



Defining the Border-Zone Between Episodic Migraine and Chronic Migraine: Sociodemographics and Headache-Related Disability in the US Population

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BACKGROUND

Although Chronic Migraine (CM) is defined by ICHD-2 as migraine with headaches on 15 or more days per month, the clinical and biological borders between Episodic Migraine (EM) and CM are uncertain.

OBJECTIVES

To compare sociodemographics and headache-related disability in three frequency-defined groups of individuals with migraine: Low Frequency EM (LFEM; 0-9 days/month), High Frequency EM (HFEM; 10-14 days/month) and CM (≥15 days/month) in a large representative sample of the United States population.

METHODS

- The American Migraine Prevalence and Prevention (AMPP) Study is a longitudinal, US-population-based study of individuals with self-identified “severe” headache. A screening survey was given in 2004. Follow-up surveys were mailed to 24,000 respondents with “severe” headache on an annual basis from 2005-2009.
- Questionnaires included headache symptomology to allow for diagnosis according to ICHD-2 criteria and headache frequency over the preceding three months.
- Sociodemographic variables and headache-related disability (using the Migraine Disability Assessment Scale [MIDAS]) were also assessed.
- Odds ratios (ORs), rate ratios (RRs) and corresponding 95% wald confidence intervals (CIs) were calculated comparing the three groups.
- Analysis of current employment status was adjusted for age, sex and annual household income.
- Ordered logistic regression was used to model household income and negative binomial regression was used to model headache-related disability.

RESULTS

- Of 18,500 eligible study respondents to the 2005 AMPP survey, 10,609 met criteria for LFEM, 640 for HFEM and 655 for CM.
- In comparison to the LFEM group, those with HFEM and CM reported significantly lower household income ($p < 0.001$), were less likely to be employed full-time ($p < 0.05$), and were more likely to be occupationally disabled ($p < 0.001$). There were no corresponding differences between the HFEM and CM groups (ORs presented in Table 1).
- Headache-related disability was greatest for those with CM, lowest for LFEM and intermediate in HFEM. Responses to the five MIDAS items (Figure 1) showed that those with CM were significantly more likely to miss days of work or school due to headache compared to those with LFEM (RR 4.67, 95%CI 3.52, 6.20; $p \leq 0.001$). Differences between the HFEM and CM groups were not significant for that item.

CONCLUSIONS

The similarities between the HFEM and CM groups in terms of sociodemographics and headache-related disability, and their distinctions from the LFEM group on these variables, suggest that there may be biological overlap between HFEM and CM.

Figure 1. Lost Productive Time Due to Headache in Number of Days for MIDAS Items by Migraine Frequency Groups

