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Research Article

## Headache Awareness in a Neurological Outpatient Clinic Setting

Flavio Devetag Chalaupka<sup>1\*</sup>

*\*Corresponding author: Dr. Flavio Devetag Chalaupka, MD; Department of Neurology and Neurophysiology, "S. Maria del Prato" Hospital, Via Bagnols sur Cèze 3 32032 Feltre (BL), Italy, Tel: 00390439330531; Fax: 00390439330531; Email: fdeveta@gmail.com*

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### Abstract

**Objectives:** The aim of the study was to investigate headache awareness in patients with neurological disorders.

**Methods:** This study recruited 1044 consecutive neurological patients who were visited as outpatients for complaints other than headache. Patients with reduced cognitive abilities and/or unreliable data were excluded. Patients submitted to a questionnaire on headache awareness. The questionnaire included 3 questions that probed the level of patient sensitivity to headaches (high, intermediate, poor level of awareness). For patients with poor headache awareness, data about the headache were collected in a Case Report Form. The headache was diagnosed according to the criteria proposed by the International Classification of Headache Disorders, second edition (ICHD-2).

**Results:** Of 1044 patients, 689 (66%) were female and 355 (34%) were male; the mean age was  $56.3 \pm 14.8$  years (range 11-93). A total of 240 (23%) subjects reported recurrent headaches. According to the headache awareness questionnaire, 46 patients (19.2%) showed high awareness, 27 patients (11.2%) showed intermediate awareness, and 167 subjects (69.6%) showed poor awareness (they recognized the headache as a complaint only when specifically asked). The prevalence of headache was 23%, and only 4.4% identified headache as a disorder. We examined the headache characteristics of subjects with poor headache awareness. Primary headache was present in 98.2% of the patients and migraine without aura was the most commonly diagnosed (61.1%). The most frequently used drugs were over-the-counter pain medications and non-steroidal anti-inflammatory drugs (72.9%). No subject used prophylactic therapy.

**Conclusions:** Unexpectedly, this study showed that a high percentage of patients with neurological disorders had poor headache awareness. The lack of awareness might have contributed to inappropriate or ineffective use of treatments and failure to find appropriate care. We suggest that physicians should always ask patients whether they suffer from headaches to raise headache awareness.

**Keywords:** Headache; Migraine; Neurological Clinic; Headache Awareness

## Introduction

Headache is one of the most common neurological conditions affecting 47% of adults worldwide [1] and 53% of adults in Europe [2]. Headache is an isolated complaint during the lifetime of 66% of individuals worldwide [1] and 77% of people in Europe [2]. Moreover, the headache prevalence remained essentially stable among adults in a Norwegian county during an 11-year period [3]. The World Health Organization ranked headache disorders among the ten most disabling conditions in the world [4]. In a Canadian population survey, only 64% of migraine and 45% of tension-type headache sufferers had ever sought medical attention, and of these only 32% returned for ongoing care [5]. The International Classification of Headache Disorders, third edition, classifies almost 200 different headache subtypes [6].

Migraine is considered a low-impact condition that imposes a limited burden to society and the health-care system. This misperception persists, in part, because the disorder is episodic, does not shorten life expectancy, and rarely causes long-term physical disability [7]. Despite the fact that migraine is one of the major complaints treated by primary care providers, nearly half the individuals with migraine receive no diagnosis or an inappropriate diagnosis and treatment [8]. Under-diagnosis and under-treatment of headaches remain an important health concerns throughout the world [9].

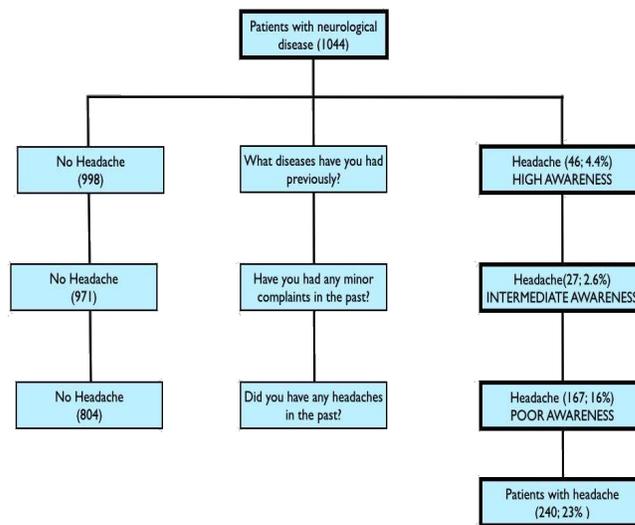
Over the past two decades, the introduction of new pharmacological treatment agents has increased the awareness of migraines [10]. The objective of this study was to examine headache awareness in subjects visited in a neurological outpatient clinic setting for reasons other than headache. We also assessed the type of health service utilized, the medication habits, and the diagnosis of headache.

