▪ Headache Medicine 2021, 12(3):255-262 ▪ p-ISSN 2178-7468, e-ISSN 2763-6178

Headache Medicine

▪ DOI: 10.48208/HeadacheMed.2021.37

Original

Migraine cure: a patients' perspective

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Edited by:
Marcelo Moraes Valença

Abstract

Objective

To conduct a web-based survey concerning patient's perspective in the migraine cure.

Material and Methods

A total of 1,102 patients fitting the International Classification of Headache Disorders (ICHD-3) migraine criteria, seeking medical care at the Brain Research Institute at Albert Einstein Hospital in Sao Paulo, Brazil, from January to December 2015, participated in the survey. The online-based survey was accessed via the institute's website and consisted of demographic data, a description of migraine symptoms, diagnosis and treatment, and the patient's opinion of migraine cure and which treatment they would consider taking.

Results

Migraine intensity was significantly higher in female participants than male participants. Chronic migraine tended to affect female participants more than male participants. There was a significant difference in the rate of migraine cure belief between patients with episodic and chronic migraine.

Conclusion

Some points that were important to migraineurs have been identified in this study. Ultimately, the findings of this study may facilitate the migraine treatment decision process, by providing a better understanding of patients' perspectives and beliefs, thus creating a more friendly communication between migraineurs and care providers and hopefully, improving the quality of life of patients.

Keywords:
Belief
Cure
Headache
Migraine disorders
Survey
Quality of Life

Received: December 12, 2021
Accepted: December 28, 2021

Introduction

Migraine is a common primary, but not exclusively, headache disorder characterised by recurrent episodes of headache, often associated with nausea, vomiting, photophobia, and phonophobia. Although headache is the primary requirement for the diagnosis in many classifications, the manifestations of migraine may not include headache.[1]

Global migraine prevalence is reported to be around 11.5% with variation between countries, sexes and socio-economic status.[2] A recently published report provided updates on the prevalence of migraine and severe headache in the United States. It has been reported that prevalence estimates have remained remarkably stable for many years, but migraine continues to be a common, disabling medical condition that affects almost one in six Americans.[3] Alone, migraine is the sixth leading cause of disability of any condition, and is the leading cause of neurological disability globally. In Brazil, the 1-year prevalence of migraine is 15.2% and migraine is a leading cause of disability in terms of days lost from work, school or domestic activities.[4]

The management of migraine includes both acute medications and prophylactic treatment.[5] Because migraine can be observed as a progressive or pervasive disorder, the prophylactic treatment may slow or prevent such progression[6,7]. Prophylactic treatments may include medications such as topiramate[8], gabapentin[9], tizanidine[10], fluoxetine[11], amitriptyline[6], and valproate[12] or local injections of botulinum neurotoxin[13].

For acute treatment, options included analgesics such as acetylsalicylic acid and acetaminophen (paracetamol), the combination of analgesics with caffeine, non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, naproxen, ketoprofen or diclofenac[14,15], and other medications with less clear mechanisms of action, such as metamizole[16]. Ergotamine preparations have also been used.[17]

Depending on the measure used, many patients are non-responsive to the aforementioned treatments; therefore, new drugs[18] have been proposed. Successful new approaches for the treatment of acute migraine target calcitonin gene-related peptide (CGRP) and serotonin (5-hydroxytryptamine, 5-HT1F) receptors. In migraine prevention, the most promising new approaches are humanised antibodies against CGRP or the CGRP receptor.[18] Alternative approaches[19,20] include food or dietary supplements that provide medicinal or health benefits (i.e. riboflavin, coenzyme Q10, magnesium, butterbur root extract, and feverfew)[21], behavioral interventions (i.e. relaxation, thermal, electromyographic biofeedback, stress management and cognitive-behavioural therapy) which have been used in migraine therapy to help patients to better cope with symptoms and identify potential triggers for headache[22,23], invasive or non-invasive neuromodulation[20], acupuncture[13], [24], meditation[25,26], and others. Although the efficacy of behavioral interventions for migraine is well established, other emerging behavioral therapies show considerable promise for improving outcomes of migraine patients, particularly in reducing headache-related disability and affective distress, but efficacy to date is limited.[23]

Despite the numerous treatments available, many people suffer prolonged and frequent attacks which have a major impact on their quality of life. The majority of studies focused solely on efficacy, tolerability or discontinuation rates of treatments; however, some migraineurs may never achieve the goal of becoming permanently pain free and treatments may prioritise the outcome of improved functioning above symptom reduction.

Nevertheless, the patient's perception of an improvement of symptoms and a cure of migraine is still unknown. Therefore, we conducted a qualitative study to understand the patient's perspective concerning migraine cure and which treatment outcomes are most important for those patients.

