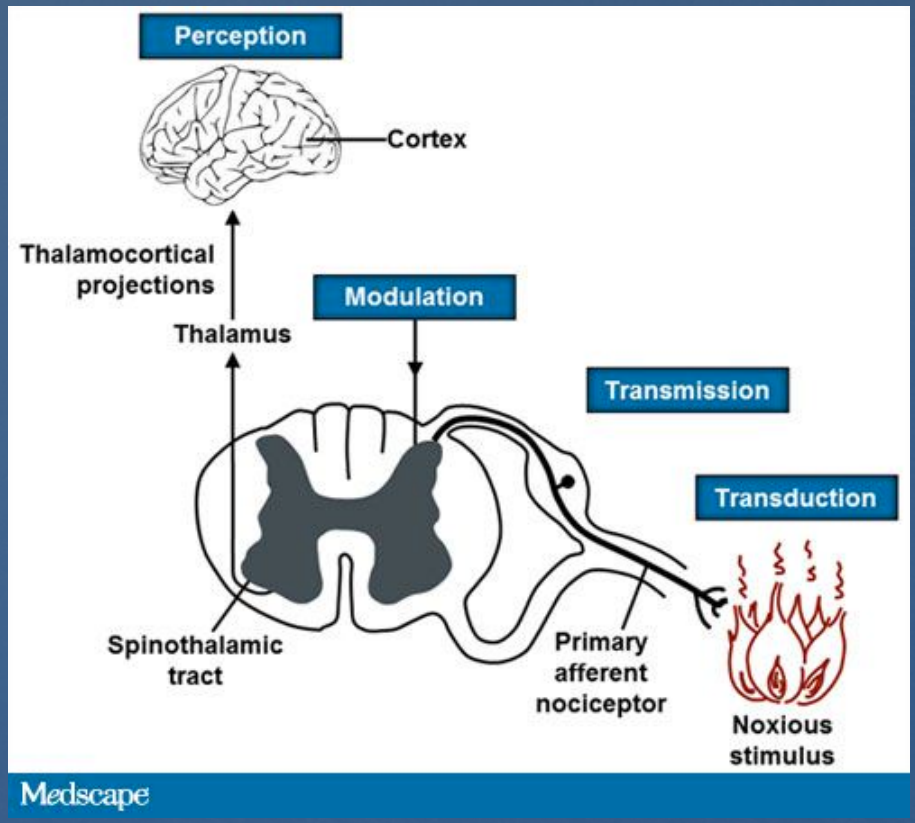
Reproduced, with permission, from the American Psychiatric Association.[53, p 311]

http://www.psychiatrictimes.com/cme/somatoform-and-related-disorders-update

The Overwhelming Evidence : fMRI

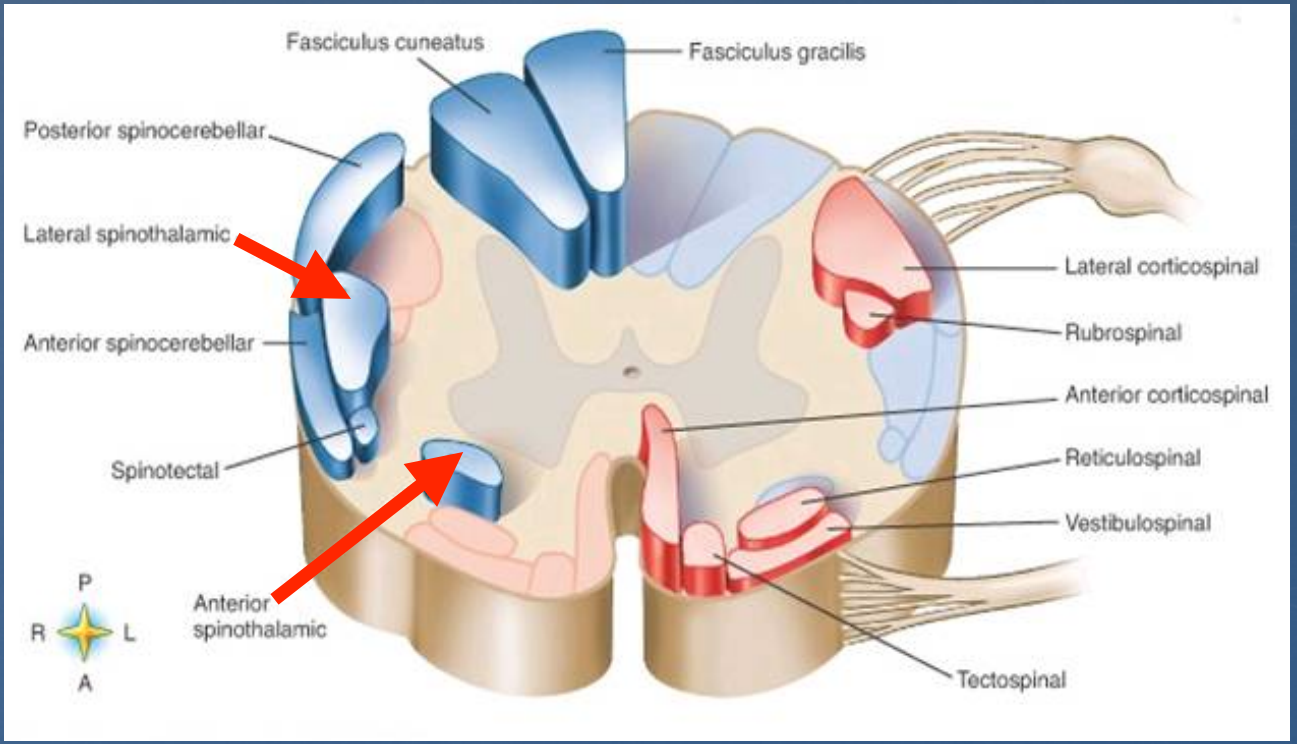
Pain Is A Perception Not A Stimulus

No brain, no pain.

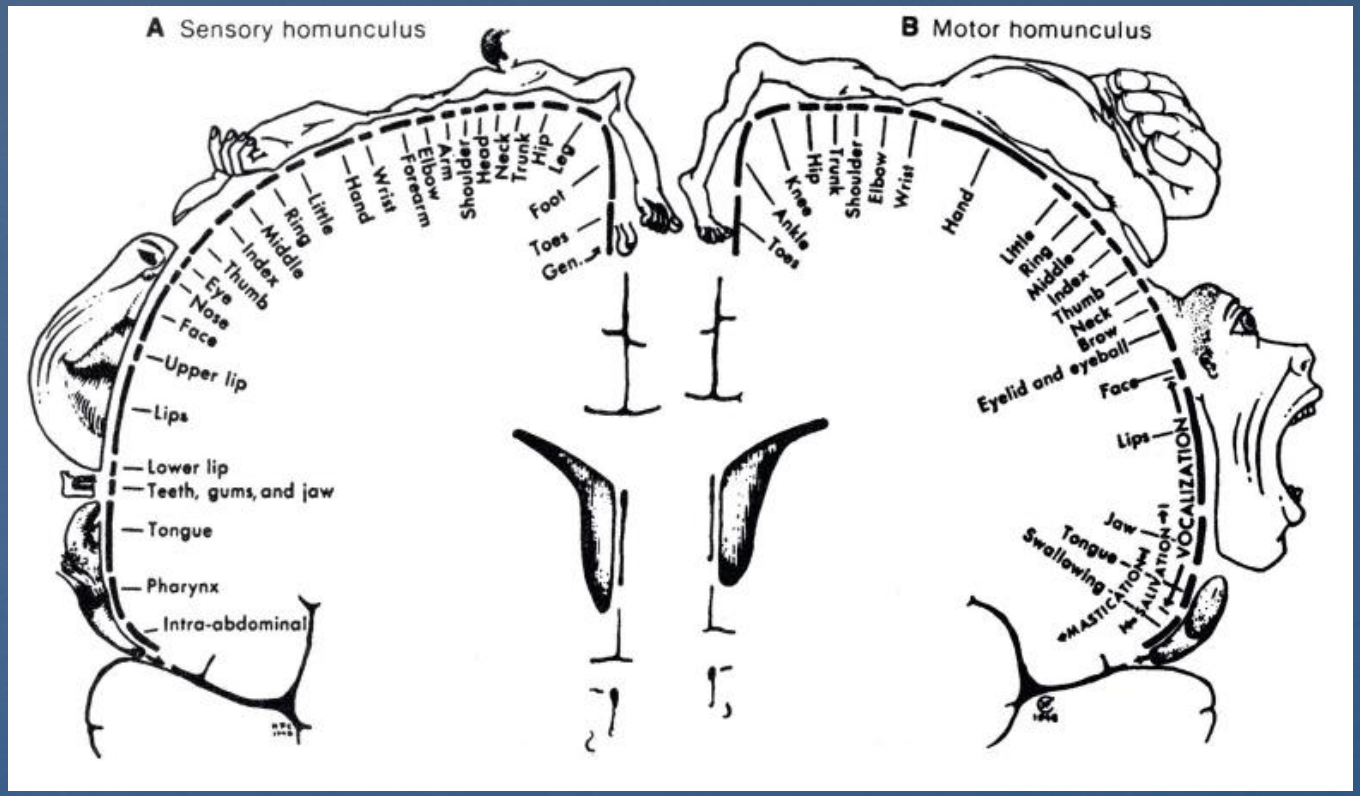


http://onlinelibrary.wiley.com/doi/10.1111/j.1469-7580.2005.00428.x/epdf

Somatotopic Pain Map In The Spinal Cord

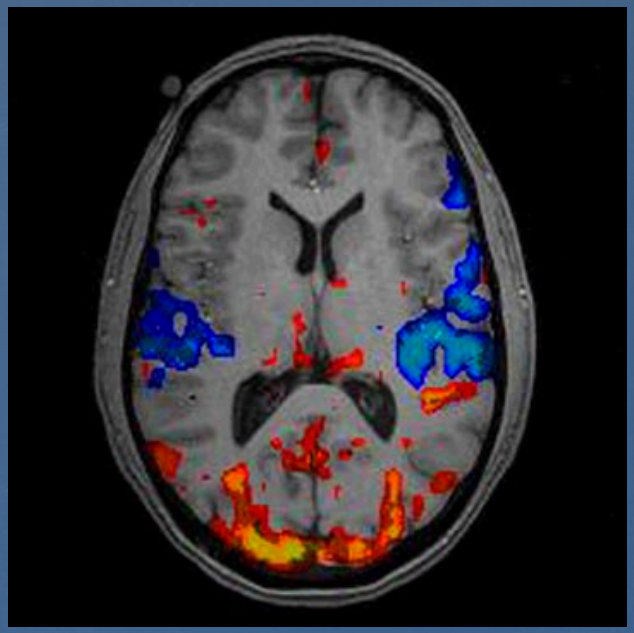


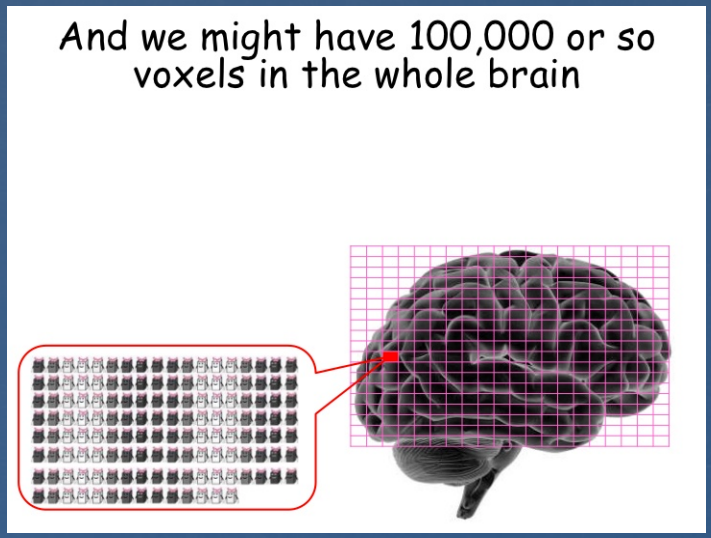
Where Is Somatotopic Map For Pain In The Brain?



