
Epidemiology of migraine pain



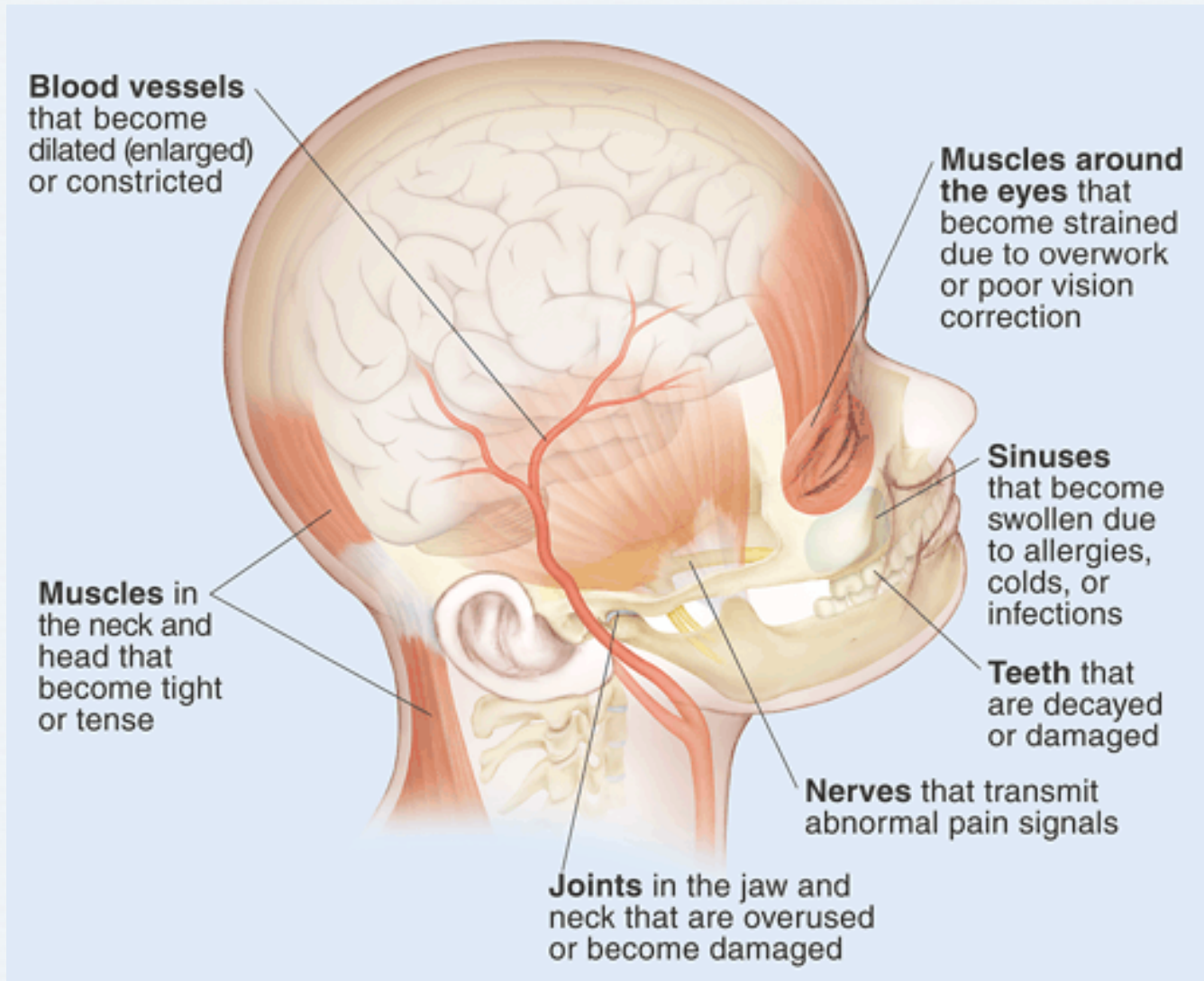
WHAT IS MIGRAINE?



