

# Disability, Depression and Work-related Impairment Among a Community Sample of Migraineurs Who are Candidates for Prevention: Results from the American Migraine Prevalence and Prevention (AMPP) Study

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## INTRODUCTION

The prevalence of migraine in the U.S., as well as patterns of acute treatment, are well understood<sup>1,2</sup>. However, less is known about the need for preventive therapy and the associated impairment among people with migraine.

In 2004, the American Migraine Prevalence and Prevention (AMPP) study screened a demographically representative sample of 120,000 US households from the TNS (formally National Family Opinion) household panel using a validated questionnaire. Data for 162,576 individuals were obtained, including 29,378 adult (age 18+) headache sufferers and 18,968 migraineurs (based on ICHD-2<sup>3</sup> symptom criteria). An expert panel comprised of headache specialists, epidemiologists and statisticians with experience in headache research convened several meetings and developed recommendations, based on the US Headache Consortium Guidelines, for the use of migraine prevention. 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: 1) those patients where preventive treatment should be Offered (6+ migraine days per month; 4+ migraine days with at least some impairment; or 3+ migraine days with severe impairment or required bed rest), 2) patients where preventive treatment should be Considered (4-5 migraine days per month with normal functioning; 2-3 migraine days with some impairment or 2 migraine days with severe impairment), and 3) patients with infrequent headaches or no impairment where prevention is Not Indicated. This analysis showed that 25.7% of migraineurs (7.7 million) should be offered prevention and an additional 13.1% (3.8 million) should consider it.

This current study focused on the disability and disease-related burden associated with headache among those cases where preventive care should be offered or considered and compares them to migraineurs where prevention is not indicated.

## METHODS

In 2005, a follow-up survey was mailed to a random sample of 24,000 headache sufferers from the 2004 screening study. Each person with severe headache was asked to provide data on headache symptoms and features, headache frequency (over the past three months) and severity (rated on a 11-point scale where 0 = no pain and 10 = pain as bad as could be), headache-related disability via the Migraine Disability Assessment (MIDAS)<sup>4,5</sup>, symptoms of depression via the PRIME-MD<sup>6</sup> and disease-related losses in productivity via Work and Health Questionnaire<sup>7</sup>. Information on headache-related impairment was also obtained (work/function normally, impaired to some degree, severely impaired, bed rest required) to use in combination with headache frequency for determining the need for preventive therapy.

Migraine cases were re-qualified using ICHD-2 symptom criteria<sup>3</sup>. Cases reporting at least one severe headache in the past year were included in the analyses and cases reporting 15+ headaches per month were considered chronic headache sufferers and excluded.

MIDAS Grade was calculated by summing five items that assess number of days in the last three months where participation/productivity in work, school, or home activities were impacted due to headache.

Clinical depression status was assigned to those cases where five or more of the nine depression symptoms were present at least "more than half the time" in the past two weeks. One of the five symptoms must be Depressed Mood or Anhedonia.

The Work and Health Questionnaire is a self-administered abridged version of the Work and Health Interview (WHI). The scoring procedure for absenteeism is based on the sum of lost productive work time due to health reasons. Presenteeism is based on five questions about job performance and is the same as that reported elsewhere for the WHI.

