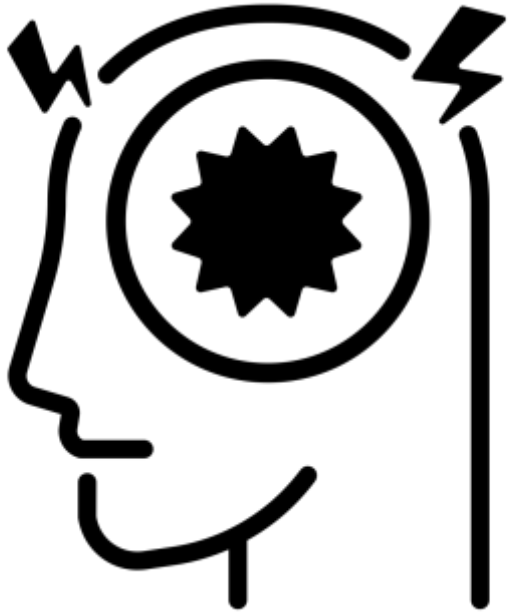
Prevalence and risk factors of migraine in a clinic-based sample of patients pursuing surgical or medical treatment for obesity



Devika Umashanker, MD
System Medical Director, Medical Weight Loss
Hartford HealthCare Medical & Surgical Weight Loss Center

Hartford HealthCare
Hartford Hospital

IFSO
NAPOLI
2023

Hartford HealthCare
Digestive Health Institute

In accordance with «EACCME criteria for the Accreditation of Live Educational Events», please disclose whether you have or you have not any conflict of interest with the companies:

If you don’t have any conflict, please delete the conflict interest report points:

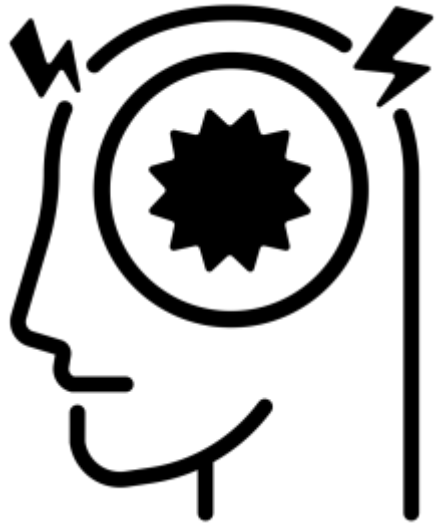
[ ] I have no potential conflict of interest to report

[x] I have the following potential conflict(s) of interest to report:

- Receipt of honoraria or consultation fees: Novonordisk

What is Migraine?

- NOT “just a headache”
- Is a prevalent and often debilitating neurological disorder
  - Affects 1 billion people worldwide, 1 in 4 households, 1 in 5 women, 1 in 16 men
  - 2nd leading cause of disability globally (1st in 15-49 year old age group, i.e., the most productive years of life)
- People with migraine experience headache attacks and other symptoms because of an abnormally sensitive brain
  - Throbbing (typically unilateral) head pain of throbbing or pulsating quality and moderate-to-severe intensity, lasting 4-72 h
  - Can become worse with movement
  - Nausea, vomiting
  - Sensitivity to light, sound, odors



Headache Classification Subcommittee of the International Headache Society. International Classification of Headache Disorders, 3rd edition beta. *Cephalalgia* 2013.

Stovner. *Lancet Neurology* 2018; Lipton, et al. *Neurology* 2007

A Migraine-Obesity Link?

- Obesity can both increase risk for having migraine and making it worse
  - Various biological (e.g., inflammatory mediators), psychological (e.g., depression) and behavioral (e.g., diet, physical activity, and sleep) mechanisms likely involved
- The strength of association between obesity and migraine risk appears to be modified by certain factors, especially age and sex (i.e., 18-50 yrs, female)
- Evidence is largely derived from population-based studies
- Few studies have evaluated migraine prevalence and risk factors among individuals pursuing obesity treatment
  - Most are limited by small sample sizes and/or use of non-validated migraine screening measures

Bond, et al. *Obes Rev* 2011, *Neurology* 2011; Chai, et al., *Headache* 2014; Jahromi, et al. *Expert Rev Neurother.* 2023; Pavlovic, et al., *Current Pain Headache Rep* 2017