BOLD rs-fMRI

Blood Oxygen Level Dependent





http://www.amazon.com/Brain-Adapting-Pain-Contribution-Neuroimaging/dp/1496317491/ref=tmm_pap_title_0?_encoding=UTF8&qid=&sr=

fMRI and Pain

However, a dissociation between the sensory and affective components of physical pain has long been known from clinical work, in which lesions of the lateral thalamus render a person insensate on the opposite side of the body while still permitting a display of grimacing, restlessness, and autonomic responses to pain. Functional magnetic resonance imaging (fMRI) studies have confirmed this separation by showing a neural circuitry for physical pain that has two disparate ensembles: first, a sensory system in the primary and secondary somatosensory cortexes and posterior insula that codes for the qualitative and quantitative characteristics of a stimulus, and second, an affective system in the dorsal anterior cingulate cortex, anterior insula, and the limbic system that signals aversive states.[1,4-6] The insula, which is embedded in both systems, is a pivotal hub of a salience network that identifies the most relevant internal and external stimuli, including pain, from moment to moment, in order to guide attention and behavior.[6,7]

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691100/

fMRI and Nociceptive Pain 2013

Published in final edited form as:
N Engl J Med. 2013 April 11; 368(15): 1388–1397. doi:10.1056/NEJMoa1204471.

An fMRI-Based Neurologic Signature of Physical Pain

Tor D. Wager, Ph.D., **Lauren Y. Atlas, Ph.D.**, **Martin A. Lindquist, Ph.D.**, **Mathieu Roy, Ph.D.**, **Choong-Wan Woo, M.A.**, and **Ethan Kross, Ph.D.**
From the Department of Psychology and Neuroscience, University of Colorado, Boulder (T.D.W., M.R., C.-W.W.); the Department of Psychology, New York University, New York (L.Y.A.); the Department of Biostatistics, Johns Hopkins University, Baltimore (M.A.L.); and the Department of Psychology, University of Michigan, Ann Arbor (E.K.)

Abstract

BACKGROUND—Persistent pain is measured by means of self-report, the sole reliance on which hampers diagnosis and treatment. Functional magnetic resonance imaging (fMRI) holds promise for identifying objective measures of pain, but brain measures that are sensitive and specific to physical pain have not yet been identified.

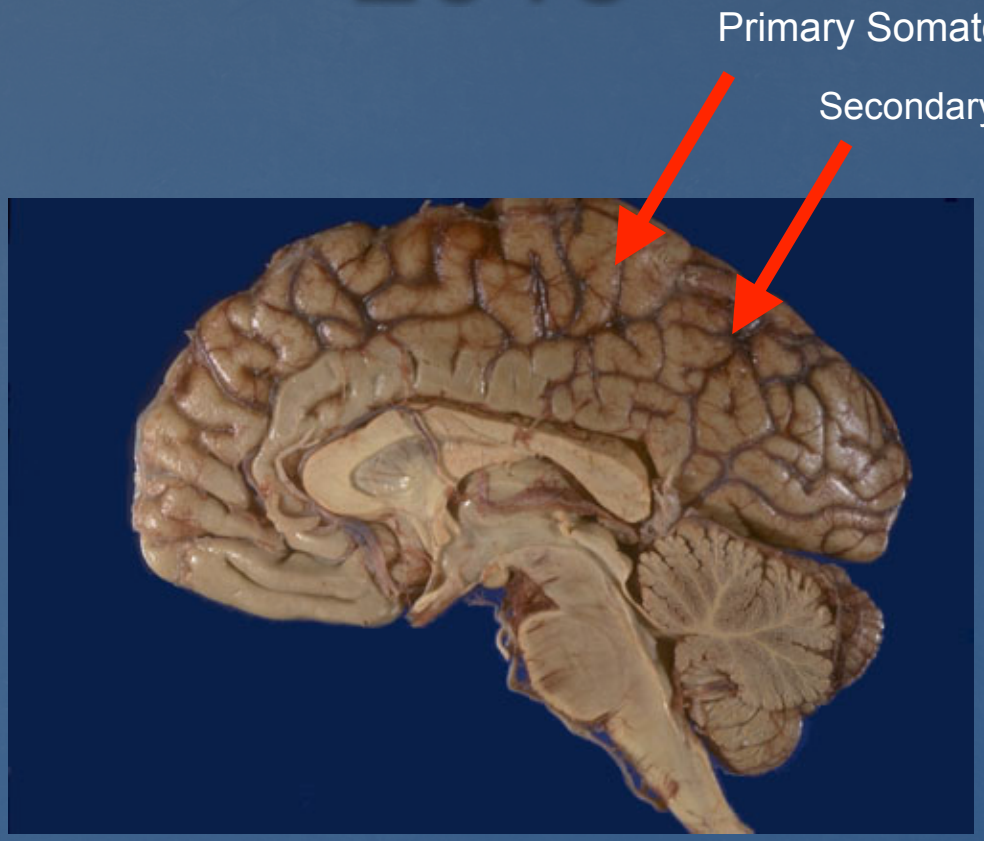
METHODS—In four studies involving a total of 114 participants, we developed an fMRI-based measure that predicts pain intensity at the level of the individual person. In study 1, we used machine-learning analyses to identify a pattern of fMRI activity across brain regions — a neurologic signature — that was associated with heat-induced pain. The pattern included the thalamus, the posterior and anterior insulae, the secondary somatosensory cortex, the anterior cingulate cortex, the periaqueductal gray matter, and other regions. In study 2, we tested the sensitivity and specificity of the signature to pain versus warmth in a new sample. In study 3, we assessed specificity relative to social pain, which activates many of the same brain regions as physical pain. In study 4, we assessed the responsiveness of the measure to the analgesic agent remifentanil.

RESULTS—In study 1, the neurologic signature showed sensitivity and specificity of 94% or more (95% confidence interval [CI], 89 to 98) in discriminating painful heat from nonpainful warmth, pain anticipation, and pain recall. In study 2, the signature discriminated between painful heat and nonpainful warmth with 93% sensitivity and specificity (95% CI, 84 to 100). In study 3, it discriminated between physical pain and social pain with 85% sensitivity (95% CI, 76 to 94) and 73% specificity (95% CI, 61 to 84) and with 95% sensitivity and specificity in a forced-choice test of which of two conditions was more painful. In study 4, the strength of the signature response was substantially reduced when remifentanil was administered.

CONCLUSIONS—It is possible to use fMRI to assess pain elicited by noxious heat in healthy persons. Future studies are needed to assess whether the signature predicts clinical pain. (Funded by the National Institute on Drug Abuse and others.)

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691100/

fMRI and Nociceptive Pain 2013



http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691100/

fMRI and Central Pain 2013

Pain chronification shifts brain representation from nociceptive to emotional circuits.

Brain. 2013 Sep;136(Pt 9):2751-68. doi: 10.1093/brain/awt211.

Shape shifting pain: chronification of back pain shifts brain representation from nociceptive to emotional circuits.

Hashmi JA[1], Baliki MN, Huang L, Baria AT, Torbey S, Hermann KM, Schnitzer TJ, Apkarian AV.

Author information

Average Age 42

Abstract

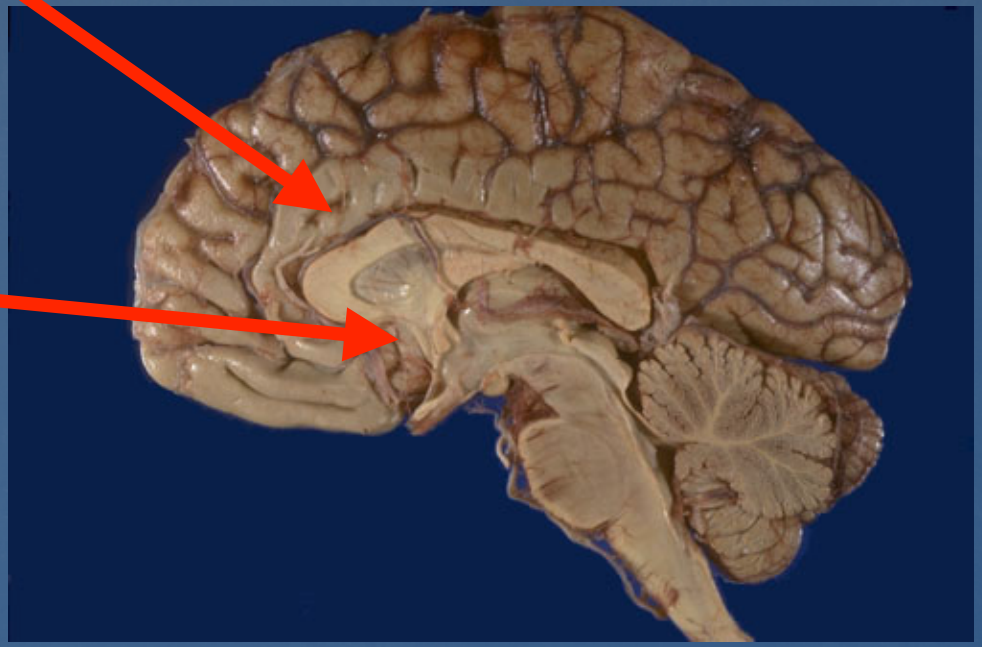
Chronic pain conditions are associated with abnormalities in brain structure and function. Moreover, some studies indicate that brain activity related to the subjective perception of chronic pain may be distinct from activity for acute pain. However, the latter are based on observations from cross-sectional studies. How brain activity reorganizes with transition from acute to chronic pain has remained unexplored. Here we study this transition by examining brain activity for rating fluctuations of back pain magnitude. First we compared back pain-related brain activity between subjects who have had the condition for ~2 months with no prior history of back pain for 1 year (early, acute/subacute back pain group, n = 94), to subjects who have lived with back pain for >10 years (chronic back pain group, n = 59). In a subset of subacute back pain patients, we followed brain activity for back pain longitudinally over a 1-year period, and compared brain activity between those who recover (recovered acute/sub-acute back pain group, n = 19) and those in which the back pain persists (persistent acute/sub-acute back pain group, n = 20; based on a 20% decrease in intensity of back pain in 1 year). We report results in relation to meta-analytic probabilistic maps related to the terms pain, emotion, and reward (each map is based on >200 brain imaging studies, derived from neurosynth.org). We observed that brain activity for back pain in the early, acute/subacute back pain group is limited to regions involved in acute pain, whereas in the chronic back pain group, activity is confined to emotion-related circuitry. Reward circuitry was equally represented in both groups. In the recovered acute/subacute back pain group, brain activity diminished in time, whereas in the persistent acute/subacute back pain group, activity diminished in acute pain regions, increased in emotion-related circuitry, and remained unchanged in reward circuitry. The results demonstrate that brain representation for a constant percept, back pain, can undergo large-scale shifts in brain activity with the transition to chronic pain. These observations challenge long-standing theoretical concepts regarding brain and mind relationships, as well as provide important novel insights regarding definitions and mechanisms of chronic pain.