## Patients and Methods

We examined 1044 consecutive patients as outpatients in the neurological department of the Hospital S.Maria del Prato of Feltre (Italy) for complaints other than headache. Subjects with reduced cognitive abilities and/or unreliable data were excluded. All patients provided informed consent before participating in the study. Patients were given a questionnaire on headache awareness which included 3 questions that probed the level of patient sensitivity to headaches (high, intermediate, poor levels of awareness) (Figure 1). The first question was: "What diseases have you had previously?" When the patient did not report a headache in response to the first question, the second question was asked, i.e.: "Have you had any minor complaints in the past?" If a headache was not reported in response to the second question, the doctor specifically asked the patient the third question: "Did you have any headaches in the past?" When subjects answered that they had suffered

from a headache, they were asked why they failed to report the headache, and they were allowed to select among 6 possible responses:

- 1) The subject did not think the headache was a significant index of disease.
- 2) The subject did not think the doctor had time to discuss the matter.
- 3) The subject did not think the doctor could do anything to treat it.
- 4) The subject had never gotten good results with other therapies, and thus, did not think there was an effective therapy.
- 5) The headaches were so rare that they did not represent a medical problem.
- 6) The current treatment was effective; thus, the headache was not considered a problem.



**Figure 1.** Protocol for study of the headache awareness with the results.

The data from patients with poor headache awareness were collected in Case Report Forms that included age of onset, frequency, severity duration, pattern, headache treatment, and healthcare utilization. The headache was diagnosed according to the criteria of the ICHD-2 [11], version in use at the moment of our survey. The data were analyzed using SPSS 13.0 for Mac.

## Results and Discussion

Of the 1044 patients enrolled in the study, 689(66%) were

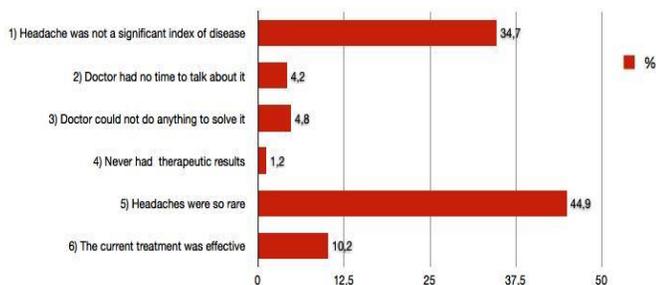
female, 355 (34%) were male, and the mean age was 56.3±14.8 years (range 11-93). Demographic characteristics are summarized in Table 1.

	n	%
Age 56.3±14.8 (11-93) median 60		
Female	689	66
Male	355	34
Suffering recurrent headache	240	23
Age 47.9±15.5 (14-84) median 48		
Female	199	83
Male	41	17
Patients with poor headache awareness	167	17,2 (69,6% of headache)
Age 51.7±13.7 (18-84) median 53		
18-30 years	12	7,2
31-40 years	23	13,8
41-50 years	44	26,3
51-60 years	42	25,1
61-84 years	46	27,5
Female	143	85,6
Male	24	14,4

**Table 1.** Demographic characteristics of 1044 patients.

The subjects presented the following diseases: cerebrovascular disorders (13.9%), head injury (6.3%), epilepsy (6.8%), multiple sclerosis (4.3%), degenerative disorders (21.2%), vertigo (6.6%), syncope (4.9%), psychiatric disorders (19.3%), and other diseases (16.7%). A total of 240 (23%) subjects reported recurrent headache.