STUDY AIMS

1

Determine prevalence of migraine in patients with class II-III pursuing surgical or medical obesity treatment

2

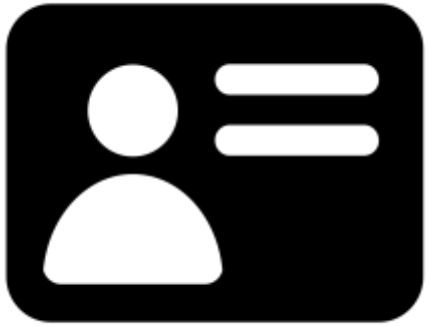
Associations of demographic, anthropometric, and psychological factors with migraine prevalence

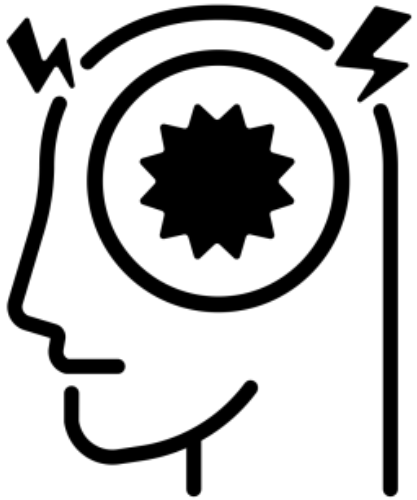
IFSO
NAPOLI
2023

METHODS: Participants and Procedures

- Adult patients pursuing surgical or medical weight loss at Hartford HealthCare clinics
- Completed validated migraine screening measure as part of routine clinical care at pre-treatment visit
- Other variable data collected from EMR
- Data collected between December 2022 and June 2023

METHODS: Migraine Screening/Assessment





- ID Migraine
  - 3-item screener developed and tested in primary care settings
  - Valid: sensitivity (0.75), specificity (0.81)
  - Questions (2 of 3 = + screen for migraine)
    1. Has a headache limited your activities for a day or more in the last 3 months?
    2. Are you nauseated or sick to your stomach when you have a headache?
    3. Does light bother you when you have a headache?

Lipton, et al. *Neurology* 2003

METHODS: Assessment of Correlates of Migraine Risk

- From EMR
  - Demographics (age, sex, race, ethnicity)
  - Vital signs (HR, BP)
  - Depression and anxiety diagnoses
  - BMI (in-clinic measured height and weight)
  - Comorbidity diagnoses: OSA, pain (low back pain, fibromyalgia) CVD (T2D, hypertension, dyslipidemia)

METHODS: Analytic Method

Aim 1: Determine migraine prevalence

- Descriptive analysis

Aim 2: Correlates of migraine prevalence/risk

- Multivariate logistic regression

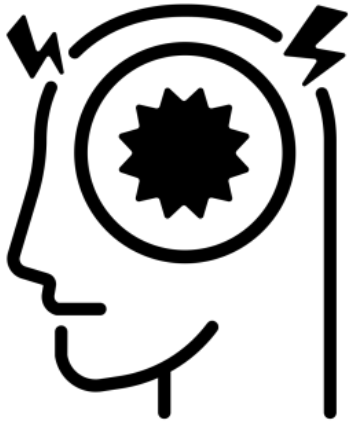
RESULTS: PARTICIPANT CHARACTERISTICS

- N = 1278
  - Age: 46.4 ± 13.5 years old
  - Female: 82.5%
  - Non-White Race (40.8%)
  - BMI: 41.4 ± 8.9 kg/m^2

RESULTS: MIGRAINE PREVALENCE

- Overall (N=1278; 1055 women, 223 men)
  - 27.6% (N=353); 31% women, 11.6% men

- Among pts 18-50 years of age (N=777; 660 women, 116 men)
  - 32.8% (N=255); 35.8% women; 16.2% men