## RESULTS

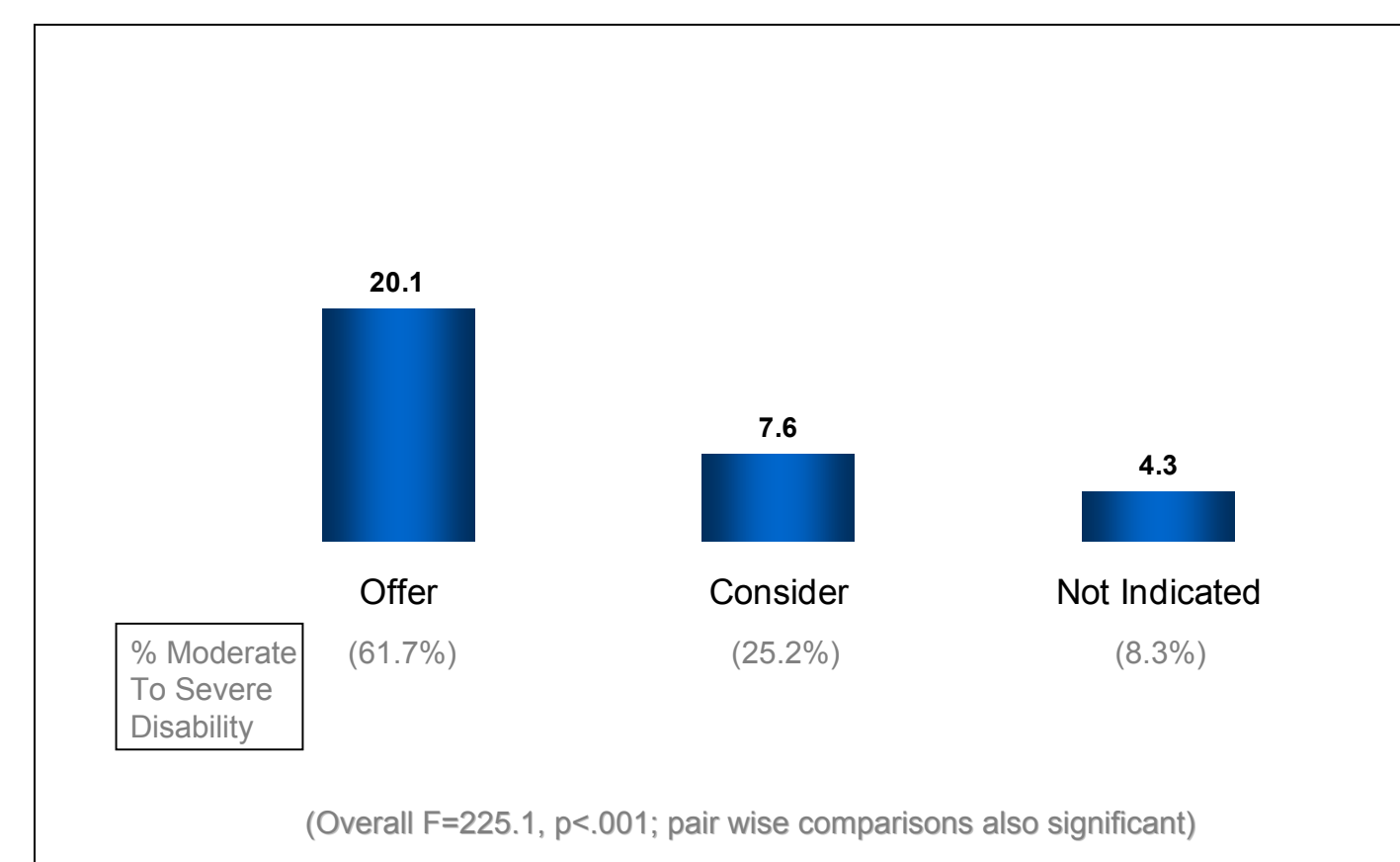
Usable surveys were returned for 16,577 individuals (69.1% response rate) and there were n=11,388 headache sufferers who met ICHD-2 criteria for migraine. Table 1 provides total sample demographics and response rates.

Migraine cases were divided according to prevention need as defined the 2004 screening survey (see Background, n=3835 Offer, N=2107 Consider and n=4805 prevention Not Indicated; n=641 cases could not be classified). Those meeting criteria to Offer preventive therapy reported pain severity at significantly higher levels (means for Offer, Consider and prevention Not Indicated were 8.7, 8.4 and 8.0 respectively, P<.0001). The symptoms of nausea, photophobia and phonophobia were more common in the Offer versus Consider prevention groups, but no differences were seen between the Consider and Not Indicated groups (Nausea: 86.2%, 82.8% 81.2%; Photophobia: 92.2%, 89.3%, 88.3%; Phonophobia: 91.8%, 89.2%, 88.0%).