Based on upon the data collected in the headache awareness questionnaire, 46 patients (19.2%) reported a headache in response to the first question, 27 patients (11.2%) in response to the second question, and 167 (69.6%) only in response to the specific question. Thus, these neurological patients had a headache prevalence of 23% and only 4,4% recognized their headache as a disease. The reasons for not reporting a headache are shown in Figure 2.



**Figure 2.** The reasons for non-reporting headache.

The clinical features of headaches in subjects with poor headache awareness are shown in Table 2. Primary headache was present in 98,2% of patients and the more common clinical characteristics included: migraine without aura (61.1 %), age of onset < 30 years (76%), average duration of episode <24 h

(91%), mild to moderate pain (85%), and frequency of attacks ≤1/month (68.8%).

	n	%
Type of headache		
Migraine without aura	102	61,1
Migraine with aura	6	3,6
Tension-type headache (TTH)	45	26,9
Migraine and TTH	11	6,6
Other headache	3	1,8
Age presentation		
<20 years	60	35,9
20-29 years	67	40,1
30-39 years	23	13,8
40-49 years	10	6
≥ 50 years	7	4,2
Pain intensity		
Mild to moderate	142	85
Moderate to severe	25	15
Average duration of the episodes		
<24 hours	152	91
24-48 hours	13	7,8
>48 hours	2	1,2
Frequency of attacks		
<1 months	77	46,1
1/months	38	22,7
>1 months	25	15
1/ week	17	10,2
>1 week	10	6

**Table 2.** Clinical characteristics of patients with poor headache awareness.

No significant differences emerged between subjects with migraine and tension type headache (26,9%) in terms of frequency of attacks and epidemiological data. The majority of subjects (74.3%) had not contacted their physician for the headache, but the type of physician most frequently visited for headache was a general practitioner (GP; 13.7%). Only 1 patient had visited a headache center for the headache (Table 3).

	n	%
No physicians	130	74,3
GPs	24	13,7
Neurologists	12	6,9
Headache specialists	1	0,5
Other physicians	8	4,6

**Table 3.** Physicians seen for headache.

The greater majority of patients (80.7%) used drugs for headache treatment (Table 4).

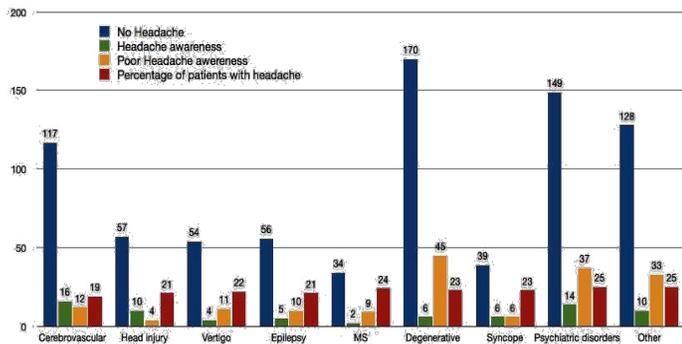
	n	%
No drugs	42	19,3
OTCs	82	37,6
NSAIDs	77	35,3
Triptans	4	1,8
Other drugs (opiates, antiemetics, homeopathic medicines, herbal drugs)	13	6

**Table 4.** Drugs for acute treatment of headache.

The most commonly used drugs were over-the-counter (OTC) pain medications and non-steroidal anti-inflammatory drugs

(NSAIDs; 72.9% of subjects). No patient used a prophylactic therapy.

Finally, we analyzed the patients with low headache awareness according to the pathology with finding no significant differences. Only the patients with cerebrovascular disorders and head injury more often recognized headache as a medical problem a headache. (Figure 3).



**Figure 3.** Patients and headache awareness according to the pathology.

Several previous studies have reported that the majority of subjects with headaches have either never been diagnosed or have not received adequate treatment for the disorder [12]. In this study, out of 240 neurological outpatients with headaches, the majority of patients (69.6%) exhibited poor headache awareness and only 19.2% showed high headache awareness. Our results suggested three main conclusions. First despite its high prevalence and associated disability, headache was not generally perceived as a medical condition; second, headaches remained underdiagnosed and were treated with self-management or a suboptimal medical approach; and third, headaches were recognized as medical problem primarily in patients with cerebrovascular disorders and head injury. The evaluation of the questionnaire concerning headache awareness led us to conclude that the main reason for not reporting a headache (89,8%) was due to the low impact of headache on the health of the subjects. Only a small percentage of patients (10.2%) reported no results from therapy or did not expect results from visiting a physician. Other possible explanations for the lack of recognition were that the headache was minor and that it was obscured by ongoing symptoms of a neurological disease.