http://www.ncbi.nlm.nih.gov/pubmed/23983029

fMRI and Central Pain 2013

Dorsal Anterior Cingulate

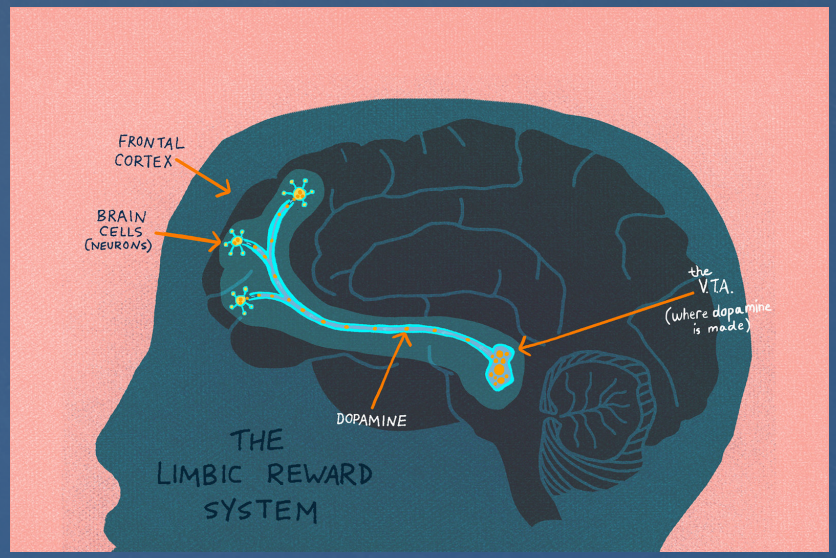
Limbic System



http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691100/

Nucleus Accumbens The Reward Center

Heroin is pharmacologically similar to prescription opioids. All these drugs produce their action through endogenous opioid systems that regulate a wide range of functions through three major types of G-protein–coupled receptors: mu, delta, and kappa, with particularly potent agonist activity at the mu receptor and weak activity at the delta and kappa receptors. Mu-receptor activation by an agonist such as heroin or a prescription opioid triggers a complex cascade of intracellular signaling events, which ultimately lead to an increase in dopamine release in the shell of the nucleus accumbens. The resulting burst of dopamine in this critical area of the reward circuitry becomes strongly coupled with the subjective “high” that is caused by drugs of abuse.



http://www.nejm.org/doi/full/10.1056/NEJMra1508490

Opioids Alter Brain Function

Brain. 2010 Jul;133(Pt 7):2098-114. doi: 10.1093/brain/awq138. Epub 2010 Jun 16.

Alterations in brain structure and functional connectivity in prescription opioid-dependent patients.

Upadhyay J[1], Maleki N, Potter J, Elman I, Rudrauf D, Knudsen J, Wallin D, Pendse G, McDonald L, Griffin M, Anderson J, Nutile L, Renshaw P, Weiss R, Becerra L, Borsook D.

Author information

Abstract

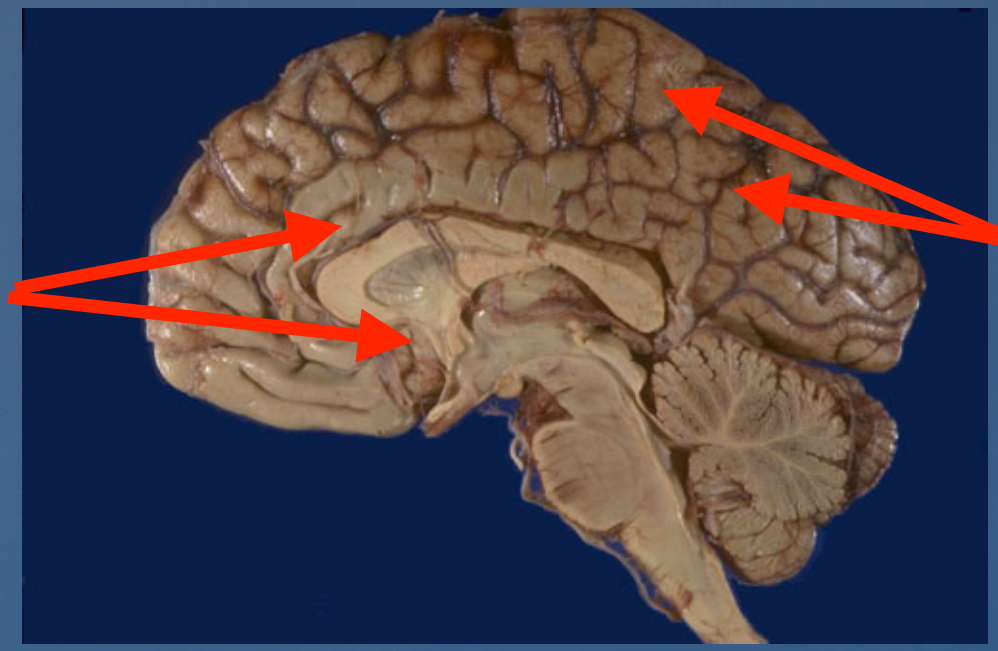
A dramatic increase in the use and dependence of prescription opioids has occurred within the last 10 years. The consequences of long-term prescription opioid use and dependence on the brain are largely unknown, and any speculation is inferred from heroin and methadone studies. Thus, no data have directly demonstrated the effects of prescription opioid use on brain structure and function in humans. To pursue this issue, we used structural magnetic resonance imaging, diffusion tensor imaging and resting-state functional magnetic resonance imaging in a highly enriched group of prescription opioid-dependent patients [(n=10); from a larger study on prescription opioid dependent patients (n=133)] and matched healthy individuals (n=10) to characterize possible brain alterations that may be caused by long-term prescription opioid use. Criteria for patient selection included: (i) no dependence on alcohol or other drugs; (ii) no comorbid psychiatric or neurological disease; and (iii) no medical conditions, including pain. In comparison to control subjects, individuals with opioid dependence displayed bilateral volumetric loss in the amygdala. Prescription opioid-dependent subjects had significantly decreased anisotropy in axonal pathways specific to the amygdala (i.e. stria terminalis, ventral amygdalofugal pathway and uncinate fasciculus) as well as the internal and external capsules. In the patient group, significant decreases in functional connectivity were observed for seed regions that included the anterior insula, nucleus accumbens and amygdala subdivisions. Correlation analyses revealed that longer duration of prescription opioid exposure was associated with greater changes in functional connectivity. Finally, changes in amygdala functional connectivity were observed to have a significant dependence on amygdala volume and white matter anisotropy of efferent and afferent pathways of the amygdala. These findings suggest that prescription opioid dependence is associated with structural and functional changes in brain regions implicated in the regulation of affect and impulse control, as well as in reward and motivational functions. These results may have important clinical implications for uncovering the effects of long-term prescription opioid use on brain structure and function.