RESULTS: FACTORS ASSOCIATED WITH MIGRAINE PREVALENCE

	Odds Ratio	Lower CI	Upper CI	P
Younger Age	1.03	1.02	1.04	<0.001
Sex				
Male	Reference			
Female	3.22	2.08	4.99	<0.001
Race				
Black or African American	Reference			
White	1.83	1.25	2.68	0.002
Others	1.52	0.99	2.32	0.051
Depression				
No	Reference			
Yes	1.50	1.06	2.13	0.022
BMI*	0.99	0.98	1.01	0.418

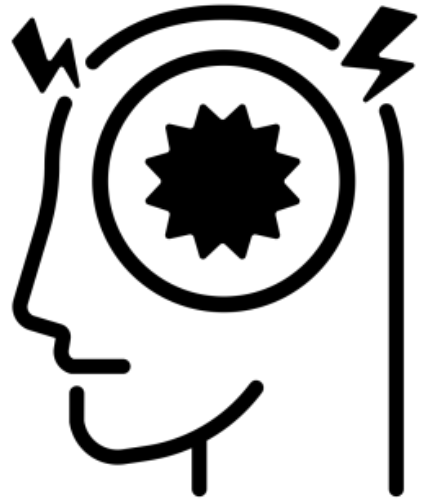
Note. CI=95% confidence interval; BMI=body mass index. *BMI was controlled for in the logistic regression model.

Factors associated with greater odds of having migraine (controlling for BMI)

- Younger age
- Being female
- White race
- Depression diagnosis

DISCUSSION/CONCLUSIONS

- Migraine prevalence was 2.3 times higher than in the general population overall
- Factors associated with greater odds of migraine prevalence are consistent with previous research
- Findings support previous data showing that the relationship between obesity and migraine risk is stronger in reproductive-aged adults and women

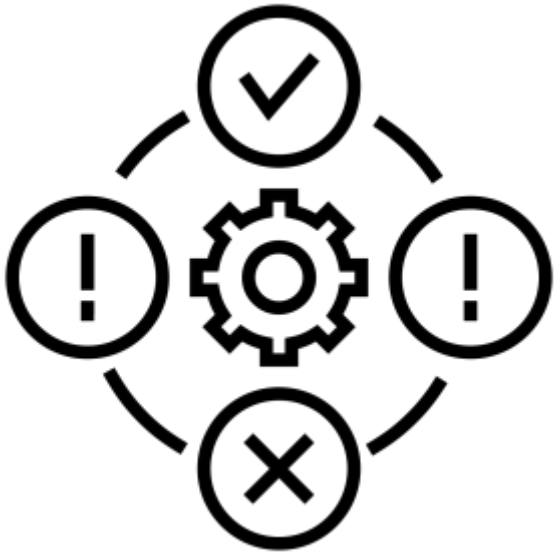


Bond, et al. *Obes Rev* 2011, *Neurology* 2011; Chai, et al., *Headache* 2014; Jahromi, et al. *Expert Rev Neurother.* 2023; Pavlovic, et al., *Current Pain Headache Rep* 2017; Tietjen, et al. *Headache* 2007

STRENGTHS & LIMITATIONS

- Strengths
  - Large clinic-based sample
  - Validated migraine screener
  - Examined multiple correlates of risk/prevalence

- Limitations
  - Cross-sectional design—direction of association?
  - No healthy weight controls
  - No data on concurrent migraine treatment
  - No behavioral measures



IMPLICATIONS/FUTURE DIRECTIONS

- Need migraine screening in clinical obesity care

- Need to better understand effects and mechanisms of weight loss and weight recurrence on migraine
  - Previous research shows migraine improves after MBS and lifestyle intervention
  - Less is known about effects of AOMs

- Need multimodal treatment – clinical connections between obesity/bariatric medicine and neurology/headache specialists

Bond, et al. *Neurology* 2011, Obesity 2018; Di Vicenzo A, et al. *Obes Surg* 2020

ACKNOWLEDGEMENTS

- Dale Bond, PhD
- Brian Grosberg, MD
- Siddartha Kalala, BS
- Tara McLaughlin, PhD
- James Mitchell, MD
- Pavlos Papasavas, MD
- Connie Santana, BA
- Darren Tishler, MD
- Allison Verhaak, PhD
- Yin Wu, PhD

Hartford HealthCare
Hartford Hospital

Hartford HealthCare
Digestive Health Institute

Hartford HealthCare
Ayer Neuroscience Institute