Original Article :

Does The Saudi Population Have Awareness and Perception Regarding New Treatment Options Other Than Medications For Migraine

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Abstract

Background and Aims:

Migraine is the sixth most frequent disease globally and is the second leading cause of years lived with disabilities globally disease worldwide. The options for treatment were limited, until recently. The options and methods are increasing in numbers and ways.

The goal of this research is to assess the awareness and perception of the Saudi population towards treatment options for migraine other than prescribed medications.

Methods:

The study is an analytical cross-sectional. We targeted the Saudi population. The data was collected starting from Jan till the end of Feb 2022. The survey was optional and distributed online. A total of 1380 responses were collected. We used R studio (v.4.1.2) to summarize, visualize, and statistically analyze the data. The p-value of Fisher's exact test and Pearson's chi squared test were used to assess the statistical differences for qualitative data.

Results:

More than one-half (54.3%) of the participants used pain killers for migraine treatment; however, those who used specific drugs such as Sumatriptan, Eletriptan, or Ergotamine accounted for only 41.9%. Most respondents (n = 702, 55%) chose "avoiding noise and bright light" as non-pharmacological measure to relieve migraine. On the other hand, only 93 (7.3%) participants from the sample group knew that surgery is an available option for treating migraine, making it the least chosen option. Almost a third of respondents (31.8%) accepted when they were asked to whether they would accept other interventional treatments if diagnosed with migraine. Females were more willing to accept these options (36%), whereas only 23% of males agreed. The awareness of the respondents, the diagnosed respondents, and the non-diagnosed were (n=515, 40%), (n=112, 60%), and (n=403, 37%) respectively. The comparison was statistically significant with P-value <0.001.

Conclusions:

Awareness of the Saudi population about migraine treatment other than medications is generally low. Physicians treating patients with migraine are advised to educate them about the disease and the treatment options to raise awareness. Also, empowering social media with trusted information plays a

major role in raising awareness and spreading knowledge as it appeared to be an important source for diagnosed and non-diagnosed in this study results.

Keywords:
Migraine, Treatment, Interventional, Awareness, Perception.

Introduction

Chronic migraine (CM) is a well-known disease, defined as ≥15 headache days/month for more than 3 months, with a minimum of 8 days/month meeting the criteria for migraine.[1] The global prevalence rates of CM range from 1.4% to 2.2%.[2] Moreover, in Saudi Arabia, the prevalence of migraine is 26.97%, with female predominance (ratio of 1:2.9).[3] Migraine patients are large in numbers, as it is the 6th most common disease worldwide (1.04 billion), and the second leading cause of years lived with disabilities globally (45.1 million, 5.6% of the total years lived with disabilities).[4] According to International Headache Society criteria, more than 50% of migraine patients have never been diagnosed. Poor patient-physician communication, the patient's visit outside of the episode time, the patient's description retrospectively, and the duration of the clinic visit were all mentioned as factors that lead to misdiagnosing CM.[5] Compared to patients with episodic migraine (EM), patients with CM use more healthcare resources, resulting in a higher direct cost and a higher indirect cost due to missed workdays and decreased productivity.[6]

There are many theories explaining the pain of migraine. A theory proposed that pain in migraine headaches is caused by the overactivation of pain sensory fibers from intra- and extracranial blood vessels.[7] A newer, alternative theory postulates that migraine headaches are the result of the compression of peripheral nerves at specific trigger sites. This theory was proposed in 2000 by Guyuron after patients who underwent corrugator supercilii resection for cosmetic brow lift reported improvement in migraine headaches.[8]

Throughout the years, migraine patients have had challenges dealing with it. The options for treatment were limited; however, recently, the options and methods are increasing in numbers and ways. Medication treatment is considered the first choice for patients with migraine. Some choices are not strongly considered to treat migraines, such as surgical procedures, which demonstrated that corrugator supercilii excision eliminated or significantly relieved migraines. The physical elimination of extracranial trigger sites, a well-established therapy modality, is the process by which

peripheral trigger site deactivation relieves or eliminates migraine headaches; this procedure is also known as migraine surgery. For specific migraineur with extracranial triggers surgery is now considered a safe and effective.[9]

One of the most studied preventative therapies for CM is an intramuscular injection of onabotulinumtoxin A (OBT-A). OBT-A inhibits intraneuronal vesicular fusion at the molecular level, altering neuropeptide release and downregulating the receptors and ion channels involved in nociception.[10] Clinical trials have demonstrated the efficacy of OBT-A as a preventative treatment for patients with CM and evidence of long-term safety and tolerability.[11]

In 2020, a study was conducted to compare the effectiveness of peripheral trigger site deactivation surgery and OBT-A injection. It revealed that peripheral trigger site deactivation surgery costs less than the OBT-A injection.[12]

Patient's adherence and compliance to prescribed medications is very low. A study was done on 8668 patients showed that adherence to medications was only 26-29% at six months and 17-20% at 12 months. [13]

In this study, we aim to assess the awareness and perception of the Saudi population towards newer treatment options for migraine other than prescribed medications.