http://www.ncbi.nlm.nih.gov/pubmed/20558415

Central Vs Nociceptive Pain

Pain: An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

Central Pain
Opioid Unresponsive



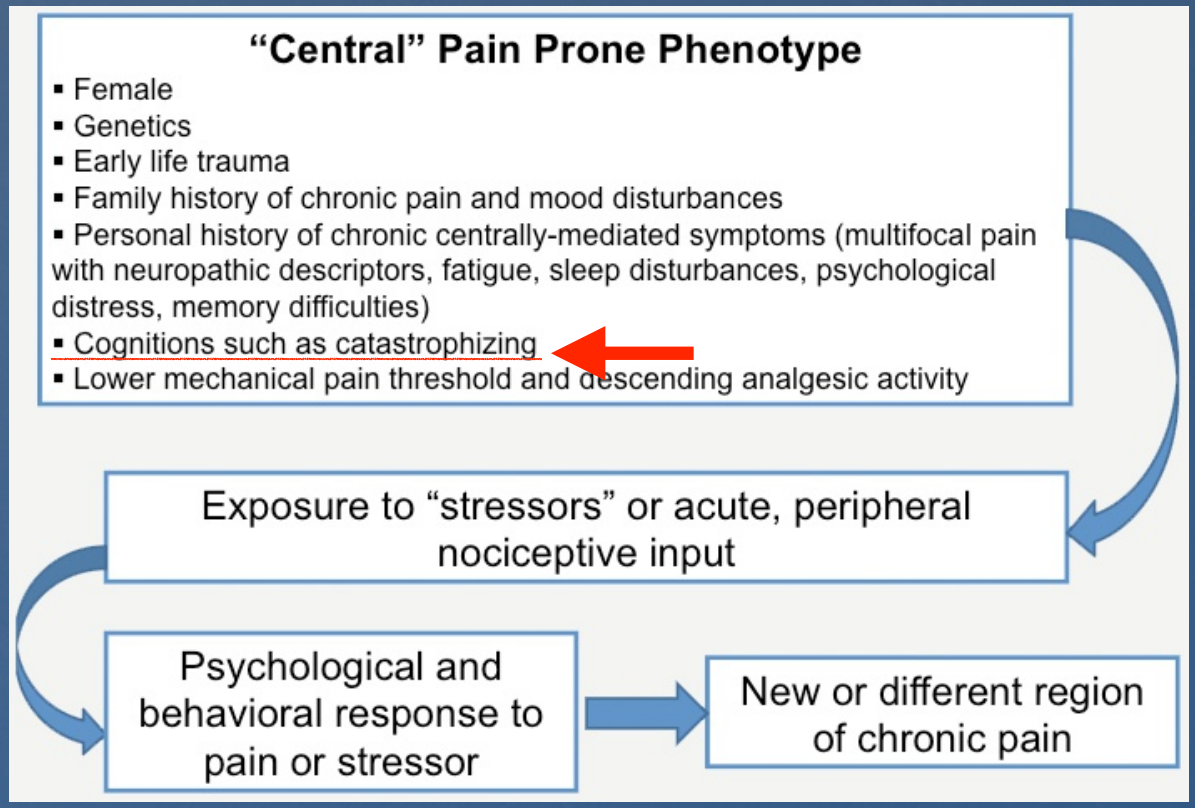
Nociceptive Pain
Opioid Responsive

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691100/

Diagnosing Central Sensitivity Spectrum Disorders

Somatic Symptom Disorder Predominant Pain

CSS Prone Phenotype



http://www.ncbi.nlm.nih.gov/pubmed/26266995

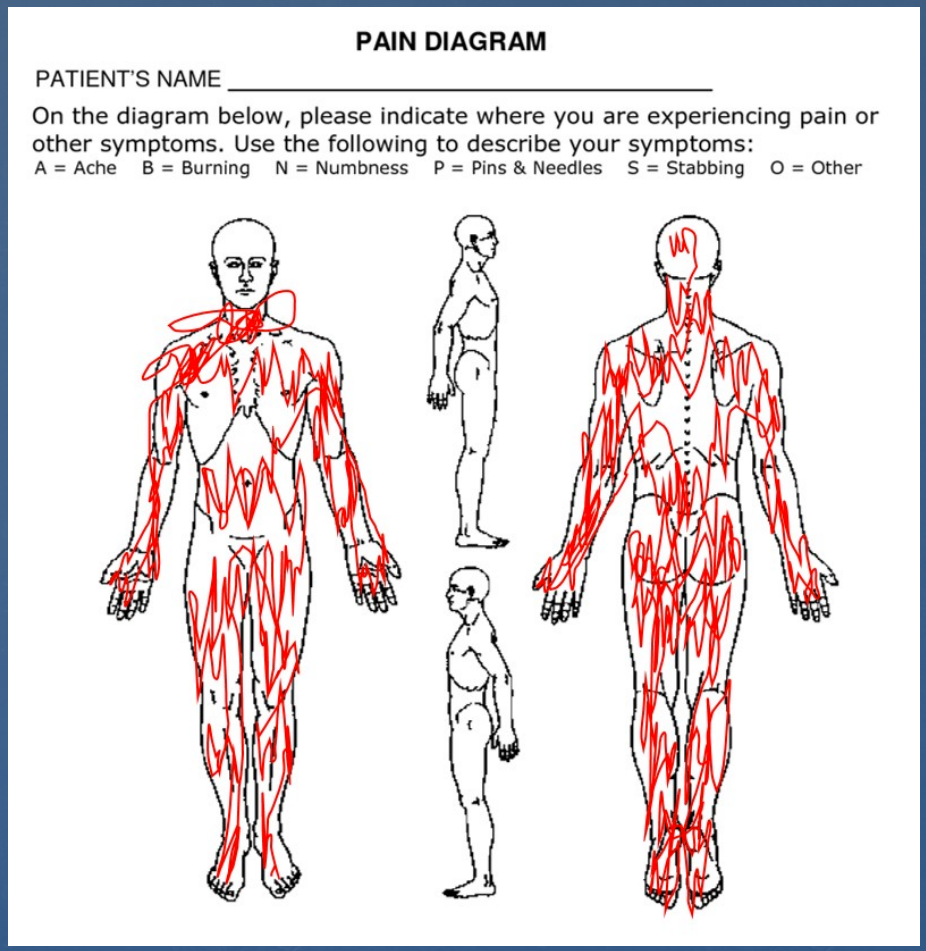
CSS Diagnostic Components

1. Pain in many body regions.
2. Higher current and lifetime history of chronic pain in several body regions.
3. Multiple somatic symptoms (e.g., fatigue, memory difficulties, sleep problems, mood disturbance)
4. More sensitive to other sensory stimuli (e.g., bright light, loud noises, odors, other sensations in internal organs)
5. 1.5 to 2x more common in women.
6. Strong family history of chronic pain.
7. High self-reported pain & distress (VAS/NPS/PSD/PCS)
8. Pain triggered or exacerbated by stressors.
9. Peak prevalence of FMS age 50-59 (working-age).*
10. Essentially normal physical examination +/- diffuse tenderness.

http://www.ncbi.nlm.nih.gov/pubmed/26266995

* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4575027/

Current Wide-Spread Pain or History of Wide-Spread Pain



PAIN DIAGRAM

PATIENT'S NAME _____

On the diagram below, please indicate where you are experiencing pain or other symptoms. Use the following to describe your symptoms:

A = Ache B = Burning N = Numbness P = Pins & Needles S = Stabbing O = Other

Family History of Chronic Pain

Parental chronic pain in relation to chronic pain in their adult offspring: family-linkage within the HUNT Study, Norway.

Lier R[1], Nilsen TI, Mork PJ.

Author information

Abstract

BACKGROUND: Little is known about the association between parental chronic musculoskeletal pain (CMP) and occurrence of CMP in the adult offspring. The main objective of this study was to assess the parent-offspring association of CMP, and also to examine possible modifying effects of age and sex.

METHODS: The study includes 11 248 parent-offspring trios from the Norwegian HUNT Study with information on parental CMP obtained in 1995-97 and offspring CMP obtained in 2006-08. Logistic regression was used to calculate adjusted odds ratios (ORs) for offspring CMP associated with parental CMP.

RESULTS: Maternal and paternal CMP was associated with 20-40% increased odds of CMP in sons and daughters. Both sons and daughters had an OR of 1.6 (95% CI 1.4 to 1.9) when both parents reported CMP, compared to when none of the parents had CMP. Restricting the analyses to parental CMP that was associated with limited work ability and leisure time activity did not change the strength of the association. Further, analyses stratified by parental age ± 65 years showed no clear difference in the estimated associations, and there was no evidence of interaction for parental sex ($P \geq 0.39$) or offspring age ± 40 years ($P \geq 0.26$).

CONCLUSIONS: This large family-linkage study show that maternal and paternal CMP are positively associated with CMP in the adult offspring, irrespective of parental and offspring age, and that the associations are strongest when both parents have CMP. Although the high prevalence of CMP in both parents and offspring suggests that not all cases are clinically relevant, the results suggest that chronic pain has a heritable component.

http://www.ncbi.nlm.nih.gov/pubmed/25096408

Family History of FMS

Arthritis Rheum. 2004 Mar;50(3):944-52.

Family study of fibromyalgia.

Arnold LM[1], Hudson JI, Hess EV, Ware AE, Fritz DA, Auchenbach MB, Starck LO, Keck PE Jr.

Author information

Abstract

OBJECTIVE: To assess for familial aggregation of fibromyalgia (FM) and measures of tenderness and pain, and for familial coaggregation of FM and major mood disorder (major depressive disorder or bipolar disorder).

METHODS: Probands meeting the American College of Rheumatology criteria for FM and control probands with rheumatoid arthritis (RA) and no lifetime diagnosis of FM were recruited from consecutive referrals to 2 community-based rheumatology practices. Probands were ages 40-55 years and had at least 1 first-degree relative age 18 years or older who was available for interview and examination. All probands and interviewed relatives underwent a dolorimeter tender point examination and a structured clinical interview. Interviewed relatives were asked about first-degree relatives who were not available for interview, using a structured family interview. Logistic and linear regression models, adjusting for the correlation of observation within families, were applied to study the aggregation and coaggregation effects.

RESULTS: Information was collected for 533 relatives of 78 probands with FM and 272 relatives of 40 probands with RA. FM aggregated strongly in families: the odds ratio (OR) measuring the odds of FM in a relative of a proband with FM versus the odds of FM in a relative of a proband with RA was 8.5 (95% confidence interval [95% CI] 2.8-26, P = 0.0002). The number of tender points was significantly higher, and the total myalgic score was significantly lower in the relatives of probands with FM compared with the relatives of probands with RA. FM coaggregated significantly with major mood disorder: the OR measuring the odds of major mood disorder in a relative of a proband with FM versus the odds of major mood disorder in a relative of a proband with RA was 1.8 (95% CI 1.1-2.9, P = 0.013).

CONCLUSION: FM and reduced pressure pain thresholds aggregate in families, and FM coaggregates with major mood disorder in families. These findings have important clinical and theoretical implications, including the possibility that genetic factors are involved in the etiology of FM and in pain sensitivity. In addition, mood disorders and FM may share some of these inherited factors.

*http://www.ncbi.nlm.nih.gov/pubmed/15022338

High Self-Reported Pain

Higher Pain Scores At Inception Predict 50% of
The Predisposition to Chronification

Average Age = 49

Table 1 Demographics, pain and mood parameters for patients with CBP and early SBP

	CBP	Early SBP	CBP > early SBP, t-score (P-value)
Number of subjects	59	94	
Age	48.8 ± 1.2	42.1 ± 1.15	3.81 ($P < 0.01$)
Gender	25 females (42.4%)	48 females (51.1%)	–
Duration	13.5 ± 1.3 years	9.14 ± 0.48 weeks	14.91 ($P < 0.01$)
VAS	69.58 ± 2.61	58.25 ± 1.95	3.67 ($P < 0.01$)
MPQ sensory	15.9 ± 0.78	11.2 ± 0.62	4.36 ($P < 0.01$)
MPQ affective	5.29 ± 0.46	3.04 ± 0.41	3.4 ($P < 0.01$)
MPQ radiculopathy	4.61 ± 0.31	4.90 ± 0.21	−0.82 ($P = 0.41$)
BDI	7.30 ± 0.61	6.53 ± 0.61	0.87 ($P = 0.38$)
NPS	52.81 ± 2.22	40.32 ± 1.81	−3.91 ($P < 0.01$)

BDI = Beck Depression Index; MPQ = McGill Pain Questionnaire; NPS = Neuropathic Pain Scale; PANAS = Positive Affect Negative Affect Scale; VAS = Visual Analogue Scale.
*$P < 0.05$ **$P < 0.01$, unpaired t-test. Data presented as mean ± SEM.

http://www.ncbi.nlm.nih.gov/pubmed/23983029

High Self-Reported Pain

Average Age = 47

Isr Med Assoc J. 2015 Nov;17(11):691-6.

Visual Analogue Scales of Pain, Fatigue and Function in Patients with Various Rheumatic Disorders Receiving Standard Care.

Levy O, Amit-Vazina M, Segal R, Tishler M.

Abstract

BACKGROUND: Pain, fatigue and functional disability are common key outcomes in most rheumatologic disorders. While many studies have assessed the outcomes of specific disease states, few have compared the outcomes of various rheumatic diseases.

OBJECTIVES: To assess how the intensity and rating of pain, fatigue and functional disability vary among groups of patients with various rheumatic disorders receiving standard care.

METHODS: In a cross-sectional study conducted in a hospital-based rheumatology unit, standard clinical and laboratory data were obtained and all patients filled out questionnaires on pain, fatigue and daily function. The analysis concentrated on visual analogue scales (VAS) using specific statistical methods.

