Migraine Prevalence, Disability and Prevention Need in a Community Sample of Adolescent: Results from the American Migraine Prevalence and Prevention (AMPP) Study

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INTRODUCTION

Migraine is one of the most burdensome of the primary headache disorders[1]. In occidental countries, the prevalence of migraine in adults is around 12%[2]. In population studies in the U.S., the prevalence of migraine was approximately 18% in women and 6% in men[3,4]. While migraine is common at all ages, the effects of age on the prevalence of migraine are dramatic. The prevalence of migraine peaks in middle age and is lower in childhood, adolescence, and in the elderly[4-7].

The prevalence of adolescent migraine has been previously studied[6-8], however, the patterns of acute and preventive treatment for adolescent migraineurs in the general population have not. Since migraine often begins in adolescence and may interfere with education[9], understanding unmet treatment needs in this age range is a first step toward the development of public health initiatives.

METHODS

A sample of 120,000 households (with a total of N=257,339 individuals age 12+) were selected from the TNS (formally National Family Opinion) nationwide panel. This household panel is constructed to be representative of the U.S. population on key demographics (age and gender of household head, household income and size, census region, and population density).

Each household member with severe headache was asked to provide data on headache symptoms and features, headache frequency, acute and preventive medication use, use of coincident prevention (seizure, blood pressure, depression medications), headache-related impairment (work/function normally, impaired to some degree, severely impaired, bed rest required) and headache-related disability based on MIDAS[10].

Subjects were classified by their preventive medication use into: current users, coincident users (using medications for other conditions that have a preventive benefit in migraine), lapsed users (prevention use in the past), and those never using migraine prevention. Consensus guidelines to "offer" or "consider" preventive treatment for migraine were developed by an expert panel according to clinical experience and patient-reported headache frequency and impairment. Decision rules for the classification of cases based on headache frequency and impairment were reviewed with the objective of identifying operational criteria consistent with consensus guidelines. This work yielded three groups: preventive treatment should be offered to all patients with 6+ migraine days per month; 4+ migraine days with at least some impairment; or 3+ migraine days with severe impairment or required bed rest. Preventive treatment should be considered for patients with 4-5 migraine days per month with normal functioning; 2-3 migraine days with some impairment or 2 migraine days with severe impairment.

RESULTS

A total of 77,879 households (65% response) returned questionnaires. The current analysis focuses on the subset of adolescents in this sample aged 12-19. A total of 32,015 were sent surveys and 18,714 responded (58.5% response rate). Table 1 provides sample demographics.

Among adolescents, the one-year period prevalence of migraine was 6.3%, overall, 5.0% in boys and 7.7% in girls. Migraine prevalence adjusted for demographics is provided in Figure 1. A total of 59.3% of the adolescents used only OTC as their acute migraine treatment, while 22.1 % used both prescription and OTC medication; 16.5% used prescribed medication only (Table 2) . For prevention, 63.7% never used it, 6.3% used migraine prevention for other reasons (coincident users), 19.5% used preventive medication in the past, and just 10.6% were current users (Table 2). A total of 30.7% of adolescents met expert criteria for "offer" or "consider" migraine prevention. MIDAS-based disability was significantly higher (p<.0001) among those with greater prevention need (Figure 2).
Less than a quarter of Adolescent Migraineurs with the highest need reported current preventive use (Figure 3). Among those who have never used prevention, about 1 in 4 could benefit from it (Figure 4).

Table 1. Sample Characteristics and Response Rates For Headache and Migraine Screening

	Sampled Individuals (N)	% of Sample	Responding Individual (N)	Response Rate %
Males	16,774	52.4%	9,624	57.4%
Females	15,241	47.6%	9,090	59.6%
TOTAL	32,015	100%	18,714	58.5%
12-13 Years	8,008	25.0%	4,602	57.5%
14-15 Years	8,062	25.2%	4,684	58.1%
16-17 Years	7,863	24.6%	4,665	59.3%
18-19 Years	8,082	25.2%	4,763	58.9%

Figure 1. Crude and Adjusted One Year Period Prevalence Estimates of Migraine in Adolescents, by Age and Gender

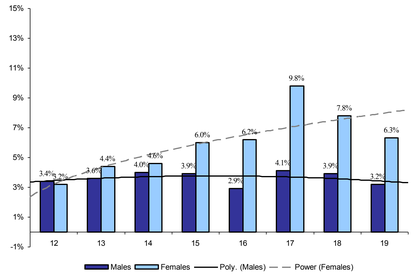


Table 2. Medication Use Among Adolescent Migraineurs

Acute Medication Use

2.1% use no medication
59.3% use OTC only
16.5% use Rx
22.1% use both OTC and Rx
(no differences between males and females)

Current Preventive Medication Use

10.6% currently use
6.3% coincident use*
19.5% lapsed use
63.7% never used
(no differences between males and females)

*Using medication for another condition with migraine prevention benefits.