Methods

The study is an analytical cross-sectional. The survey was administered online through google forms. Link of the survey was distributed through social media. The respondents participated voluntarily and anonymously. A total of 1380 responses were collected. Inclusion criteria to include the participants in the study were people who live in Saudi Arabia, and who were above 18 years old. The data was collected starting from Jan till the end of Feb 2022. All responses were exported into an Excel file. The respondents with contradicting answers were removed and data were ready for analysis. The validity of responses was checked by comparing the answers to relevant questions. If any contradiction was elicited, the response was removed from the analysis. We used R studio (v.4.1.2) to summarize, visualize, and statistically analyze the data. Demographic data were presented for all respondents and divided according to migraine diagnosis. The p-value of Fisher's exact test and Pearson's chi-squared test were used to assess the statistical differences. We considered the difference statistically significant when the test's p-value ≤ 0.05. Furthermore, willingness to accept other treatment options than pills analyzed and comparison between diagnosed and others was done. Thus, respondents' characteristics were compared

accordingly. Moreover, a logistic regression model was used to calculate the odds ratio (OR) and 95% CI for different variables associated with acceptance of other interventional treatments as an option for treatment of migraine. The OR was considered statistically significant when the p-value ≤ 0.05. We used C-statistics to assess the goodness of fit of the logistic regression model. The model was considered fit when C-stat > 0.5. The research was approved by the ethics committee at Imam Mohammad Ibn Saud Islamic University prior to conduct (number 176-2021).

Results

We collected a total of 1380 responses from Saudi Arabians. However, only 1274 responses were included in the analysis. The remaining were excluded as explained previously in the "Methods" section.

Respondents who were previously diagnosed with migraine accounted for 14.6% of the sample. The age of respondents was classified into five groups, where 58% were between the ages of 18 and 29 years, while only 2% were 60 years or older. Moreover, a statistically significant difference between the age groups for migraine diagnosis was observed, with a p-value < 0.001. Females represented 68% of the whole sample and 72% of those diagnosed with migraine, with no significant statistical difference based on gender. Although most respondents were students (49% of the sample), 79% of respondents diagnosed with migraine were employees. The difference in occupation category according to migraine diagnosis was statistically significant with a p-value < 0.001. More details are shown in (Table 1).

Table (1): Demographic characteristics of respondents

Demographic Characteristic				
Variable	Overall, N = 1,274[1]	Migraine Diagnosis		p-value
		Diagnosed, N = 186[1]	Not Diagnosed, N = 1,088[1]	
Age Groups				<0.001
18 - 29	735 (58%)	74 (40%)	661 (61%)	
30 - 39	217 (17%)	44 (24%)	173 (16%)	
40 - 59	297 (23%)	63 (34%)	234 (22%)	
60 or more	25 (2.0%)	5 (2.7%)	20 (1.8%)	
Gender				0.2
Female	861 (68%)	133 (72%)	728 (67%)	
Male	413 (32%)	53 (28%)	360 (33%)	
Education level				0.027
High education	101 (7.9%)	24 (13%)	77 (7.1%)	
University education	915 (72%)	120 (65%)	795 (73%)	
Secondary or less	255 (20%)	42 (23%)	213 (20%)	

Demographic Characteristic				
Variable	Overall, N = 1,274[1]	Migraine Diagnosis		p-value
		Diagnosed, N = 186[1]	Not Diagnosed, N = 1,088[1]	
Uneducated	3 (0.2%)	0 (0%)	3 (0.3%)	
Occupation				<0.001
Employee	386 (30%)	79 (42%)	307 (28%)	
Student	630 (49%)	63 (34%)	567 (52%)	
Unemployed	258 (20%)	44 (24%)	214 (20%)	

[1] n (%)

[2] Fisher's exact test; Pearson's Chi-squared test

Participants who were previously diagnosed with migraine were asked about the treatment they use to relieve the headache pain. Their answers showed that 54.3% use pain killers for migraine treatment; however, those who used specific drugs such as Sumatriptan, Eletriptan, or Ergotamine accounted for only 41.9%.