Material and Methods

Experimental Design

This study enrolled 1,102 patients fitting the International Classification of Headache Disorders (ICHD-3) migraine criteria[1] seeking medical care, from January to December 2015, at the Brain Research Institute at Albert Einstein Hospital, located in Sao Paulo, Brazil.

All patients answered questions concerning their medical care, preference for treatment, and opinions on migraine cure via a web-based survey.

Written informed consent was obtained, in which patients agreed to share their responses for research purposes, and the study was approved by the local institutional review board.

Questionnaire

The online-based survey was accessed via the institute's website and consisted of three main sessions. The first session contained questions concerning demographic data such as age and sex and description of migraine symptoms; the second session included migraine diagnosis and treatment; and the third session investigated the patient's opinion about migraine cure and which treatment they would consider taking (Table1).

Statistical analysis

Data are expressed as the mean ± standard deviation for continuous variables, while percentages are used for categorical variables. Generalised linear models (GzLM) were used to investigate the following relationships:

- Participants' sex and migraine intensity (from one to ten), using gamma with log link distribution;
- Chronic migraine and migraine cure belief, using binary logistic regression;
- Participants' sex and age and (i) chronic migraine, and (ii) migraine cure belief, using binary logistic regression.

The results are expressed as unstandardised regression coefficient (B), or odds ratio (OR), with 95% confidence intervals (CI) and p-values. The a error rate adopted was 5%. The analysis was performed using SPSS Statistics 21 (IBM, New York, New York, USA).

Table 1. Description of the online-based survey

Questions	Possible answers
How long have you been experiencing headaches for?	*Fill in the blank*
How many days per month do you experience headaches?	*Fill in the blank*
On how many of these days do you have a headache that is disabling (made you stop doing something or made it difficult for you to do something)?	*Fill in the blank*
From one to ten, what is the intensity of the headache (one is the weakest possible and ten is the strongest possible)?	*Fill in the blank*
Which of the following descriptions best describe your headache crises?	Pulsating, throbbing pain Weight or tightening on the head Twinge of pain Burning
Where in the head do you feel the pain?	Switches from one or the other side of the head On one side of the head On both sides of the head
What other symptoms do you experience?	Nausea or vomiting Anxiety or tension Unpleasant with noise Smothered by smells Discomfort with light Worsening pain with movements Irritability
Do dark spots, light spots, or zigzag lines appear in your vision before or during the headache?	Yes Not
For how long do dark spots, light spots, or zigzag lines appear in your vision before or during the headache?	A few seconds Less than five minutes Five to sixty minutes More than sixty minutes
Would you take any measures to prevent headaches, such as daily medicine intake?	Yes Not
Have you looked for a physician to treat your headaches?	Never Yes, a gynaecologist Yes, a general practitioner Yes, a psychiatrist Yes, a neurologist Yes, others
Have you had any tests to detect the causes of your headaches?	No never Yes, general blood tests Yes, computed tomography Yes, electroencephalogram Yes, magnetic resonance imaging
Do you believe that there is a cure for migraines?	Yes Not
Which of the following do you consider to be indicative of a migraine cure?	50% improvement in migraine attacks 90% improvement in migraine attacks Never again experiencing a headache Never again experiencing a strong headache For a month to pass without a headache For a month to pass with controlled, weak headaches For three months to pass without a headache For three months to pass with controlled, weak headaches For one year to pass without a headache For one year to pass with controlled, weak headaches For three years to pass without a headache For three years to pass with controlled, weak headaches To stop a migraine attack faster
Considering that the following treatments are effective, which ones would you take?	Daily prescription medicines for three months Daily prescription medicines for one year Botox injections every six to twelve months Acupuncture once a week for three months Psychotherapy once a week for three months Physiotherapy once a week for three months Religious, spiritual treatment, once a week for three months Daily herbal medicine for three months Daily herbal medicine for one year Exercising three times a week for three months Exercising three times a week for a year

Results

A total of 1,102 subjects participated in the survey, of which 935 were women (84.9%) and 166 (15.1%) were men. The mean participant age was 33.3 years ± 10.4 (range: 7–77). The mean period experiencing migraine was 14.4 years ± 10.3 (range: 1–63). The mean number of days per month experiencing migraine was 13.6 days ± 8.8 (range: 1–30). The mean number of days experiencing disabling migraine was 6.5 days ± 5.8 (range: 1–30). Chronic migraine (frequency ≥ 15 days per month) was observed in 498 (45.2%), and episodic migraine in 604 participants (54.8%).