Headache Disorders

- Among the most common disorders of the nervous system¹
- Prevalence among adults (symptomatic at least once within the last year) is almost 47% worldwide¹
- Associated with personal and societal burdens of pain, disability, reduced quality of life, and financial burden¹
- Globally, only a minority of people with headache disorders are appropriately diagnosed by a health care provider¹
- Headache has been **underestimated, under-recognized, and under-treated** throughout the world¹

Structures Related to Headache



What Is Migraine?

- Neurologically based, common clinical syndrome characterized by recurrent episodic attacks of head pain which serve no protective purpose
- The headache is accompanied by associated symptoms
 - Nausea
 - Sensitivity to light
 - Sensitivity to sound
 - Sensitivity to head movement
- The vulnerability to migraine is an inherited tendency in many people

Classification of Migraine

Migraine without aura

- Recurrent attacks, lasting minutes, of unilaterally fully reversible visual, sensory, or other CNS symptoms that usually develop gradually and are usually followed by headache and associated migraine symptoms

Migraine with typical aura

- Aura consists of visual and/or sensory and/or speech/language symptoms but no motor weakness
- Gradual development
 - Duration of each symptom ≤ 1 hour
- Mix of positive and negative features
- Complete reversibility

Chronic Migraine

- Headache occurring on ≥ 15 days/month for > 3 months
- Headache has the features of migraine headache on ≥ 8 days/month

Primary vs. Secondary Headache

Primary Headache

Not a symptom of or caused by another disease or condition

Secondary Headache

A symptom of or caused by an underlying disease or condition, such as tumor or infection

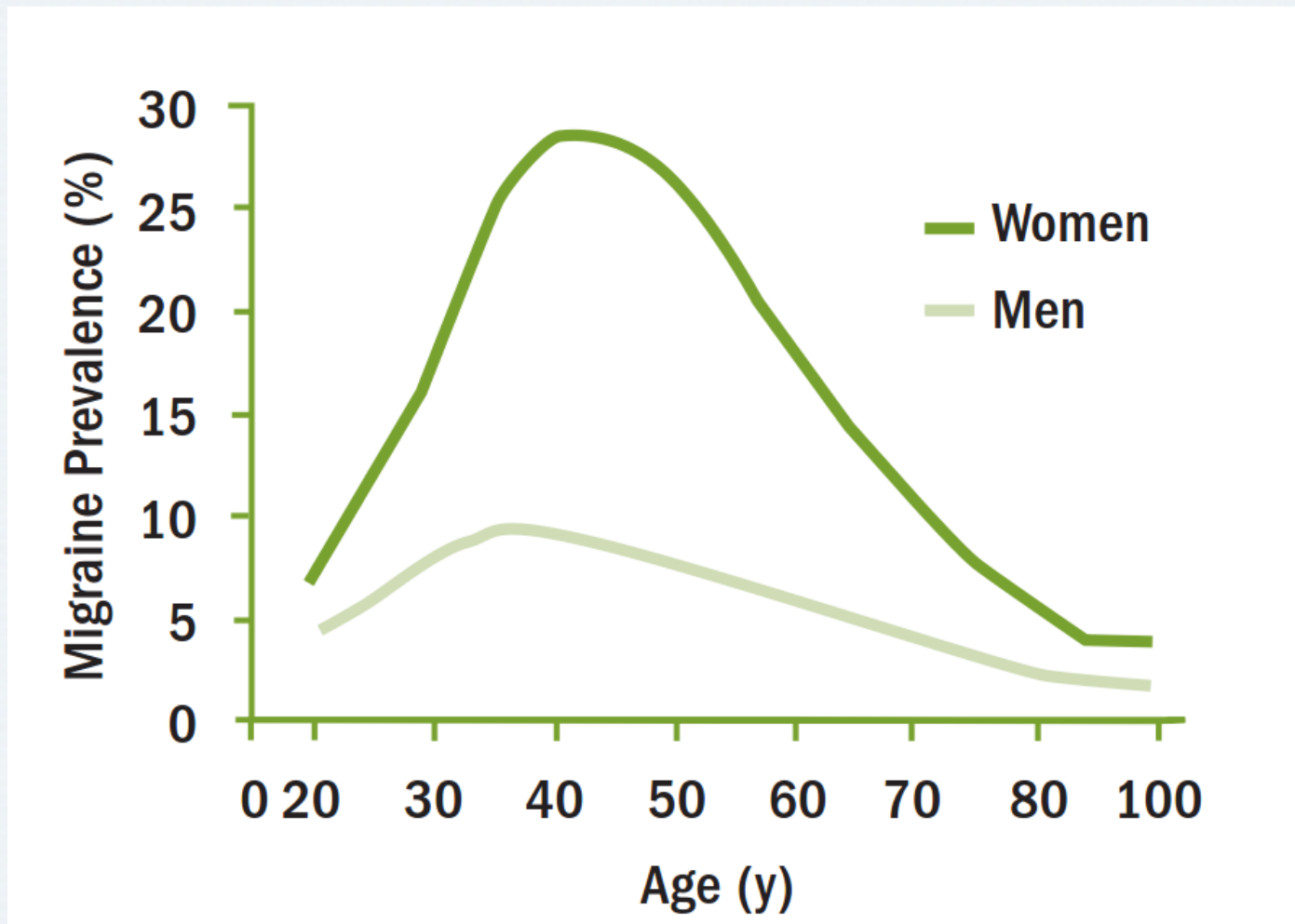
Prevalence of Headache Disorders by Headache Type

