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# Medical Consultation and Headache Impact among Persons with Chronic Migraine and Episodic Migraine: Results from the American Migraine Prevalence and Prevention (AMPP) Study



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## BACKGROUND

- Chronic migraine (CM) is burdensome to the individual, society, and the healthcare system.
- Compared with persons with episodic migraine (EM), persons with CM have greater headache impact and higher direct and indirect costs.

## OBJECTIVE

- To compare rates of visits to healthcare providers (HCPs) and/or facilities for headache and headache-impact between persons with EM and CM in a US population-based sample.

## METHODS

- The AMPP study is a longitudinal, population-based, mailed questionnaire study.
- In 2004, 120,000 US households were screened to identify individuals with severe headache. 24,000 respondents were followed annually between 2005 and 2009.
- A cross-sectional design was used to analyze data from the 2009 survey. Respondents who met ICHD-2 criteria for migraine, had  $\geq 1$  headache in the preceding year, and provided the necessary data were categorized into two groups:
  - CM (average  $\geq 15$  headache days/month)
  - EM (average  $< 15$  headache days/month)
- Medical consultation was assessed by self-reported numbers of visits to healthcare providers and/or facilities for the treatment of headache in the year preceding the survey.
- The Headache Impact Test (HIT-6) was utilized to assess headache-impact. HIT-6 sum scores range from 36 to 78 and are categorized into severe ( $\geq 60$ ), substantial (56-59), some (50-55) and little or no impact ( $\leq 49$ ).
- Descriptive statistics were used to summarize data, t-tests were utilized to compare mean HIT-6 scores, Chi-squared tests were utilized to compare relative risks.
- A  $p$  value of  $< 0.05$  was used to demarcate statistically significant differences.

## RESULTS

### Response Rates and Sociodemographics

- In 2009, 27,253 questionnaires were fielded to 16,983 persons with severe headache and 10,270 non-headache control subjects. 20,107 were returned (73.8% response rate).
- 446 respondents met criteria for CM; 6,723 respondents met criteria for EM.
- Both groups were primarily female (CM=81.2% vs. EM=77.8%) and Caucasian (CM=89.2% vs. EM=92.1%). The CM group was slightly older (CM average age=52.3 vs. EM=50.3), reported lower annual household incomes (38.3% of CM respondents and 26.4% of EM respondents reported annual income  $< \$30,000$ /year), and had a higher average body mass index (BMI) (CM=30.5 vs. EM=29.6).
- Relative to persons with EM, those with CM had a greater than 2-fold increase in rates of depression (CM=25.3% vs. EM=9.6%), and almost a 3-fold increase in rates of anxiety (CM=23.1% vs. EM=8.1%).

### Healthcare Resource Utilization Was Greater Among Persons with CM

- 30.5% of persons with CM reported  $\geq 1$  visit to a healthcare provider or facility for headache within the preceding 12 months, compared to 12.2% of persons with EM ( $p < 0.001$ ).
- The most common types of HCPs visited by both groups for headache were primary care providers (PCPs) followed by neurologists.
- Respondents in the CM group had approximately 3 times greater odds for visiting both PCPs (OR=2.89; 95%CI=2.35,3.55,  $p < 0.001$ ) and neurologists (OR=3.40; 95%CI=2.59,4.46,  $p < 0.001$ ) at least once in the preceding year compared with persons with EM. (Table 1)
- These differences remained significant even after adjusting for sociodemographics including gender, annual household income, population density, and geographic region.

### Persons with CM Were Most Likely to Seek Specialty Care

- 47.1% of those with CM and 20.8% of those with EM reported ever discussing their headaches with a headache specialist (i.e., neurologist, headache or pain specialist).
- The two most commonly reported reasons for seeking care from a specialist were:
  - I was referred by another healthcare professional: CM=32.1% vs. EM=12.5% ( $p < 0.001$ ).
  - My headaches became worse: CM=28.2% vs. EM=11.8% ( $p < 0.001$ ). (Table 2)

### Persons Seeking Specialty Care Had the Greatest Headache Impact

- Headache impact (measured by HIT-6 sum score) was greater among those consulting neurologists/headache specialists. (Table 3)

Table 1. Rates of  $\geq 1$  Visit to Healthcare Providers for Headache in the Preceding Year

HCP Type	CM N (%)	EM N (%)	p value
Primary care provider	155 (34.8%)	1,047 (15.6%)	$p < 0.001^*$
Neurologist	73 (16.4%)	366 (5.4%)	$p < 0.001^*$
Emergency department	38 (8.5%)	254 (3.8%)	$p < 0.001^*$
Pain specialist	30 (6.7%)	86 (1.3%)	$p < 0.001^*$
Headache specialist	27 (6.0%)	69 (1.0%)	$p < 0.001^*$
Physician's assistant	25 (5.6%)	105 (1.6%)	$p < 0.001^*$
Nurse practitioner	23 (5.2%)	102 (1.5%)	$p < 0.001^*$
Obstetrician-gynecologist	13 (2.9%)	75 (1.1%)	$p = 0.001^*$
Urgent care clinic	10 (2.2%)	84 (1.2%)	$p = 0.079$

\* Significant at  $p < 0.05$   
+ Columns sum to  $> 100\%$  because respondents were instructed to check all responses that applied.

Table 2. Self-Reported Reasons for Seeking Specialty Care

Reasons	CM N (%)	EM N (%)	p value
I was referred by another healthcare professional	143 (32.1%)	841 (12.5%)	$p < 0.001^*$
My headaches became worse	126 (28.2%)	794 (11.8%)	$p < 0.001^*$
My headaches affected my home, family, or personal life	107 (23.9%)	652 (9.7%)	$p < 0.001^*$
I did not have effective medication	89 (19.9%)	498 (7.4%)	$p < 0.001^*$
My headaches affected my productivity at work	58 (13.0%)	384 (5.7%)	$p < 0.001^*$
My headaches caused me to miss work	50 (11.2%)	320 (4.7%)	$p < 0.001^*$
I was referred by a friend or family member	10 (2.2%)	78 (1.2%)	$p = 0.049^*$

\* Significant at  $p < 0.05$   
+ Columns sum to  $> 100\%$  because respondents were instructed to check all responses that applied.

Table 3. Headache-Impact of Persons Consulting Specialists vs. Those Not Consulting Specialists

Consulted Specialist?	CM group mean HIT-6 score	EM group mean HIT-6 score
Consulting specialists	66.7 (severe impact)	64.5 (severe impact) *
Not consulting specialists	63.6 (severe impact)	57.3 (substantial impact) *

\* Significant difference at  $p < 0.05$

## CONCLUSIONS

- Persons with CM were significantly more likely to consult PCPs and specialists for headache care, and also more likely to use the emergency department.
- Nonetheless, a minority of persons with CM reported visits to headache/pain specialists or neurologists for headache.
- Headache impact appears to be a major driver of seeking specialty care.
- As "referral by other health care professional" was the most common reason for seeking specialty care among persons with CM, appropriate referral might optimize care for these complex patients.