Table 1. Description of the online-based survey

Questions and answers	n (%)
From one to ten, what is the intensity of the headache (one is the weakest possible and ten is the strongest possible)?	
1	4 (0.4)
2	4 (0.4)
3	8 (0.7)
4	14 (1.3)
5	49 (4.4)
6	60 (5.4)
7	146 (13.2)
8	313 (28.4)
9	196 (17.8)
10	308 (27.9)
Which of the following descriptions best describe your headache crises?	
Pulsating, throbbing pain	904 (82.0)
Weight or tightening on the head	461 (41.8)
Twinge of pain	341 (30.9)
Burning	152 (13.8)
Where in the head do you feel the pain?	
Switches from one or the other side of the head	525 (47.6)
On one side of the head	345 (31.3)
On both sides of the head	232 (21.1)
What other symptoms do you experience?	
Nausea	859 (78.0)
Vomiting	384 (34.8)
Anxiety or tension	520 (47.2)
Unpleasant with noise	834 (75.7)
Smothered by smells	650 (59.0)
Uncomfortable with light	873 (79.2)
Worsening pain with movements	778 (70.6)
Irritability	762 (69.1)
Do dark spots, light spots, or zigzag lines appear in your vision before or during the headache?	
Yes	594 (53.9)
Not	508 (46.1)
For how long do dark spots, light spots, or zigzag lines appear in your vision before or during the headache?	
A few seconds	214 (19.4)
Less than five minutes	156 (14.2)
Five to sixty minutes	180 (16.3)
More than sixty minutes	70 (6.4)
Have you searched for a physician to treat your headaches?	
Not	109 (9.9)
Yes, a gynaecologist	163 (14.8)
Yes, a general practitioner	290 (26.3)
Yes, a psychiatrist	111 (10.1)
Yes, a neurologist	803 (72.9)
Yes, others	155 (14.1)
Have you had any tests to detect the causes of your headaches?	
No, never	289 (26.2)
Yes, general blood tests	361 (32.8)
Yes, computed tomography	525 (47.6)
Yes, electroencephalogram	426 (38.7)
Yes, magnetic resonance imaging	287 (26.0)
Do you believe there is a cure for migraine?	
Yes	507 (46.0)
Not	595 (54.0)
Which of the following do you consider to indicate a migraine cure?	
50% improvement in migraine attacks	63 (5.7)
90% improvement in migraine attacks	417 (37.8)
Never again experiencing a headache	308 (27.9)
Never again experiencing a strong headache	274 (24.9)
For a month to pass without a headache	117 (10.6)
For a month to pass with controlled, weak headaches	33 (3.0)
For three months to pass without a headache	57 (5.2)
For three months to pass with controlled, weak headaches	15 (1.4)
For one year to pass without a headache	77 (7.0)
For one year to pass with controlled, weak headaches	35 (3.2)
For three years to pass without a headache	59 (5.4)
For three years to pass with controlled, weak headaches	37 (3.4)
To stop a migraine attack faster	424 (38.5)
'	
Daily prescription medicine for three months	559 (50.7)
Daily prescription medicine for one year	489 (44.4)
Botox injections every six to twelve months	286 (26.0)
Acupuncture once a week for three months	530 (48.1)
Psychotherapy once a week for three months	290 (26.3)
Physiotherapy once a week for three months	312 (28.3)
Religious, spiritual treatment, once a week for three months	221 (20.1)
Daily herbal medicine for three months	328 (29.8)
Daily herbal medicine for one year	340 (30.9)
Exercising three times a week for three months	312 (28.3)
Exercising three times a week for a year	511 (46.4)

Migraine intensity was significantly higher in female participants than in male participants (8.3 ± 0.1 vs. 7.8 ± 0.1, p = 0.002, respectively, B: 0.058, CI: 0.020–0.096). Chronic migraine tended to affect female participants more than male participants (46.2% vs. 39.2%, p = 0.088). Chronic migraine was not significantly associated with participants' age (OR: 1.000, CI: 0.989–1.012, p = 0.935).

A total of 45.2% of female participants and 50.0% of male participants reported believing that there is a cure for migraine (p = 0.258). There was a significant difference in the rate of migraine cure belief between patients with acute and chronic migraine (49.0% vs. 42.4%, p = 0.027, respectively; OR: 0.765, CI: 0.602–0.971). Believing in a cure for migraine was neither significantly associated with participants' sex (OR: 0.826, CI: 0.594–1.150, p = 0.257) nor with participants' age (OR: 0.997, CI: 0.985–1.008, p = 0.579).

Discussion

Despite the major advances in defining migraine pathophysiology and the subsequent discovery of novel medicines for the acute treatment and prevention of migraine headaches, the process of conducting research and analysing evidence reveals gaps in our understanding of which and how treatments should be conducted and for which kind of patient. There is also a general lack of understanding concerning patient beliefs and treatment decision processes related to the use of migraine medications.