Headache Type	Lifetime Prevalence
Primary Headache Disorders	
Tension-type	78%
Migraine	16%
Secondary Headache Disorders	
Fasting	19%
Sinus/nasal disorder	15%
Head injury	4%
Non-vascular intracranial disorder*	0.5%

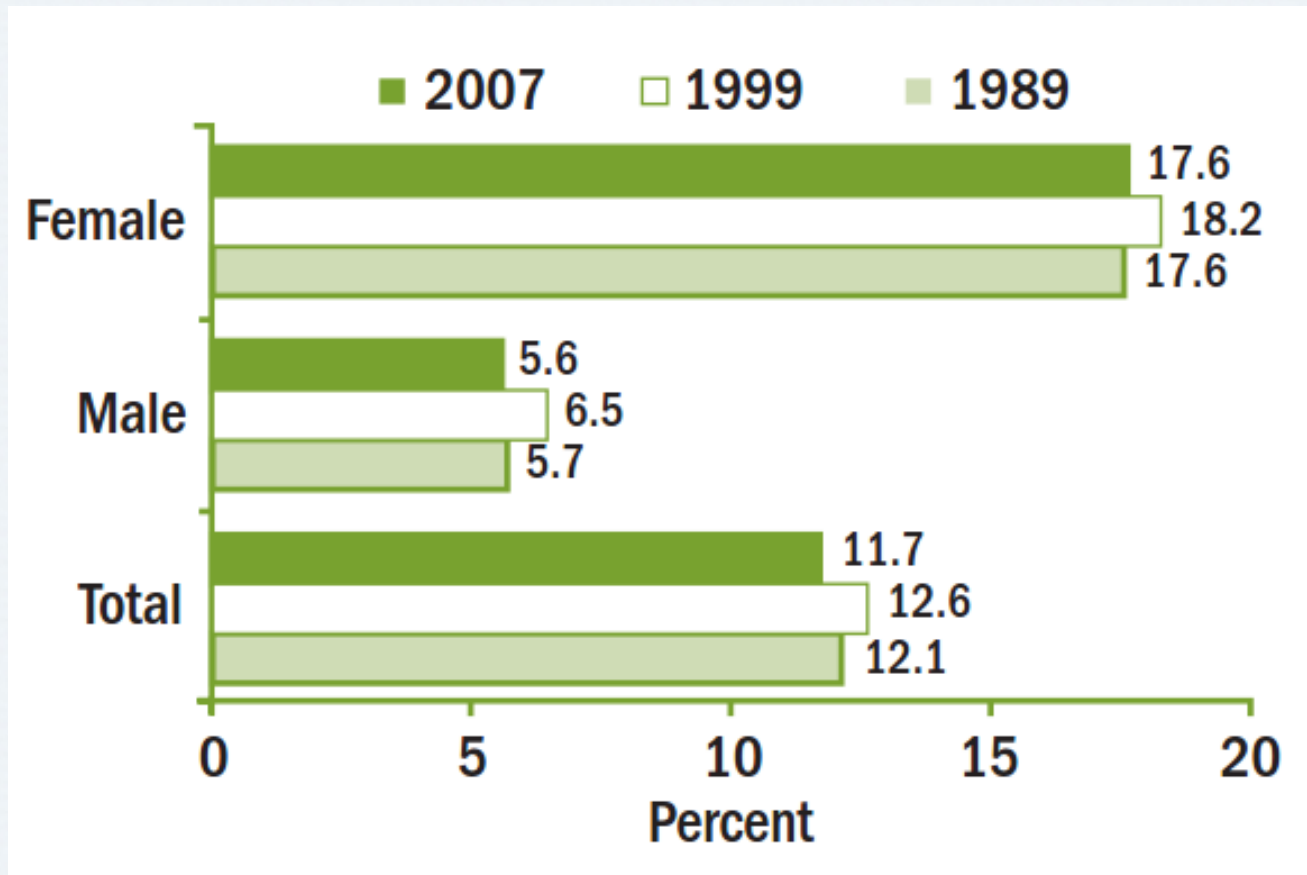
*Including brain tumor

Rasmussen BK *et al. J Clin Epidemiol.* 1991;44(11):1147-57.

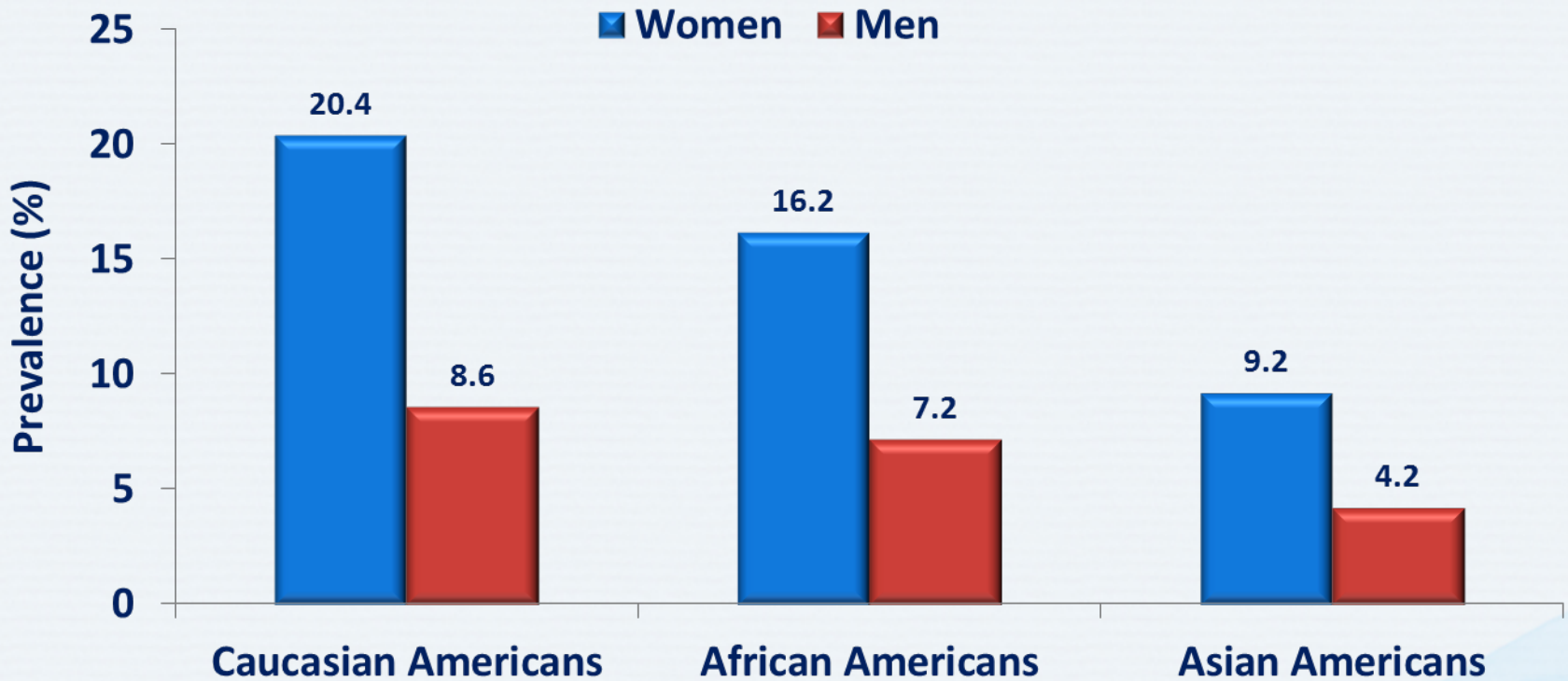
Age- and Gender-Specific Prevalence of Migraine



