

Rowan University

## Rowan Digital Works

---

Stratford Campus Research Day

25th Annual Research Day

---

May 6th, 12:00 AM

### Pain and Sleep are Associated in Fibromyalgia Patients

Rahul Patel

*Rowan University*

Robert A Steer

*Rowan University*

Richard Jermyn

*Rowan University*

Venkat Venkataraman

*Rowan University*

Follow this and additional works at: [https://rdw.rowan.edu/stratford\\_research\\_day](https://rdw.rowan.edu/stratford_research_day)



Part of the [Nervous System Diseases Commons](#), and the [Pathological Conditions, Signs and Symptoms Commons](#)

Let us know how access to this document benefits you - share your thoughts on our [feedback form](#).

---

Patel, Rahul; Steer, Robert A; Jermyn, Richard; and Venkataraman, Venkat, "Pain and Sleep are Associated in Fibromyalgia Patients" (2021). *Stratford Campus Research Day*. 95.

[https://rdw.rowan.edu/stratford\\_research\\_day/2021/may6/95](https://rdw.rowan.edu/stratford_research_day/2021/may6/95)

This Poster is brought to you for free and open access by the Conferences, Events, and Symposia at Rowan Digital Works. It has been accepted for inclusion in Stratford Campus Research Day by an authorized administrator of Rowan Digital Works.

# Pain and Sleep are associated in Fibromyalgia Patients

Rahul Patel OMS III, Robert Steer<sup>1</sup>, Richard Jermyn<sup>2</sup> and Venkat Venkataraman<sup>2,3</sup>

Department of Psychiatry<sup>1</sup>, Neuromusculoskeletal Institute<sup>2</sup>, Department of Cell Biology and Neuroscience<sup>3</sup>, Rowan University School of Osteopathic Medicine, Stratford, NJ 08084