Our study indicated that the prevalence of recurrent headaches in a neurological outpatient clinic setting (23%) was less than that of the general population [1,2]. This may have been related to the age of the population studied. Indeed, an Italian study on of older individuals also showed a similar low prevalence (21.8%) [13]. However, another study, also from Italy, indicated a more higher prevalence (51%), as that of the general population [14].

Our research established that when a patient complained of episodic headache the diagnosis indicated was a primary headache, in particular migraine, also Tepper and colleagues found similar data [15].

We noticed that healthcare utilization was rather modest (25.7% of patients), and that, in general, the patients (13.7%) consulted their general practitioner (GP). Examinations by a neurologist (6.9% of patients) or by a headache specialist (0.5% of patients) were rare. These results confirmed those of an Italian study [16]. Also Shapero and colleagues reported that primary care physicians were the only point of contact for the majority of patients with headaches, and only a small proportion of those patients were referred to a neurologist or headache specialist [17].

Our results showed that the great majority of patients used non-specific acute medications (72.9% of subjects). The drugs were typically self-administered or recommended by someone or prescribed by their GP. We found that only 1.8% of patients used triptans to treat their headaches, while 19.3% of subjects did not use drugs. Headache treatment is suboptimal in Italy where over 80% of subjects were treated with non-specific acute medications [16]. Celentano and colleagues found that only 28% of men and 40% of women with headaches used acute prescription migraine medication. Moreover, only 49% of men and 64% of women with a physician's diagnosis of migraine reported current treatment with the prescription medication [18]. Diamond and colleagues reported that 49% of patients with migraines used only OTC medications to treat their migraines [19]. Lipton and colleagues found that 61% of patients without a physician's diagnosis reported severe or very severe headache pain, and 67% reported severe disability or the need for bed rest as a result of headaches [20]. Therefore, in many cases, self-management is not efficacious for treating migraines.

In our study, no subject was treated with a preventive drug, but 31.2% of subjects met the criteria for prophylactic treatment, according to current evidence-based guidelines [21]. The 2004 American Migraine Prevalence and Prevention (AMPP) study found that over one-third (38.8%) of patients met study guidelines for a prophylactic medication and should have been offered (25.7%) or considered for (13.1%) prophylaxis. However, only 12.4% of patients indicated that they were taking a migraine preventive medication [22].

Our data are similar to those of Viticchi and colleagues [23] who have studied the dimension of the headache-related problems among hospital workers, including disease awareness and diagnostic delay.

The above-reported data lead to the following considerations: migraine is an affliction that affects people worldwide and is

under-diagnosed and under-treated, despite its considerable burden. It is important to note that inappropriate treatment produces significant disability and impact on quality of life and may enhance the risk of self-medication, headache chronification and medication-overuse headache (MOH). MOH is a severe form of headache associated with increased headache frequency and reduced effectiveness of acute and preventive medications. It is one of the most common chronic headache disorders and a public health problem with a worldwide prevalence of 1-2% [24]. We suggest that the dissemination of information and education about the risk of MOH are important since the condition is preventable.

A limitation of our analysis was that it was performed in a neurological outpatient clinic setting, and included only subjects with poor headache awareness. Thus, the investigated sample may not have represented of the whole spectrum of patients with headaches in the general population. The observed population most likely represented a selection of less severe or uncomplicated cases.

In conclusion, our survey indicated poor headache awareness in patients. This lack of recognition might have contributed to inappropriate or ineffective treatments and failure to find appropriate care.

To reduce the socioeconomic burden that results from under-consultation, under-diagnosis, absence of treatment, or mistreatment of headache disorders, it is important to develop initiatives that raise headache awareness. These initiatives should aim to identify and remove cultural, social, and educational barriers responsible for inadequate recognition of headache disorders [25].

Finally, given the low headache awareness of most people, I recommend that physicians always inquire as to whether their patients suffer from headaches.

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