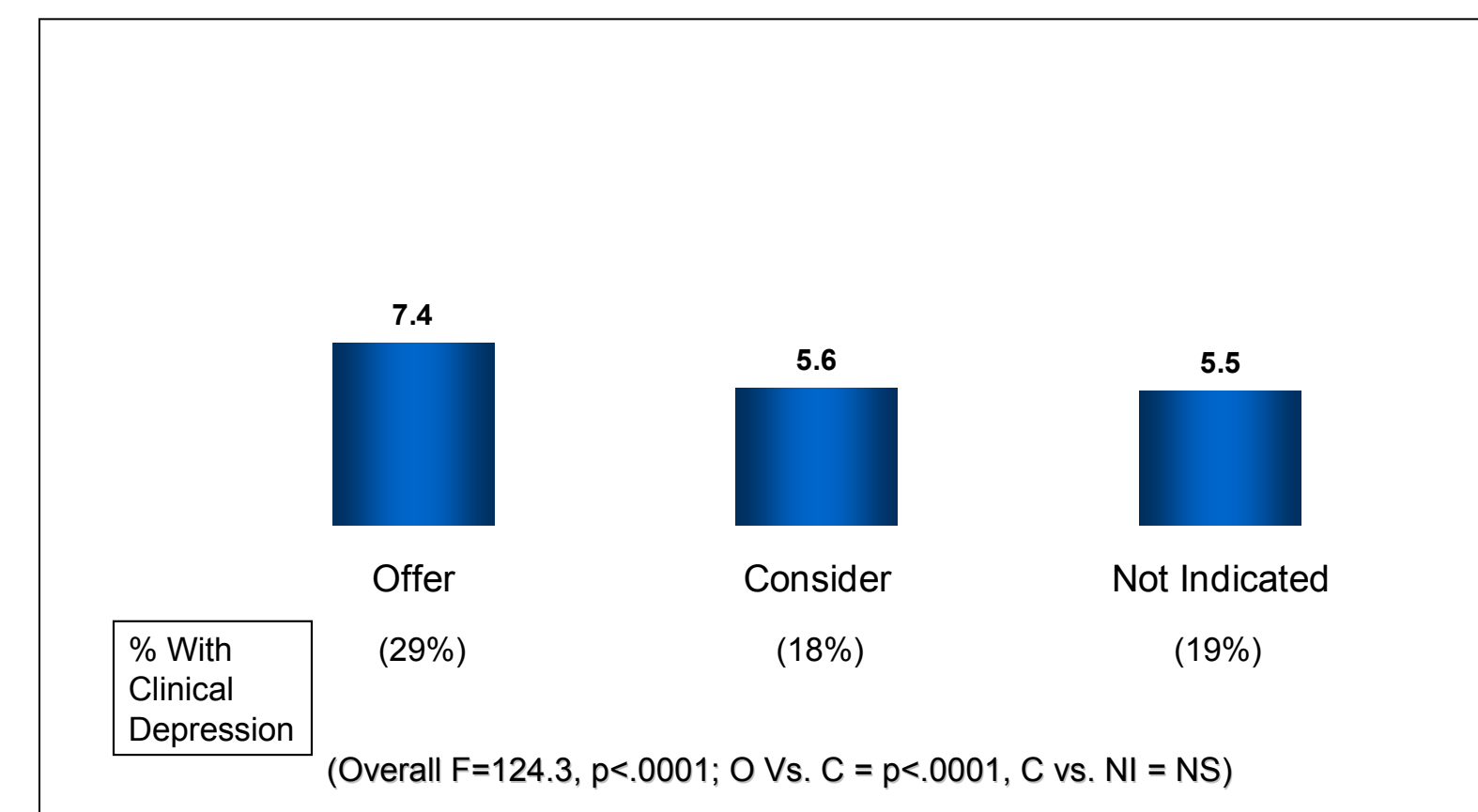
**Table 1. Gender and Age Distribution for the Random Sample of Headache Sufferers Who Were Sent Questionnaires and for Those Who Returned Surveys**

	Target Sample		Returned Sample		Response Rate
	N	%	N	%	
<b>Total</b>	<b>24,000</b>		<b>16,577</b>		<b>69%</b>
<b>Gender</b>					
Males	7,077	29.5%	4,053	24.4%	57%
Females	16,923	70.5%	12,524	75.6%	74%
<b>Age</b>					
18-24 yrs	1,768	7.4%	741	4.5%	42%
25-34 yrs	4,179	17.4%	2,478	14.9%	59%
35-44 yrs	5,414	22.6%	3,693	22.3%	68%
45-54 yrs	6,191	25.8%	4,616	27.9%	75%
55-64 yrs	3,706	15.4%	2,977	17.9%	80%
65-74 yrs	1,676	6.9%	1,321	8.0%	79%
75+	1,066	4.4%	751	4.5%	70%