## FIBROMYALGIA

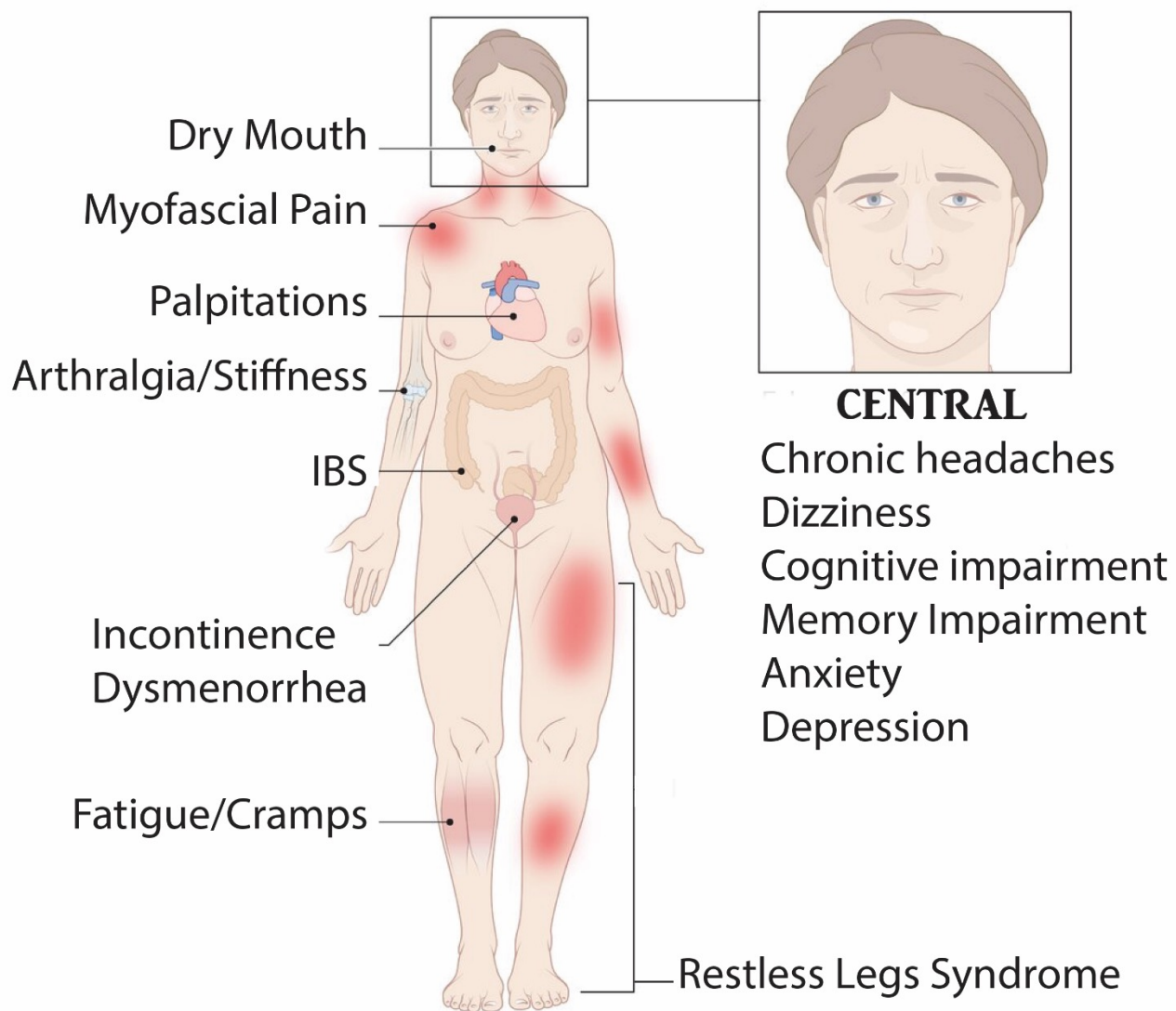
### BASIC FACTS

Affects 4 million in US  
Unknown etiology  
No Diagnosis/Cure  
Affects women more than men

### PRICE PAID

1 – 2% Productivity lost  
\$12 – \$14 billion cost/year  
About \$600/month out-of-pocket

### SYMPTOMS



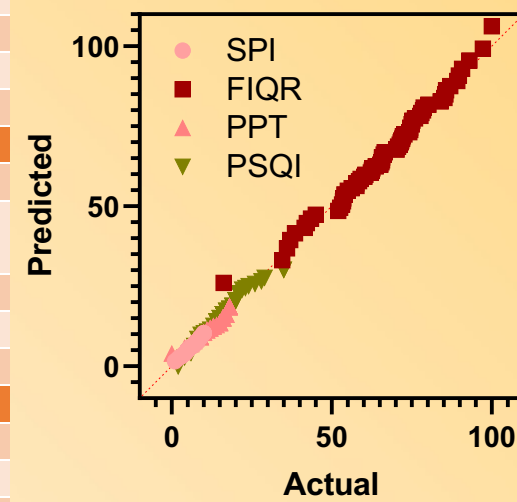
## INVESTIGATION

Is lack of sleep correlated with fibromyalgia pain?

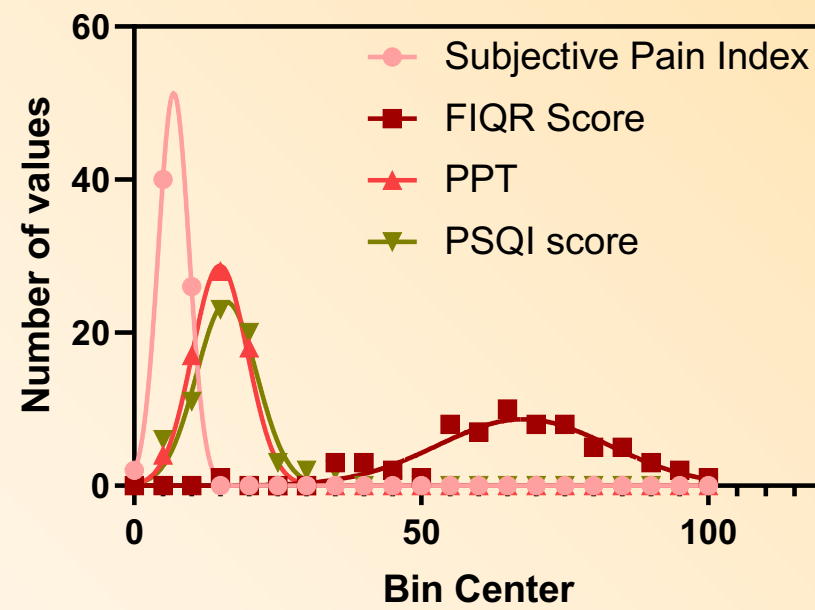
Frequency Table

FEATURE	PERCENTAGE
<b>GENDER</b>	
Male	7.4
Female	92.6
<b>ETHNICITY</b>	
Asian	1.5
African American	8.8
Caucasian	86.8
Other	2.9
<b>OPIOID PRESCRIBED</b>	
No	23.5
Yes	76.5