RESULTS: A total of 618 visits of 383 patients with inflammatory as well as non-inflammatory rheumatic disorders were analyzed. Fibromyalgia patients had significantly higher VAS scores compared to all other groups. On the other hand, patients with polymyalgia rheumatica demonstrated significantly lower VAS scores compared to all other groups of patients. Patients with psoriatic arthritis also demonstrated relatively low VAS scores. VAS scores were lower in patients with inflammatory disorders as compared to patients with non-inflammatory disorders.

CONCLUSIONS: Our results suggest a spectrum of outcome intensity in various rheumatic disorders receiving standard care, ranging from fibromyalgia patients who report distinctive severity to patients with inflammatory disorders who are doing relatively well as compared to patients with non-inflammatory disorders. The findings emphasize the need to explore the underlying mechanisms of pain and fatigue in patients with non-inflammatory rheumatic disorders.

http://www.ncbi.nlm.nih.gov/pubmed/26757566

Validated Instruments to Detect Distress/CSS

"You cannot guess at the extent of fatigue, unrefreshed sleep, cognitive problems, multiplicity of symptoms, and extent of pain without a detailed interview."

Frederick Wolfe

http://www.ncbi.nlm.nih.gov/pubmed/20461781

Validated Instruments to Detect Distress/CSS

Measures of "Fibromyalgianess"

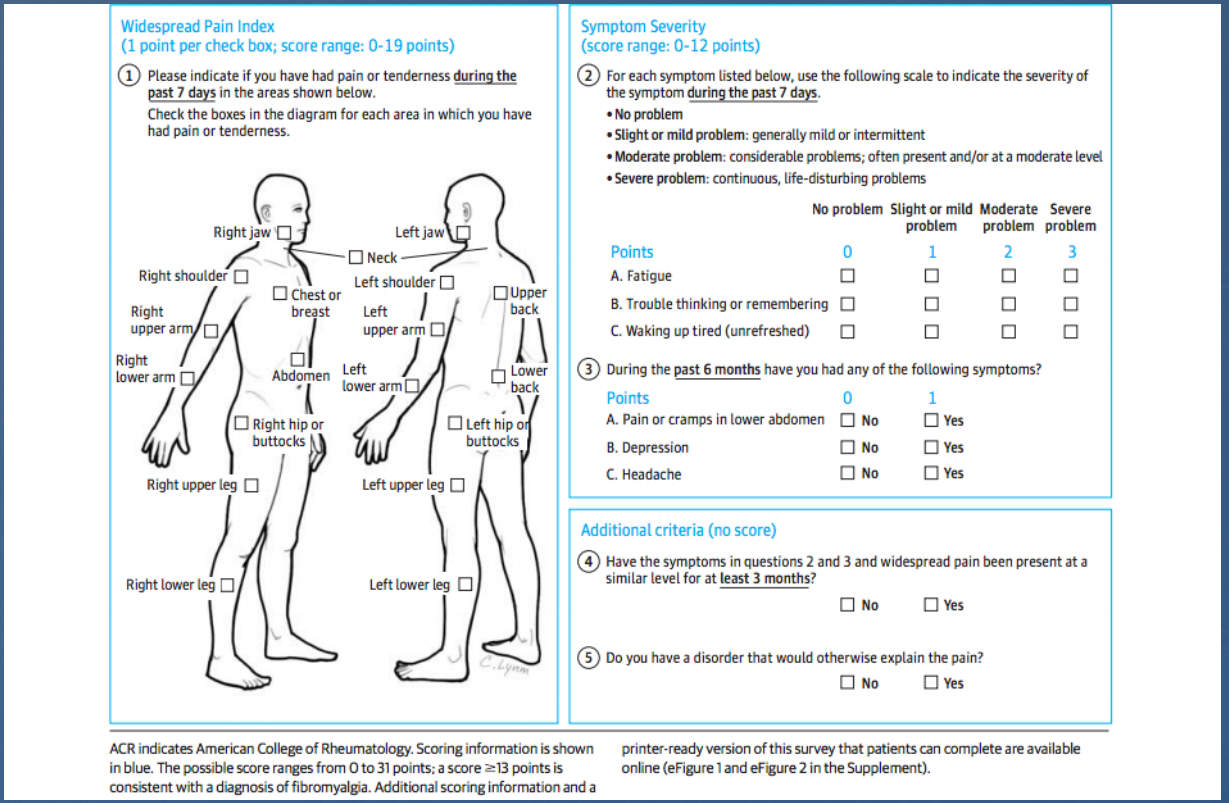
1. Pain Catastrophizing Scale (PCS)
2. Fibromyalgia Survey Questionnaire (FMSQ/PSD)
3. Patient Health Questionnaire 15
4. McGill Pain Questionnaire (Sensory/Affective)
5. Modified Somatic Perceptions Questionnaire
6. Central Sensitivity Index

Pain Catastrophizing Scale (>30 Abnl)

	Not at all	To a slight degree	To a moderate degree	To a great degree	All the time
I worry all the time about whether the pain will end	0	1	2	3	4
I feel I can't go on	0	1	2	3	4
It's terrible and I think it's never going to get any better	0	1	2	3	4
It's awful and I feel that it overwhelms me	0	1	2	3	4
I feel I can't stand it anymore	0	1	2	3	4
I become afraid that the pain will get worse	0	1	2	3	4
I keep thinking of other painful events	0	1	2	3	4
I anxiously want the pain to go away	0	1	2	3	4
I can't seem to keep it out of my mind	0	1	2	3	4
I keep thinking about how much it hurts	0	1	2	3	4
I keep thinking about how badly I want the pain to stop	0	1	2	3	4
There's nothing I can do to reduce the intensity of the pain	0	1	2	3	4
I wonder whether something serious may happen	0	1	2	3	4

http://www.slideshare.net/101N/pain-catastrophizing-scale

FMSQ/PSD (>13 Abnl)



Widespread Pain Index
(1 point per check box; score range: 0-19 points)

(1) Please indicate if you have had pain or tenderness **during the past 7 days** in the areas shown below.
Check the boxes in the diagram for each area in which you have had pain or tenderness.

Symptom Severity
(score range: 0-12 points)

(2) For each symptom listed below, use the following scale to indicate the severity of the symptom **during the past 7 days**.

- **No problem**
- **Slight or mild problem**: generally mild or intermittent
- **Moderate problem**: considerable problems; often present and/or at a moderate level
- **Severe problem**: continuous, life-disturbing problems

	No problem	Slight or mild problem	Moderate problem	Severe problem
Points	0	1	2	3
A. Fatigue	☐	☐	☐	☐
B. Trouble thinking or remembering	☐	☐	☐	☐
C. Waking up tired (unrefreshed)	☐	☐	☐	☐

(3) During the **past 6 months** have you had any of the following symptoms?

Points	0	1
A. Pain or cramps in lower abdomen	☐ No	☐ Yes
B. Depression	☐ No	☐ Yes
C. Headache	☐ No	☐ Yes

Additional criteria (no score)

(4) Have the symptoms in questions 2 and 3 and widespread pain been present at a similar level for at **least 3 months**?
☐ No ☐ Yes

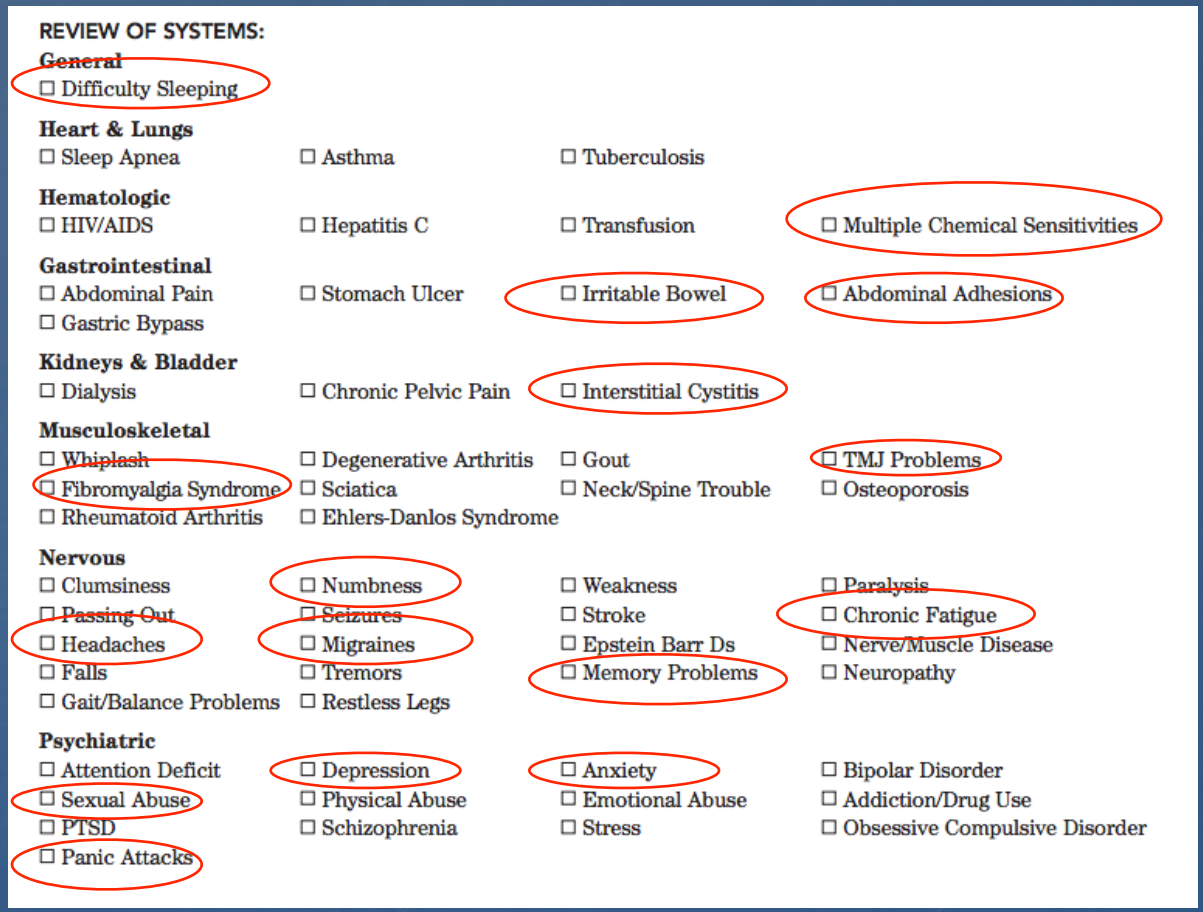
(5) Do you have a disorder that would otherwise explain the pain?
☐ No ☐ Yes

ACR indicates American College of Rheumatology. Scoring information is shown in blue. The possible score ranges from 0 to 31 points; a score ≥13 points is consistent with a diagnosis of fibromyalgia. Additional scoring information and a printer-ready version of this survey that patients can complete are available online (eFigure 1 and eFigure 2 in the Supplement).

http://www.ncbi.nlm.nih.gov/pubmed/24737367

Positive Review Of Systems

Pain Spectrum Disorders



REVIEW OF SYSTEMS:

General
- ☐ Difficulty Sleeping

Heart & Lungs
- ☐ Sleep Apnea
- ☐ Asthma
- ☐ Tuberculosis

Hematologic
- ☐ HIV/AIDS
- ☐ Hepatitis C
- ☐ Transfusion
- ☐ Multiple Chemical Sensitivities

Gastrointestinal
- ☐ Abdominal Pain
- ☐ Stomach Ulcer
- ☐ Irritable Bowel
- ☐ Abdominal Adhesions
- ☐ Gastric Bypass

Kidneys & Bladder
- ☐ Dialysis
- ☐ Chronic Pelvic Pain
- ☐ Interstitial Cystitis

Musculoskeletal
- ☐ Whiplash
- ☐ Degenerative Arthritis
- ☐ Gout
- ☐ TMJ Problems
- ☐ Fibromyalgia Syndrome
- ☐ Sciatica
- ☐ Neck/Spine Trouble
- ☐ Osteoporosis
- ☐ Rheumatoid Arthritis
- ☐ Ehlers-Danlos Syndrome

Nervous
- ☐ Clumsiness
- ☐ Numbness
- ☐ Weakness
- ☐ Paralysis
- ☐ Passing Out
- ☐ Seizures
- ☐ Stroke
- ☐ Chronic Fatigue
- ☐ Headaches
- ☐ Migraines
- ☐ Epstein Barr Ds
- ☐ Nerve/Muscle Disease
- ☐ Falls
- ☐ Tremors
- ☐ Memory Problems
- ☐ Neuropathy
- ☐ Gait/Balance Problems
- ☐ Restless Legs

Psychiatric
- ☐ Attention Deficit
- ☐ Depression
- ☐ Anxiety
- ☐ Bipolar Disorder
- ☐ Sexual Abuse
- ☐ Physical Abuse
- ☐ Emotional Abuse
- ☐ Addiction/Drug Use
- ☐ PTSD
- ☐ Schizophrenia
- ☐ Stress
- ☐ Obsessive Compulsive Disorder
- ☐ Panic Attacks

https://www.slideshare.net/secret/8pFz87yqfGPRzn

Treatment of CSS/FMS

Treatment	Evidence Level
Pt Education	1A
Graded Exercise	1A
CBT	1A
CAM	1A
Tricyclics	1A
SNRI's	1A
Gabapentinoids	1A
NSAIDs	5D
Opioids	5D

http://www.ncbi.nlm.nih.gov/pubmed/24737367

Natural Hx of FMS

Average Age = 53

The Longitudinal Outcome of Fibromyalgia: A Study of 1555 Patients

BRIAN WALITT, MARY-ANN FITZCHARLES, AFTON L. HASSETT, ROBERT S. KATZ, WINFRIED HÄUSER, and FREDERICK WOLFE

ABSTRACT. ***Objective***. To describe the diagnosis status and outcome of patients diagnosed with fibromyalgia (FM) by US rheumatologists.

Methods. We assessed 1555 patients with FM with detailed outcome questionnaires during 11,006 semiannual observations for up to 11 years. At entry, all patients satisfied American College of Rheumatology preliminary 2010 FM criteria modified for survey research. We determined diagnosis status, rates of improvement, responder subgroups, and standardized mean differences (effect sizes) between start and study completion scores of global well-being, pain, sleep problems, and health related quality of life. (QOL)

Results. The 5-year improvement rates were pain 0.4 (95% CI 0.2, 0.5), fatigue 0.4 (95% CI 0.2, 0.05), and global 0.0 (95% CI –0.1, 0.1). The standardized mean differences were patient global 0.03 (95% CI –0.02, 0.08), pain 0.22 (95% CI 0.16, 0.28), sleep problems 0.20 (95% CI 0.14, 0.25), physical component summary of the Short-form 36 (SF-36) 0.11 (95% CI –0.14, –0.07), and SF-36 mental component summary 0.03 (95% CI –0.07, 0.02). Patients switched between criteria-positive and criteria-negative states, with 716 patients (44.0%) failing to meet criteria at least once during 4228.5 patient-years (7448 observations). About 10% of patients had substantial improvement and about 15% had moderate improvement of pain. Overall, FM severity worsened in 35.9% and pain in 38.6%.

Conclusion. Although we found no average clinically meaningful improvement in symptom severity overall, 25% had at least moderate improvement of pain over time. The result that emerged from this longitudinal study was one of generally continuing high levels of self-reported symptoms and distress for most patients, but a slight trend toward improvement. (J Rheumatol First Release July 15 2011; doi:10.3899/jrheum.110026)

Key Indexing Terms:
FIBROMYALGIA OUTCOME IMPROVEMENT

https://www.researchgate.net/profile/Winfried_Haeuser/publication/51498368_The_longitudinal_outcome_of_fibromyalgia_a_study_of_1555_patients/links/0fcfd505a26be3b078000000.pdf

FMS & SSD

Average Age 53.4

Social Security Work Disability and Its Predictors in Patients With Fibromyalgia

FREDERICK WOLFE,[1] BRIAN T. WALITT,[2] ROBERT S. KATZ,[3] AND WINFRIED HÄUSER[4]

Objective. To determine prevalence and incidence of US Social Security Disability and Supplemental Security Income (SSD) in patients with fibromyalgia and to investigate prediction of SSD.

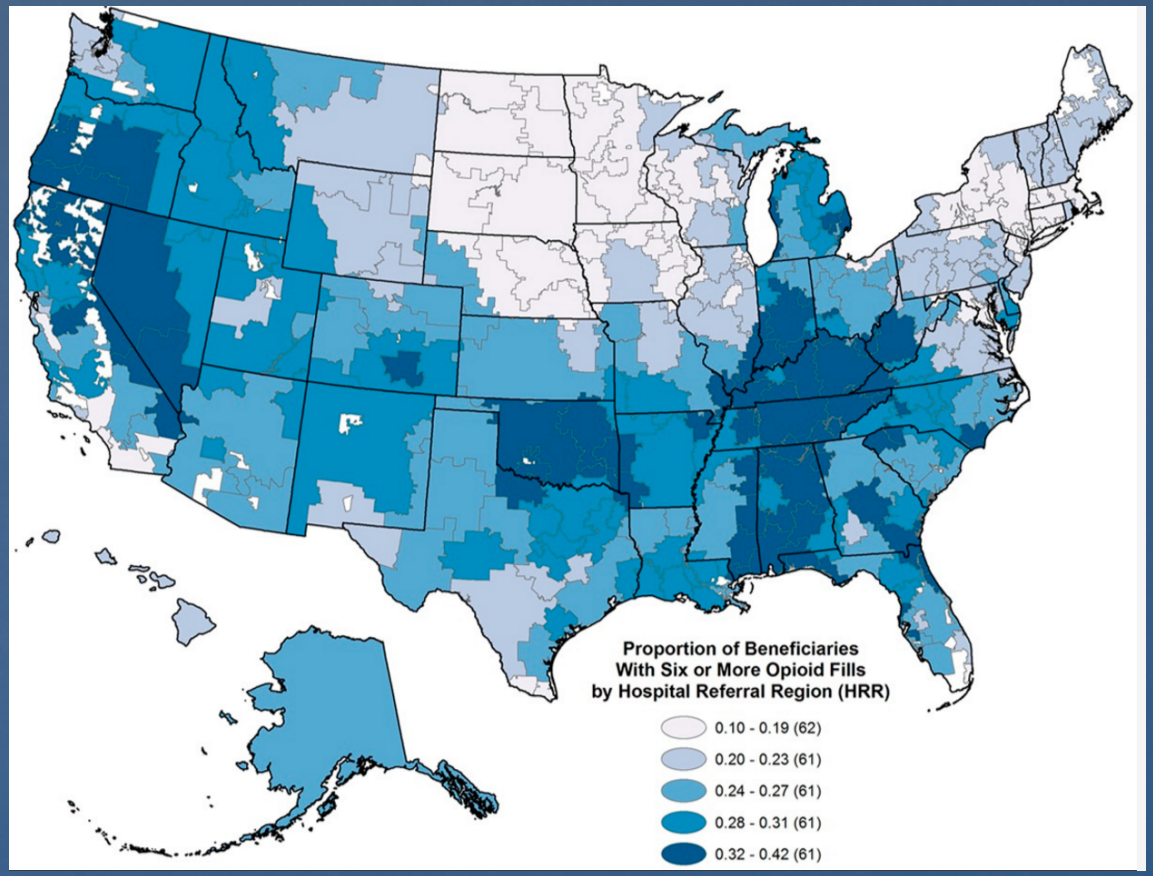
Methods. Over a mean of 4 years (range 1–13 years), we studied 2,321 patients with physician-diagnosed fibromyalgia (prevalent cases) and applied modified American College of Rheumatology (ACR) 2010 research criteria to identify criteria-positive patients.

Results. During the study, 34.8% (95% confidence interval [95% CI] 32.9–36.8%) of fibromyalgia patients received SSD. The annual incidence of SSD among patients not receiving SSD at study enrollment was 3.4% (95% CI 3.0–3.9%), and 25% were estimated to be work disabled at 9.0 years of followup. By comparison, the prevalence of SSD in rheumatoid arthritis (RA) patients with concomitant fibromyalgia was 55.6% (95% CI 54.3–57.0%) and was 42.4% in osteoarthritis (OA). By study conclusion, 31.4% of SSD awardees were no longer receiving SSD. In univariate models, incident SSD in patients with fibromyalgia was predicted by sociodemographic measures and by symptom burden; but the strongest predictor was functional status (Health Assessment Questionnaire disability index [HAQ DI]). In multivariable models, the HAQ DI and the Short Form 36-item health survey physical and mental component summary scores, but no other variables, predicted SSD. Fibromyalgia criteria–positive patients had more SSD, but the continuous scale, polysymptomatic distress index derived from the ACR criteria was a substantially better predictor of SSD than a criteria-positive diagnosis.