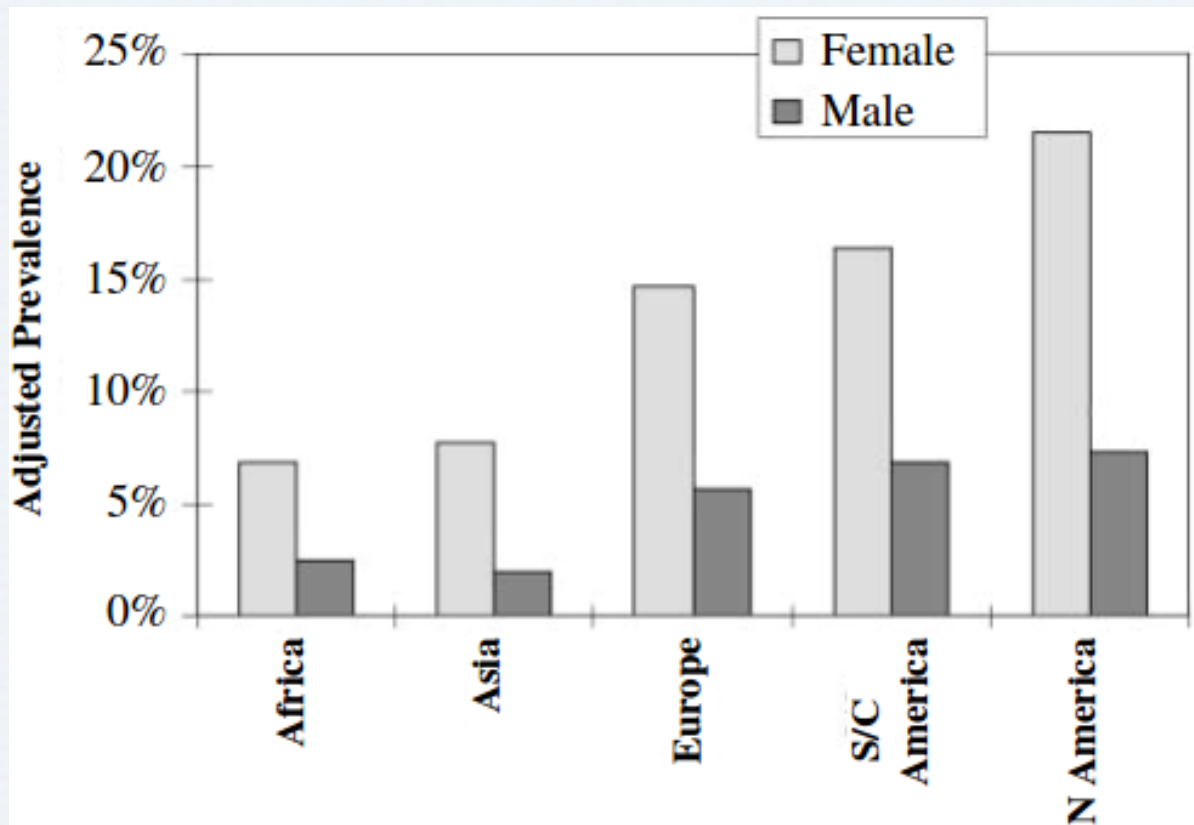
Prevalence of Migraine in Three Population-based Studies