Table 3. Estimates of Preventive Medication Need: 30.7% of Adolescent Cases Could Benefit From Daily Preventive Therapy

How are you usually affected by severe headaches?

	Monthly Migraine Days (Based on MIDAS)						
Impairment	**≤1**	**2**	**3**	**4-5**	**6-10**	**11+**	**Total**
Function Normally	3.9%	0.6%	0.9%	0.3%	0.3%	0.2%	6.2%
Some Impairment	20.2%	3.3%	2.7%	2.5%	2.7%	1.6%	33.0%
Severe Impairment Bed Rest Required	43.7%	3.8%	4.8%	3.4%	3.3%	1.8%	60.8%
TOTAL	67.8%	7.1%	8.3%	6.2%	6.2%	3.6%	100% (N=1153)

Offer Preventive Treatment = 20.6%
Consider Preventive Treatment = 10.1%
Preventives Not Indicated = 69.3%

Figure 2. MIDAS-based Disability by Prevention Need: Almost Half of the "Offer" Prevention Group Reports Moderate to Severe Headache-related Disability

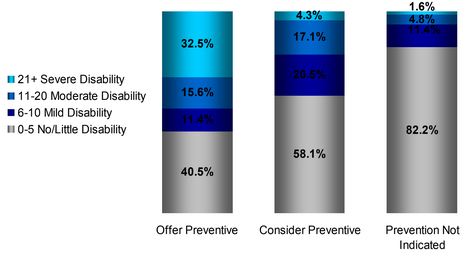


Figure 3. Preventive Use by Prevention Need: Only 22.5% of Adolescent Migraineurs With the Highest Need Report Current Preventive Use

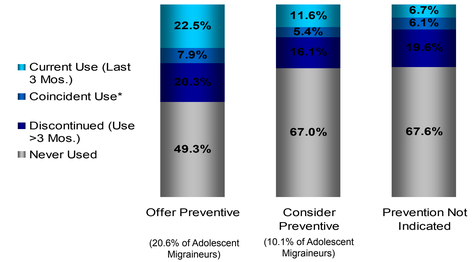
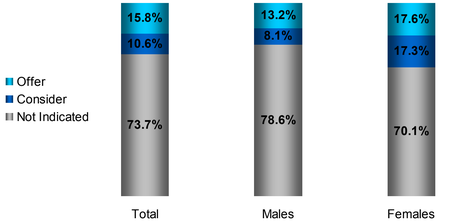


Figure 4. Prevention Need Among Adolescent Migraineurs Who Have Never Used Preventive Medication: 1 in 4 (26.4%) Could Benefit From Prevention



Chi square for males vs. females = 6.6, p<.037

CONCLUSIONS

- **One year period prevalence of migraine was found in 6.3% of the adolescent population (5.0% of males and 7.7% of females).**
- **Only 10.6% of adolescent migraineurs use migraine-specific preventive treatment.**
- **An additional 6.3% use coincident preventive treatment (medication for another condition with known benefit as a migraine preventive) and 19.5% have discontinued prior preventive treatment. Most (63.7%) have never used preventive treatment.**
- **Based on headache expert consensus guidelines, almost 1 in 3 adolescent migraine cases are candidates for preventive therapy: 20.6% should be "offered" prevention and another 10.1% should "consider" it.**
- **There is significantly more MIDAS-based disability among those groups with the greatest need for prevention.**
- **For the 20.6% of adolescent migraine cases with the greatest need, less than 1 in 4 (22.5%) currently receive migraine specific preventive treatment.**
- **Among migraine cases who never used preventive treatment, 1 in 4 (26.4%) could benefit from it.**
- **Identifying migraine patients who may be candidates for preventive therapy will most likely improve headache outcomes for adolescent patients with migraine.**

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