The present study investigated the patient's perspective of migraine cure and which treatment outcomes are most important for migraine patients. When asked about the cure for migraine, the majority of patients reported not believing in the cure and less than one-third of participants consider migraine cure as to "never experience a headache again" or to "never experience a strong headache again", while most patients consider "stopping a migraine attack faster" or a "90% improvement in migraine attacks" to indicate a migraine cure. In addition, there was a significant difference in the rate of migraine cure belief between patients with acute and chronic migraine, with the belief in the cure of a migraine being decreased by more than 70% among chronic migraineurs.

As reported by Smitherman et al.[19], many chronic pain patients will never achieve the often unrealistic goal of becoming permanently pain free. Cognitive distortions as catastrophizing can negatively impact the patient´s perception of results, and adherence to treatment. Therefore, the clinician-patient conversation about preventive therapies must set realistic expectations regarding the likely magnitude of benefit, considering that a reduction but not elimination of migraine burden is expected. Providing a rationale education is critical for engaging patients with migraine in treatment.[27]

Patients with chronic migraine represent the more severe end of the spectrum. To meet diagnostic criteria for chronic migraine, patients must have a history of migraine, and have had a headache for more than 14 days a month for at least 3 months.[1] Our evidence suggests that this group of patients have less hope of a cure. Future studies could investigate the consequences of these belief, as non-adherence to treatment.

It has been described that feelings of pain and aspects of emotional, physical, and social functioning impacted by pain may influence treatment outcomes.[28] Also, the pain behaviour is influenced by private events, including thoughts and beliefs and one's response to those cognitive processes.[28] In light of this, psychological approaches to treat chronic pain may be valuable.

Alternative treatments including acceptance and commitment therapy[28], mindfulness-based interventions[27, 29], and others have been investigated and proved to be efficient for the treatment of migraine. When asked which treatment to consider, most patients opted for more conventional approaches, such as taking "daily prescription medicines" or to "exercising three times a week"; however, other less conventional strategies have also been considered, such as acupuncture and, by fewer participants, even religious and spiritual treatments.

The treatments suggested here and other aforementioned alternatives are preventive approaches. However, "to have the migraine attacks blocked faster" was considered to indicate a cure for migraine by most of the participants. In a previously reported analysis of the needs and expectations of patients who present to the emergency department for the management of migraine, it was also observed that migraine patients express an appreciation for medications that afforded the rapid and durable relief of headache; however, complaints about medication-induced side effects, particularly drowsiness and dizziness, are also common.[30]

There are many options for acute migraine attack treatment, but none are ideal for all patients. It was recognised over

a century ago that patient response to medications for migraine attacks is idiosyncratic and that treatment must be tailored to the individual.[31] Medication choice for the acute treatment of migraine attacks is difficult, given the multiple medications available and the fact that one cannot predict which medication will work best for any given patient.[32]

Acute migraine treatment in chronic migraine is particularly important. The acute medications used in these cases are the same as those used in episodic migraine and acute migraine; in chronic migraine, however, presents a difficult challenge because of the high headache frequency and the importance of avoiding medication overuse.[31]

Corroborating previous reports, it was observed in the present study that women are more likely to have migraine than men. Burch et al.[3] reported that one in five women between the ages of 15 and 64 years old have experienced migraine or severe headache in the previous three months. The female preponderance of migraine seems to be related to hormonal milestones[33, 34]. Considerable evidence has linked ovarian steroid hormones oestrogen and progesterone to migraine.[35-37] Fluctuations in oestrogen levels influence migraine attacks, with oestrogen withdrawal before menses probably being a notable trigger[38]. This highlights the importance of expanding knowledge of reproductive endocrinology in the management of migraine in the largest population of migraineurs, in women.

This study has limitations. Given the self-reported nature of this survey, the possibility of misreporting cannot be excluded. In addition, the survey enrolled patients seeking medical care at a Brain Research Institute, where severe migraineurs are likely over-represented compared with the general population. More than 45% of our population were chronic migraineurs, which is not representative of the general population. Nevertheless, data acquired from this population could help to understand the perspective concerning migraine treatment and cure of a large cross-section of the most disabled migraineurs.

In conclusion, some points that were important to migraineurs have been identified in this study. Despite the majority of our patients showing disbelief in the existence of a migraine cure, most of those that reported believing in a cure considered "cure" a rapid relief of headache. In addition, chronic migraineurs' belief in the existence of a migraine cure was dramatically affected. Ultimately, the findings of this study may facilitate the migraine treatment decision process by providing a better understanding of patients' perspectives and beliefs, thus creating a more friendly communication between migraineurs and care providers and hopefully, improving patients' quality of life.

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