Prevalence of Migraine by Ethnicity



Prevalence of Headache Disorders by Geographic Area



Specific Types of Secondary Headaches

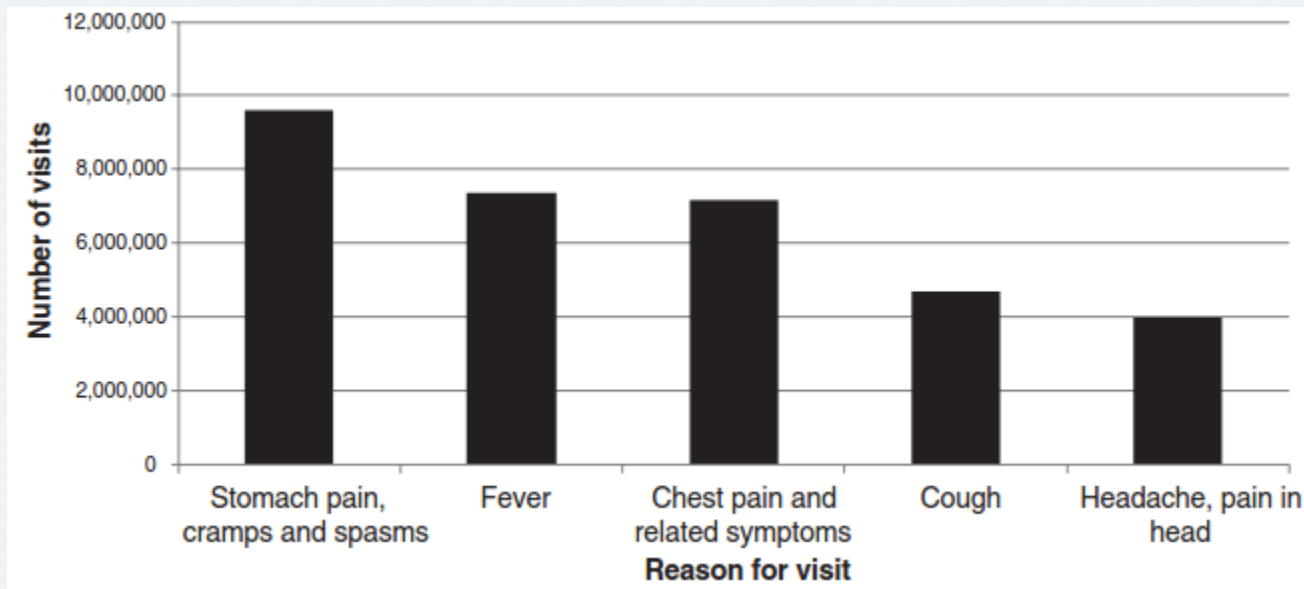
Type of Headache	Cause
External compression	Pressure-causing head gear
Rebound	Overuse of pain medication
Sinus	Inflammation and congestion in sinus cavities
Spinal	Low levels of cerebrospinal fluid (<i>e.g.</i> , due to trauma, spinal tap, spinal anesthesia)
Thunderclap	Subarachnoid haemorrhage is the most common cause