Conclusion. The prevalence of SSD is high in fibromyalgia, but not higher than in RA and OA patients who satisfy fibromyalgia criteria. The best predictors of work disability are functional status variables.

http://onlinelibrary.wiley.com/doi/10.1002/acr.22305/epdf

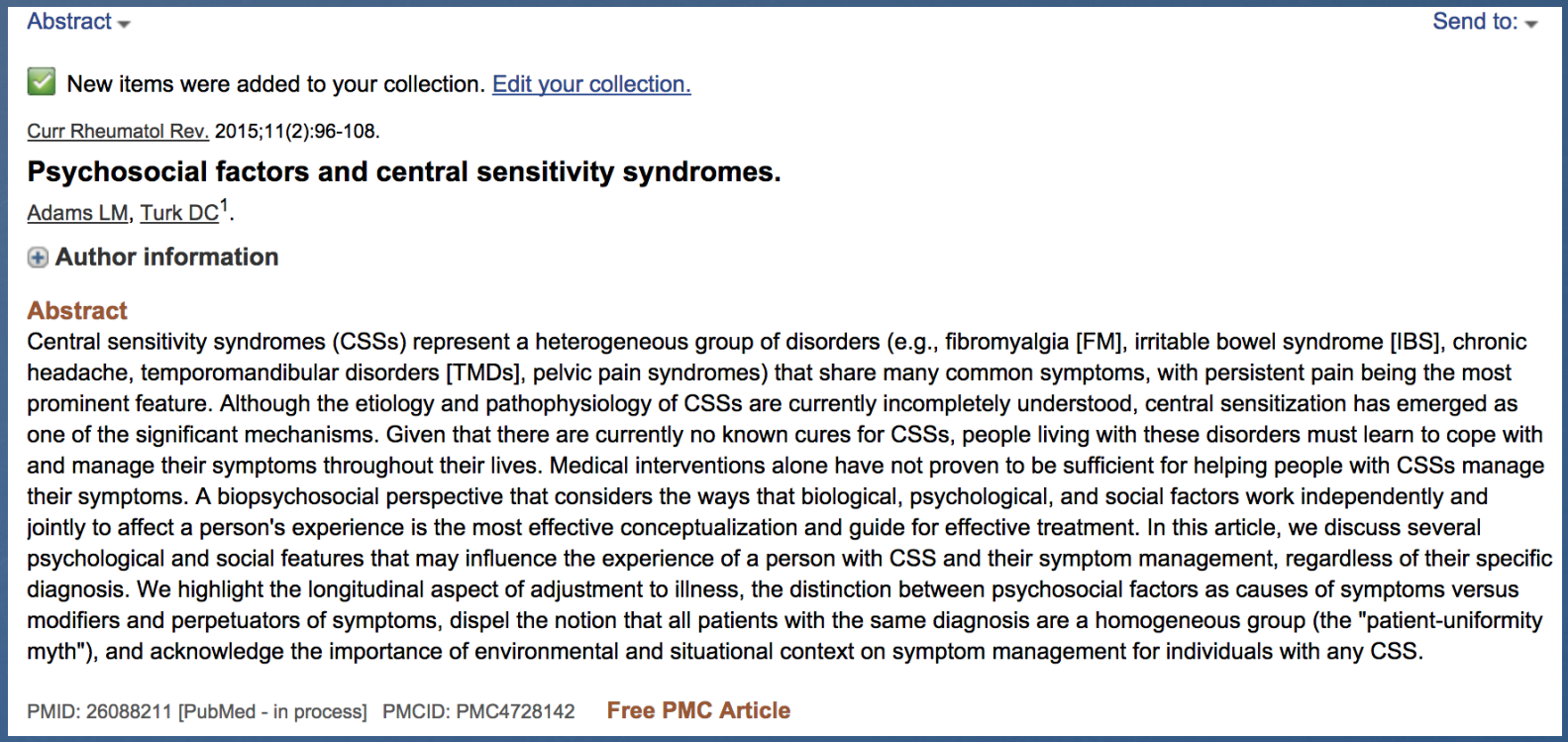
Disabled Medicare < 65yrs Receiving Opioids



http://journals.lww.com/lww-medicalcare/Fulltext/2014/09000/Prescription_Opioid_Use_Among_Disabled_Medicare.13.aspx

Future Treatments

Currently available treatments for CSSs are empirical, palliative, and provide only modest benefits.



Abstract ▾ Send to: ▾

New items were added to your collection. Edit your collection.

Curr Rheumatol Rev. 2015;11(2):96-108.

Psychosocial factors and central sensitivity syndromes.

Adams LM, Turk DC[1].

Author information

Abstract

Central sensitivity syndromes (CSSs) represent a heterogeneous group of disorders (e.g., fibromyalgia [FM], irritable bowel syndrome [IBS], chronic headache, temporomandibular disorders [TMDs], pelvic pain syndromes) that share many common symptoms, with persistent pain being the most prominent feature. Although the etiology and pathophysiology of CSSs are currently incompletely understood, central sensitization has emerged as one of the significant mechanisms. Given that there are currently no known cures for CSSs, people living with these disorders must learn to cope with and manage their symptoms throughout their lives. Medical interventions alone have not proven to be sufficient for helping people with CSSs manage their symptoms. A biopsychosocial perspective that considers the ways that biological, psychological, and social factors work independently and jointly to affect a person's experience is the most effective conceptualization and guide for effective treatment. In this article, we discuss several psychological and social features that may influence the experience of a person with CSS and their symptom management, regardless of their specific diagnosis. We highlight the longitudinal aspect of adjustment to illness, the distinction between psychosocial factors as causes of symptoms versus modifiers and perpetuators of symptoms, dispel the notion that all patients with the same diagnosis are a homogeneous group (the "patient-uniformity myth"), and acknowledge the importance of environmental and situational context on symptom management for individuals with any CSS.

PMID: 26088211 [PubMed - in process] PMCID: PMC4728142 **Free PMC Article**

http://www.ncbi.nlm.nih.gov/pubmed/26088211

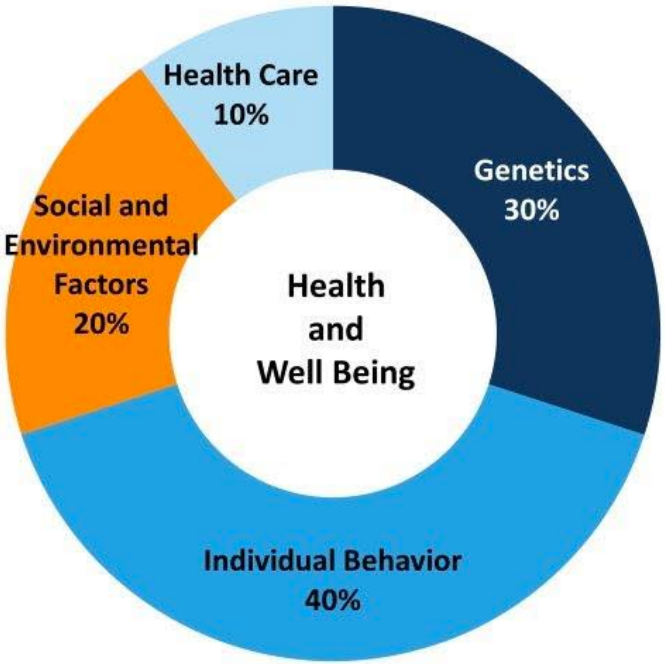
Future Treatments

http://www.ohsu.edu/xd/education/schools/school-of-medicine/departments/clinical-departments/psychiatry/grand-rounds/upload/21-OHSU-Health-Resilience-Program.pdf

Future Treatments

Figure 1

Impact of Different Factors on Risk of Premature Death



SOURCE: Schroeder, SA. (2007). We Can Do Better — Improving the Health of the American People. *NEJM*. 357:1221-8.

THE HENRY J. KAISER FAMILY FOUNDATION

Sample Case

Mrs. C: 50y/o WF with chronic
Lt thumb pain due to xyz. Referred for medication recommendations.

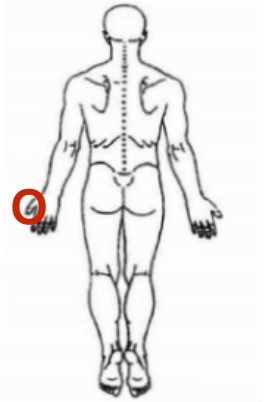
PMH/Pain Hx
Patient denied any.

FHX of chronic pain: + Mother & Sibling

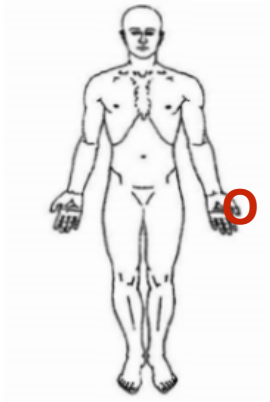
Meds: Oxycodone 5mg po TID* & Hydro-codone -APAP 5/325 QID = MED 55

Sample Case

On the diagrams, mark the areas on your body where you feel the described sensations with the symbols on the left:



- Numbness
- Pins & Needles
- Burning
- Aching



FOR NECK PROBLEMS		FOR BACK PROBLEMS	
What % of your pain is neck?		What % of your pain is low back?	
What % of your pain is shoulder/arm?		What % of your pain is buttock/leg?	
Total Pain Must = 100%	100%	Total Pain Must = 100%	100%

Please place an "X" on the line below indicating the level of pain today:

None _____ X _____ Severe

Pain intensity: On a 0 (no pain) to 10 (worst pain) scale, rate your pain below:

At its worst: _____ Average Pain: 9

At its least: _____ Current Pain: 9

Activities: How do the following affect your pain?

	DECREASE	INCREASE	NO EFFECT
Turning Head	☐	X	☐
Lifting Arms	☐	☐	☐
Lying Down	☐	☐	☐
Standing	☐	X	☐
Sitting	☐	☐	☐
Walking	☐	X	☐
Exercising	☐	X	☐
Sexual Activity	☐	X	☐
Work	☐	X	☐

Please check to ensure you have filled out each page completely before moving on.

Sample Case

ALLERGIES: Please check (✓) any medications to which you have had an allergic reaction (hives/rash/wheezing, etc.)

☒ Penicillin	☐ Sulfa	☐ Aspirin	☐ Iodine-dye	☐ Iodine on the Skin
☐ Demerol	☐ Latex	☐ Codeine	☐ Morphine	☐ Tetanus-antitoxin
☐ Tape	☐ Local anesthetics	☐ Other: _____		

HABITS: Please check (✓) all that apply

Do you have an exercise program? ☐ Yes ☒ No
Do you smoke or use tobacco? ☐ Yes ☒ No How many cigarettes per day? _____
Do you drink alcohol? ☐ Yes ☒ No If yes: ☐ Daily ☐ Weekly ☐ Monthly ☐ Yearly
Do you use Marijuana? ☐ Yes ☒ No
Do you have a Medical Marijuana card? ☐ Yes ☒ No
Do you use other recreational drugs? ☐ Yes ☒ No If yes, which drug/s: _____
Do you have a history of drug or alcohol abuse/addiction? ☐ Yes ☐ No If yes, which drug/s: _____
Is there a history of addiction in your mother, father, or any brothers or sisters? ☐ Yes ☒ No

PAST SURGICAL HISTORY: Please list all of your surgeries and their approximate dates

Lumbar Laminectomy, vascular beading Lt thumb

FAMILY HISTORY:

	LIVING?	STATE OF HEALTH	AGE/CAUSE OF DEATH
Mother	☐ Yes ☐ No	☐ Good ☐ Fair ☐ Poor	
Father	☐ Yes ☐ No	☐ Good ☐ Fair ☐ Poor	

Family History of Disease? (List) _____

FAIMLY HISTORY OF CHRONIC PAIN: ☒ Yes ☐ No

☒ Mother ☐ Father ☒ Sibling ☐ Spouse/Significant Other

SOCIAL HISTORY: (Check one)