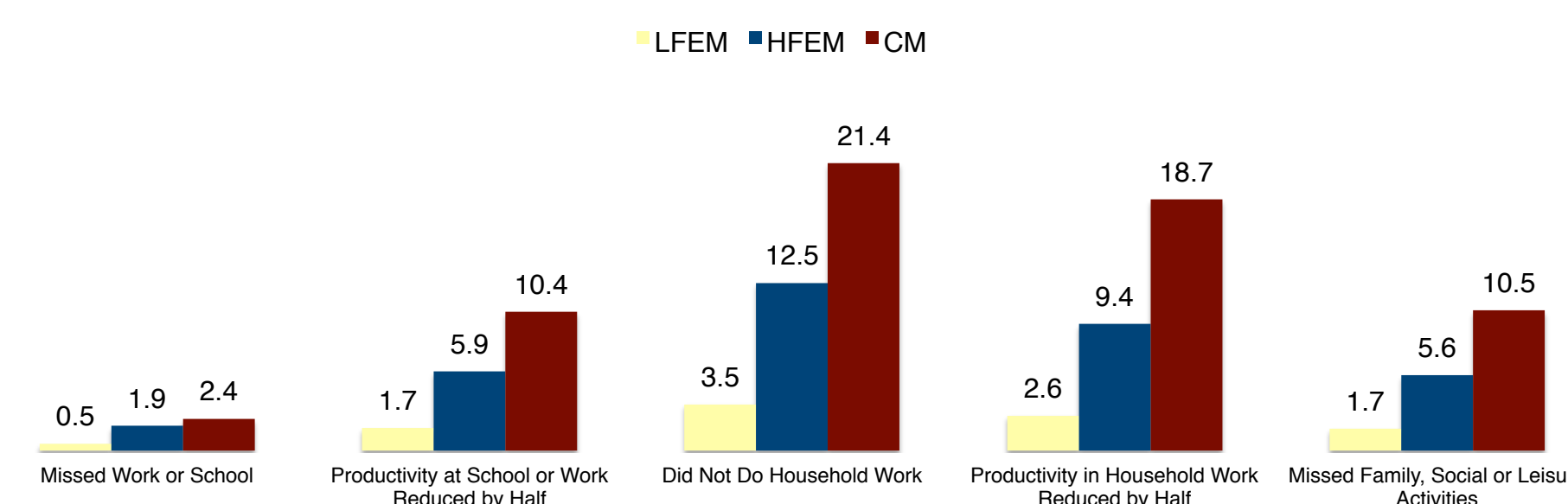


Table 1. Sociodemographic Profiles of Migraine Frequency Groups and Comparisons Among Groups

| | | LFEM | HFEM | CM | HFEM vs LFEM | CM vs HFEM | CM vs LFEM |
|---|-------------------------|--------------|--------------|--------------|------------------|-------------|------------------|
| Mean Age (SD) | | 46.4 (13.78) | 46.1 (13.64) | 47.7 (14.03) | NS | NS | p=0.03 |
| Mean BMI (SD) | | 29.2 (7.93) | 29.5 (7.92) | 29.8 (8.33) | NS | NS | p=0.06 |
| Sex | Female | 79.8% | 82.2% | 78.6% | NS | NS | NS |
| | Male | 20.2% | 17.8% | 21.4% | | | |
| Race | Caucasian | 87.3% | 88.1% | 90.7% | NS | NS | p=0.01 |
| | African-American | 7.2% | 5.9% | 4.0% | | | |
| | Asian/Pacific Islander | 0.8% | 0.5% | 0.2% | | | |
| | American Indian/Eskimo | 0.9% | 0.8% | 1.4% | | | |
| | Other | 1.4% | 2.2% | 1.4% | | | |
| Highest Level of Education (Ordered LR [†])** | ≤8 Grades | 1.0% | 2.1% | 2.2% | OR=1.3; p<0.001 | OR=0.90; NS | OR=1.19; p=0.02 |
| | Some HS | 4.5% | 5.7% | 4.3% | | | |
| | HS Diploma/GED | 23.9% | 26.6% | 25.2% | | | |
| | Technical School | 38.6% | 40.7% | 40.8% | | | |
| | College Graduate | 20.8% | 15.9% | 19.2% | | | |
| | Graduate Degree | 11.4% | 9.0% | 8.4% | | | |
| Current Employment Status** | Full-time | 48.2% | 40% | 37.8% | OR=0.75; p=0.02 | OR=0.93; NS | OR=0.70; p<0.001 |
| | Unemployed | 7.2% | 9.4% | 7.5% | OR=1.3; p=0.04 | OR=0.78; NS | OR=1.04; NS |
| | Occupationally Disabled | 10.6% | 18.8% | 20.0% | OR=1.90; p<0.001 | OR=1.08; NS | OR=2.10; p<0.001 |
| Household Income (Ordered LR [†]) | <\$22,500 | 24.7% | 27.5% | 29.9% | OR=1.20; p<0.001 | OR=1.02; NS | OR=1.29; p<0.001 |
| | \$22,500-\$39,999 | 19.8% | 23.3% | 21.4% | | | |
| | \$40,000-\$59,999 | 18.8% | 19.1% | 16.2% | | | |
| | \$60,000-\$89,999 | 18.6% | 16.1% | 18.5% | | | |
| | ≥\$90,000 | 18.0% | 14.1% | 14.1% | | | |

NS=Non-Significant, SD=Standard Deviation

[†]Statistical test used was ordered logistic regression, in which OR indicates how contrasted groups differ in the probability of the higher response category.

**Effects of were adjusted for age, gender and income.