Normal QQ plot

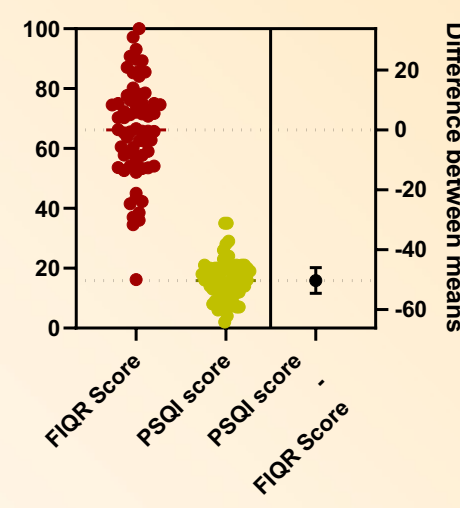


Frequency distribution - Gaussian

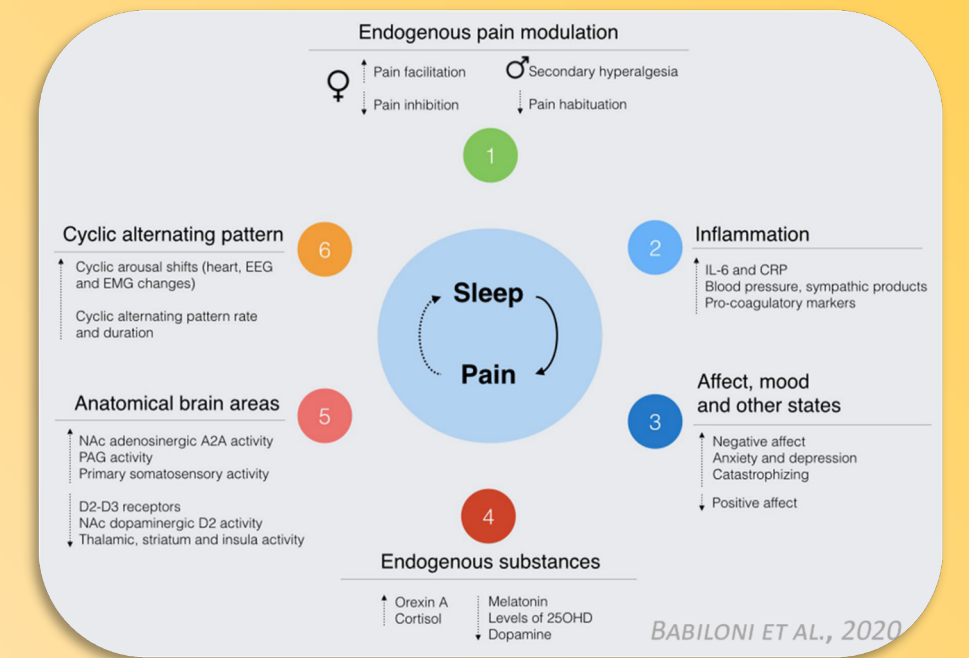
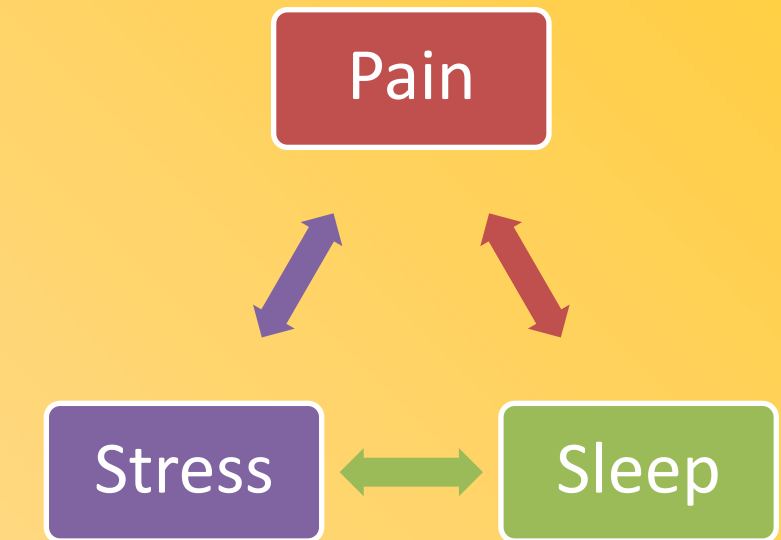


FIQR Score vs. PSQI score	
Pearson r	
r	0.3215
95% confidence interval	0.08805 to 0.5214
R squared	0.1033
P value	
P (two-tailed)	0.008
P value summary	**
Significant? (alpha = 0.05)	Yes
Number of XY Pairs	67

Estimation Plot



## FUTURE WORK



What are the changes that can be tracked in serum analyses?

- ✓ Inflammatory Markers
- ✓ Small molecules

## REFERENCES

- Choy EH. The role of sleep in pain and fibromyalgia. *Nat Rev Rheumatol.* 2015;11(9):513-20. Epub 2015/04/25. doi: 10.1038/nrrheum.2015.56. PubMed PMID: 25907704.
- Herrero Babiloni A, De Koninck BP, Beetz G, De Beaumont L, Martel MO, Lavigne GJ. Sleep and pain: recent insights, mechanisms, and future directions in the investigation of this relationship. *J Neural Transm (Vienna).* 2020;127(4):647-60. Epub 2019/08/28. doi: 10.1007/s00702-019-02067-z. PubMed PMID: 31452048.
- Krause AJ, Prather AA, Wager TD, Lindquist MA, Walker MP. The Pain of Sleep Loss: A Brain Characterization in Humans. *J Neurosci.* 2019;39(12):2291-300. Epub 2019/01/30. doi: 10.1523/jneurosci.2408-18.2018. PubMed PMID: 30692228; PMCID: PMC6433768.

## ACKNOWLEDGMENTS

American Osteopathic Association  
Osteopathic Heritage Foundation  
Office of Clinical Trials: Lauren Fedor & Christine Oller