☐ Single ☒ Married ☐ Domestic Partner ☐ Divorced ☐ Separated ☐ Widow/Widower
Do you have children at home? ☐ Yes ☐ No Please list their ages: _____
Education: (check the highest level you completed)
☐ Grade School ☐ High School ☐ GED ☐ Trade School ☐ Some College ☒ College Degree ☐ Prof. School

EMPLOYMENT HISTORY:

Are you a primary homemaker? ☐ Yes ☐ No
Are you currently working? ☒ Yes ☐ No If not, when did you stop? _____
What type of work do you, or did you, perform? _____

DISABILITY:

Are you currently receiving disability income? ☐ Yes ☒ No If yes, for what disability? _____
Do you have a disability claim pending? ☐ Yes ☒ No
If yes, do you have an attorney for your claim? ☐ Yes ☐ No
If you answered yes to the above, who is your attorney? _____

Sample Case

REVIEW OF SYSTEMS:

General

☒ Difficulty Sleeping

Heart & Lungs

☐ Sleep Apnea ☐ Asthma ☐ Tuberculosis

Hematologic

☐ HIV/AIDS ☐ Hepatitis C ☐ Transfusion ☐ Multiple Chemical Sensitivities

Gastrointestinal

☐ Abdominal Pain ☐ Stomach Ulcer ☐ Irritable Bowel ☐ Abdominal Adhesions

☐ Gastric Bypass

Kidneys & Bladder

☐ Dialysis ☐ Chronic Pelvic Pain ☐ Interstitial Cystitis

Musculoskeletal

☐ Whiplash ☐ Degenerative Arthritis ☐ Gout ☐ TMJ Problems

☐ Fibromyalgia Syndrome ☐ Sciatica ☐ Neck/Spine Trouble ☐ Osteoporosis

☐ Rheumatoid Arthritis ☐ Ehlers-Danlos Syndrome

Nervous

☐ Clumsiness ☐ Numbness ☐ Weakness ☐ Paralysis

☐ Passing Out ☐ Seizures ☐ Stroke ☐ Chronic Fatigue

☐ Headaches ☐ Migraines ☐ Epstein Barr Ds ☐ Nerve/Muscle Disease

☐ Falls ☐ Tremors ☐ Memory Problems ☐ Neuropathy

☐ Gait/Balance Problems ☐ Restless Legs

Psychiatric

☐ Attention Deficit ☐ Depression ☐ Anxiety ☐ Bipolar Disorder

☐ Sexual Abuse ☐ Physical Abuse ☐ Emotional Abuse ☐ Addiction/Drug Use

☐ PTSD ☐ Schizophrenia ☐ Stress ☐ Obsessive Compulsive Disorder

☐ Panic Attacks

Sample Case

PHQ-4				
Over the last 2 weeks, how often have you been bothered by the following problems? (use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every
1. Feeling nervous, anxious or on edge	X 0	1	2	3
2. Not being able to stop or control worrying	X 0	1	2	3
3. Little interest or pleasure in doing things	X 0	1	2	3
4. Feeling down, depressed, hopeless	X 0	1	2	3

PC-PTSD	
In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month, you:	
1. Have had nightmares about it or thought about it when you did not want to?	YES / X NO
2. Tried hard not to think about it or went out of your way to avoid situations that reminded you of it?	YES / X NO
3. Were constantly on guard, watchful, or easily startled?	YES / X NO
4. Felt numb or detached from others, activities, or your surroundings?	YES / X NO

RATING:
0 - Not at all | 1 - To a slight degree | 2 - To a moderate degree | 3 - To a great degree | 4 - All the time

WHEN I'M IN PAIN...	RATING
I worry all the time about whether the pain will end.	4
I feel I can't go on.	4
It's terrible and I think it's never going to get any better.	4
It's awful and I feel that it overwhelms me.	4
I feel I can't stand it anymore.	4
I become afraid that the pain will get worse.	4
I keep thinking of other painful events.	4
I anxiously want the pain to go away.	4
I can't seem to keep it out of my mind.	4
I keep thinking about how much it hurts.	4
I keep thinking about how badly I want the pain to stop.	4
There's nothing I can do to reduce the intensity of the pain.	4
I wonder whether something serious may happen.	4

To the best of my knowledge, all of the above is true: **52/52**

NI < 30

Sample Case

Chart Review:
Long history of chronic multifocal pain dating back many years and including visits to multiple pain providers.

PMH: Neck pain, HA, Back and Leg pain.

Epic OHSU:
15 visits to OHSU's pain program in 2013
Dx with chronic neck pain, HA, Depression
FMS.

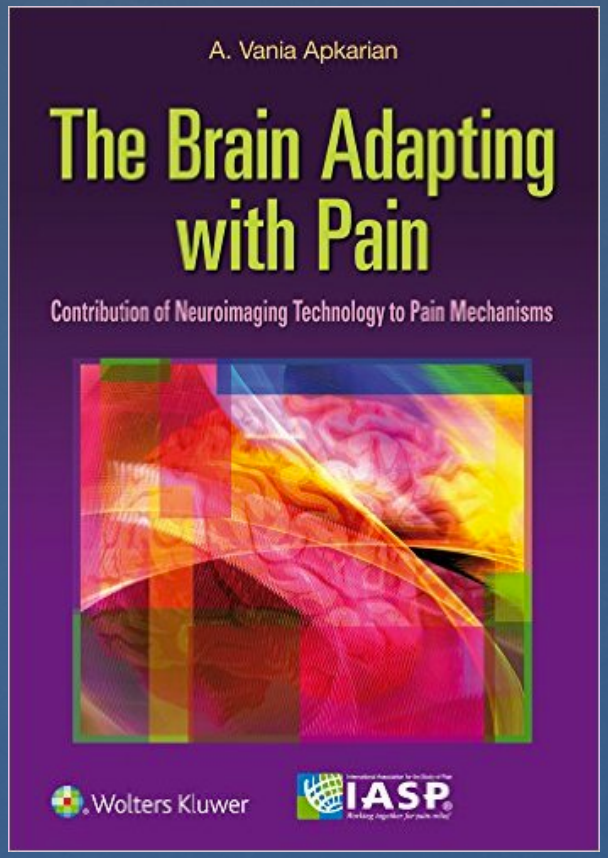
Sample Case

Ddx:

1. Hand pain M79.6
2. Somatic Symptom Disorder F45.42
3. Chronic Pain G89.4

What are your recommendations for Mrs. C?

Brain Pain

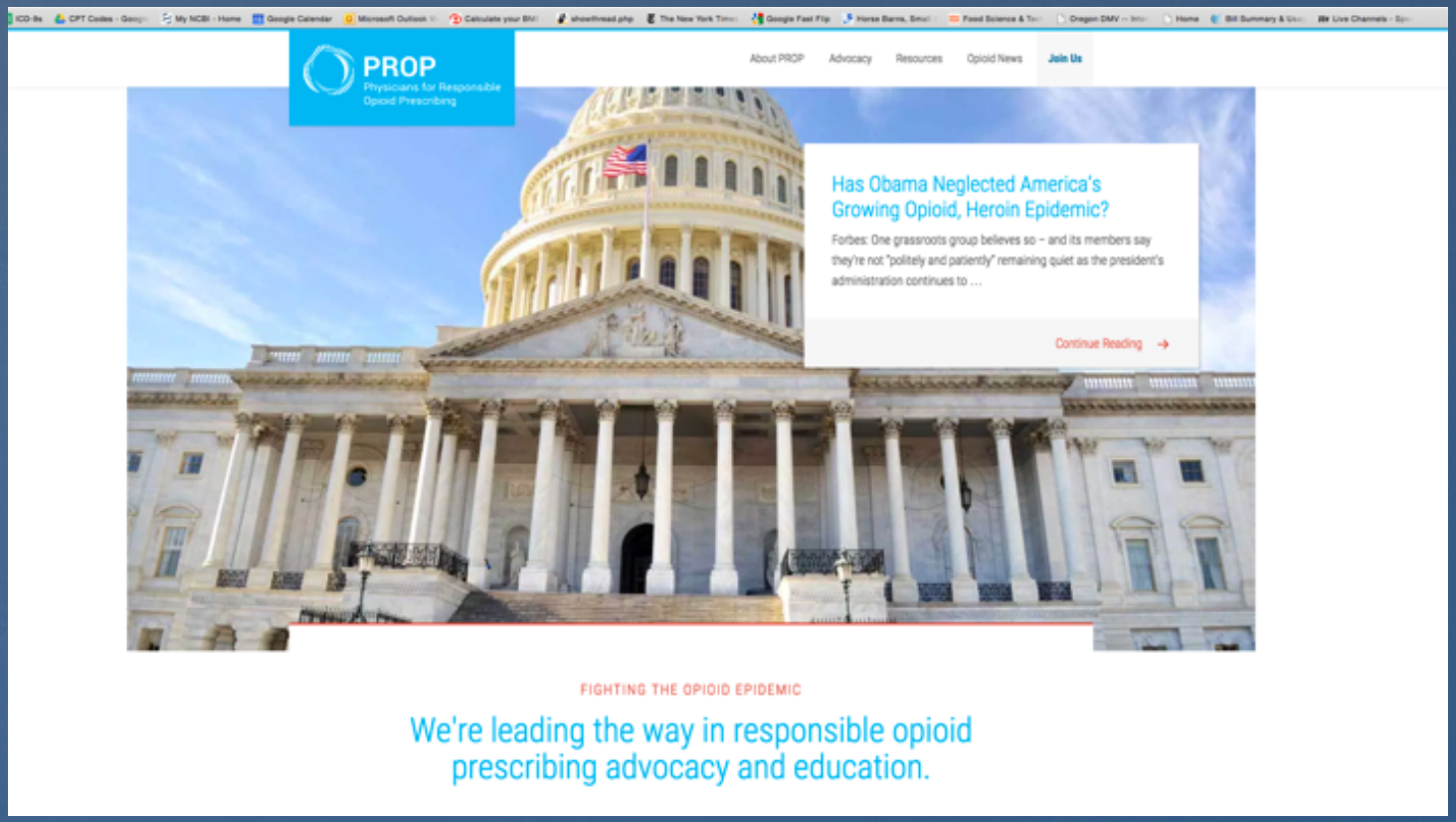


http://www.amazon.com/Brain-Adapting-Pain-Contribution-Neuroimaging/dp/1496317491/ref=tmm_pap_title_0?_encoding=UTF8&qid=&sr=

Resources

- **Today's Presentation:** http://www.slideshare.net/101N/diagnosing-treating-musculoskeletal-pain-in-workingaged-adults-59339105
- **Sample Intake Questionnaire:** Scale: https://www.slideshare.net/secret/8pFz87yqfGPRzn
- **Pain Catastrophizing Scale:** http://www.slideshare.net/101N/pain-catastrophizing-scale
- **PHQ-15:** http://www.slideshare.net/101N/phq-15-47842429
- **Daniel Clauw:** http://www.slideshare.net/101N/diagnosing-treating-msk-pain-based-upon-underlying-mechanisms
- **Nancy Chang:** http://www.pri-med.com/online-education/webcast/management-of-chronic-pain/activity.aspx

Thank You



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