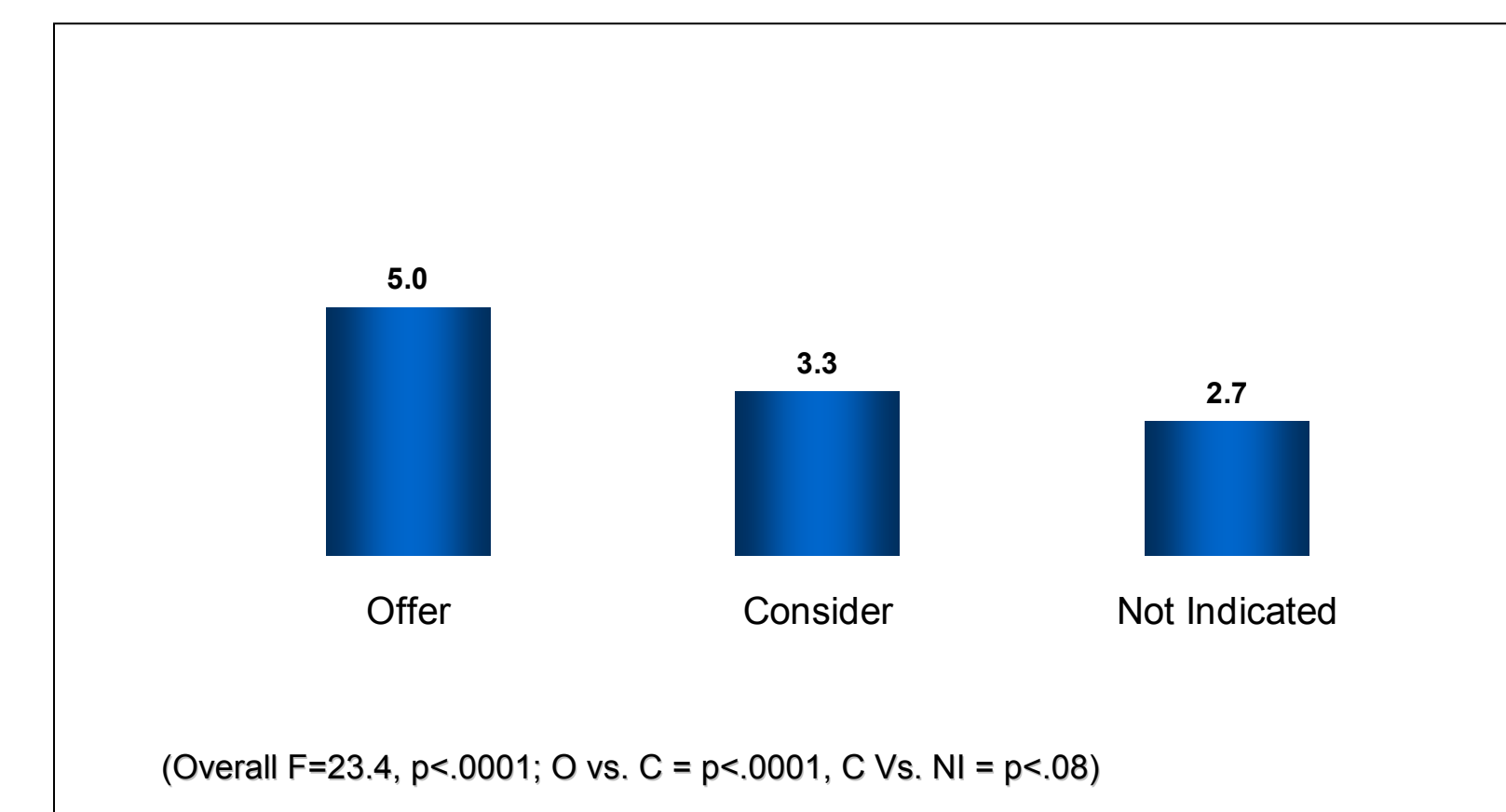
**Figure 1. Mean Number of Days in Past 3 Months with Headache-related Disability and Percent with Moderate to Severe Disability (Migraine Disability Assessment-MIDAS-Questionnaire) by Prevention Need Group**



**Figure 2. Mean Depression Level and Percent with Clinical Depression (Personal Health Questionnaire or PRIME- MD) by Prevention Need Group**



**Figure 3. Weekly Hours of Lost Productivity (Work and Health Questionnaire, Presenteeism and Absenteeism Combined) by Prevention Need Group**



## CONCLUSIONS

- **This study examines the headache features and disease burden among the 25.7% of migraineurs (7.7 million) where preventive therapy should be offered, and the 13.1% (3.8 million) where preventive therapy should be considered.**
- **Headache Pain and Features: Severe pain and key migraine symptoms (nausea, photophobia and phonophobia) were reported more frequently among those with the highest need for preventive care. However, neither pain nor symptom reporting are at a levels where they might be useful in screening for prevention need.**
- **Migraine-related Disability: Substantially more individuals in the Offer group had moderate to severe disability (i.e., MIDAS grade of III or IV) compared to either the Consider or Not Indicated groups.**
- **Clinical Depression: Nearly 30% of those in the Offer prevention group reported current clinical depression and almost 20% in the other groups did so. Clearly, depression is a co-morbid health problem that should be considered in the management of migraine.**
- **Lost Productivity: Individuals in the Offer group had almost twice the number of lost productive work hours (i.e., a mean of 5 hours/week versus 2.7) per week when compared to the Not Indicated group.**
- **These results highlight the importance of identifying people with migraine who are in need of preventive care. The use of preventive therapy in patients where it is warranted is likely to improve outcomes in disability, feeling of depression, and lost productivity.**

## NEXT STEPS

The AMPP study will collect survey data annually (through 2009) from the same headache sufferers. Our long term objectives are to measure the patterns of acute and preventive medication use and their potential benefits over time. The study also aims to assess healthcare resource use and the predictors of headache progression and remission.

This study uses the MIDAS questionnaire to assesses the ictal burden of migraine by prevention need group. Additional research is underway on a measure of inter-ictal burden of migraine which will provide a more complete understanding of migraine burden.

Additional research is also underway to develop a reliable and valid screening tool for identifying migraine sufferers who could benefit from preventive therapy.

## REFERENCES

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