An ice cream headache – or brain freeze – is a secondary headache

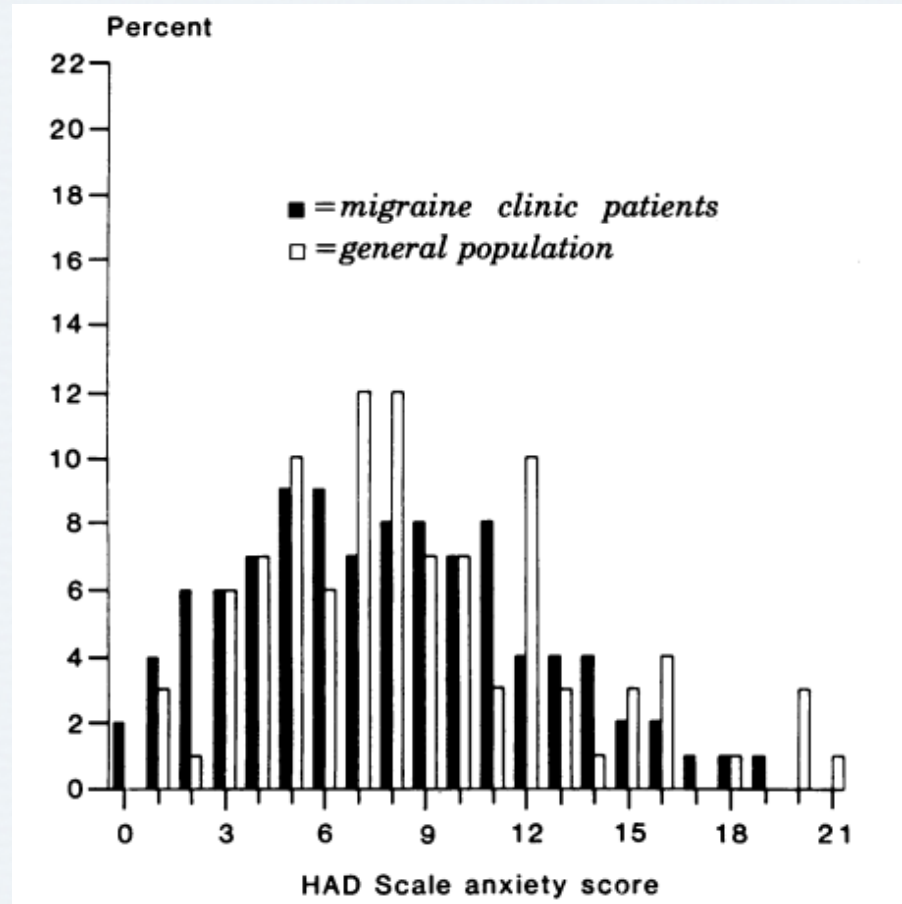
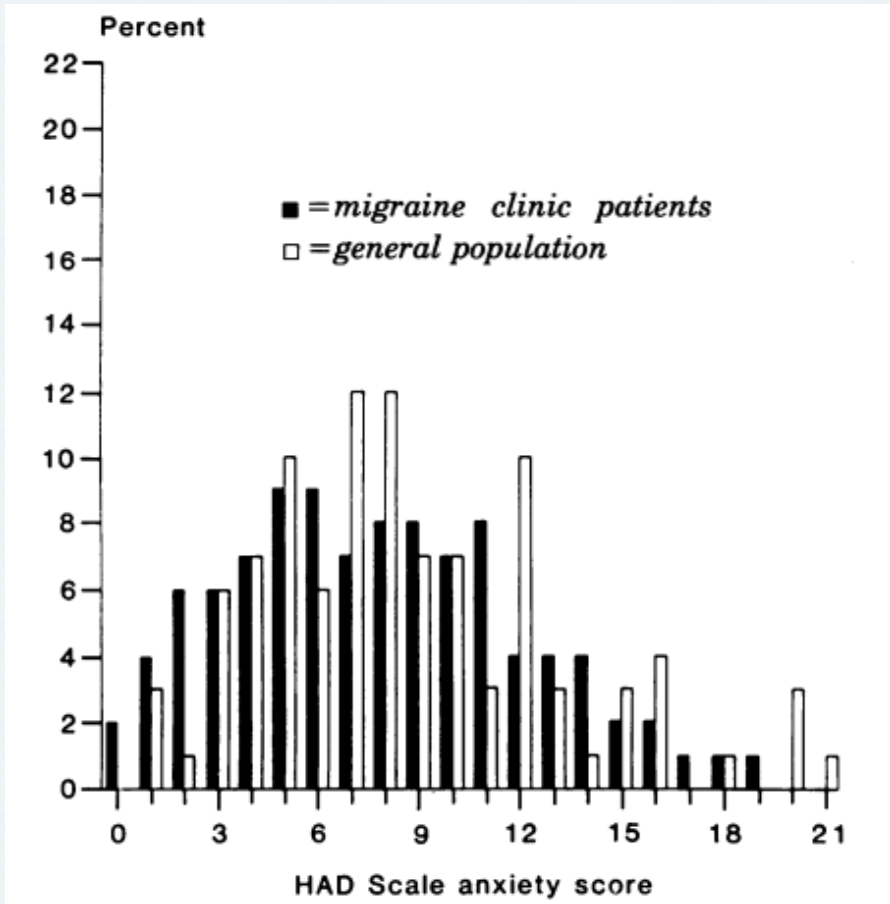
Prevalence of Headache Disorders

Top Five Reasons for Emergency Department Visits*



*National Hospital Ambulatory Medical Care Survey, 2009
Smitherman TA *et al.* *Headache*. 2013;53(3):427-36.

Depression, Anxiety, and Migraine



Prevalence of Psychiatric Disorders in Three Pain Conditions

Psychiatric Disorder	Pain Condition		
	No Migraine	Migraine	Odds Ratio (CI)
Depression	12.3%	28.5%	2.84 (2.19, 3.70)
Panic attacks	5.5%	17.4%	3.58 (2.59, 4.97)
GAD	2.5%	9.1%	3.86 (2.48, 6.00)
Psychiatric Disorder	Pain Condition		
	No Arthritis	Arthritis	Odds Ratio
Depression	13.1%	18.2%	1.48 (1.16, 1.88)
Panic attacks	5.8%	11.2%	2.09 (1.54, 2.83)
GAD	2.7%	5.6%	2.17 (1.42, 3.33)
Psychiatric Disorder	Pain Condition		
	No Back Pain	Back Pain	Odds Ratio
Depression	12.4%	21.0%	1.87 (1.49, 2.36)
Panic attacks	5.3%	13.0%	2.69 (2.00, 3.62)
GAD	2.5%	6.2%	2.54 (1.67, 3.85)

All findings significant at $p < 0.001$

CI = confidence interval; GAD = generalized anxiety disorder

McWilliams LA *et al. Pain.* 2004;111(1-2):77-83.

Migraine and Depression: A Bidirectional Relationship with Common Neurobiology

- Monoamine and peptide transmitters may be involved in depression
- Endorphins and enkephalins are involved in mood and pain control
- Serotonin has been implicated in **migraine**, and **tension-type headache**
 - Also implicated in mood disorders, anxiety disorders, sleep disorders, eating disorders, and obsessive-compulsive behavior
- Evidence suggests dopamine is involved in migraine
 - Migraine prodrome often characterised by dopaminergic symptoms
 - Anti-dopaminergic drugs can often be helpful in treating migraine

Severe headache, severe somatic symptoms, and major depression may be linked through dysfunction of the serotonergic and dopaminergic systems

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