Furthermore, respondents were asked about what they knew about other treatment options for migraine other than pills. It was a multiple-choice question that yielded varying responses from respondents. Most respondents (n = 702) chose avoiding noise and bright light to relieve migraine, followed by getting better sleep and eating healthy and drinking more water as other options for migraine treatment (n = 550 and n = 525, respectively). On the other hand, only 93 (7.3%) participants knew that surgery is an option for treating migraine, making it the least chosen option (Figure 1).

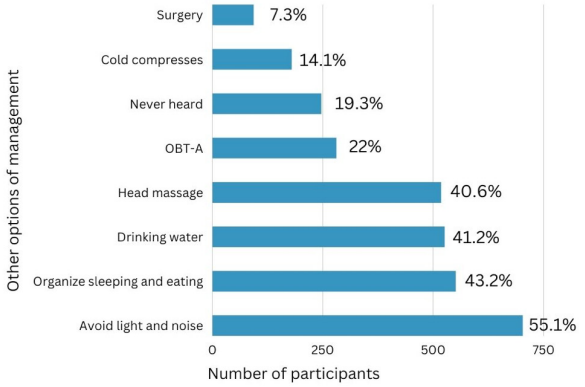


Figure 1:Knowledge of Respondents on Different Treatment Options for Migraine Other Than Pills.

According to the survey, the primary source of knowing the previously mentioned options differed depending on migraine diagnosis, as shown in (Table 3). In particular, the primary source of information for patients diagnosed with migraine was the specialist physician. However, the majority of those not diagnosed relied on social media for information. In addition to those two sources, migraine patients and search engines represented the second two common methods. The awareness of the respondents, the diagnosed respondents, and the non-diagnosed were (n=515, 40%), (n=112, 60%), and (n=403, 37%) respectively. The comparison was statistically significant with P-value <0.001.

We asked the participants whether they would accept other interventional treatments if diagnosed with migraine. Almost a third of respondents (31.8%) accepted these options. Females were more willing to accept these options (36%), whereas only 23% of males agreed. This difference was highly statistically significant, with a p-value < 0.001. Moreover, participants with high education showed a higher acceptance rate than those with university or secondary education. However, the difference was not statistically significant, with a p-value = 0.8. More details are given in (Table 2).

Moreover, a multiple logistic regression model was used to indicate the OR for each variable in accepting other interventional treatments as a treatment option for migraine (Table 4). Compared to females, males showed a highly statistically significant lower OR (OR = 0.52, 95%CI [0.39–0.69]; p-value < 0.001). Although all age groups showed lower OR compared to the 18–29 age group, participants who were 60 years of age or older showed the low-

Table (2): Respondents' willingness to accept other interventional treatments according to demographic data.

Willingness to accept other interventional treatments			
Variable	Acceptance		**p-value**[2]
	no, N = 869[1]	**Yes**, N = 405[1]	
Age Groups			0.4
18 - 29	497 (68%)	238 (32%)	
30 - 39	149 (69%)	68 (31%)	
40 - 59	202 (68%)	95 (32%)	
60 or more	21 (84%)	4 (16%)	
Gender			<0.001
Female	550 (64%)	311 (36%)	
Male	319 (77%)	94 (23%)	
Education level			0.8
High education	65 (64%)	36 (36%)	
University education	630 (69%)	285 (31%)	
Secondary or less	172 (67%)	83 (33%)	
Uneducated	2 (67%)	1 (33%)	
Occupation			0.3
Employee	258 (67%)	128 (33%)	
Student	425 (67%)	205 (33%)	
Unemployed	186 (72%)	72 (28%)	
Migraine diagnosis			0.2
Diagnosed	120 (65%)	66 (35%)	
Not Diagnosed	749 (69%)	339 (31%)	

[1] n (%) by row

[2] Pearson's Chi-squared test; Fisher's exact test

est and the only statistically significant OR (OR = 0.3, 95%CI [0.08–0.84]; p-value = 0.36). Additionally, the number of known treatment options other than pills showed a statistically significant positive OR, indicating that the more options the participants know, the more they are willing to accept other interventional treatments (OR = 1.18, 95%CI [1.09–1.27]; p-value < 0.001). The C-stat was calculated for the above model, and it was 0.62, indicating a fit model.

Table (3): Respondent's awareness towards other Migraine's treatments.

Variable	Diagnosed, N = 186[1]	Not Diagnosed, N = 1,088[1]
Books	3 (1.6%)	13 (1.2%)
By someone diagnosed with migraine	24 (13%)	95 (8.7%)
Family	1 (0.5%)	5 (0.5%)
Never heard	74 (40%)	685 (63%)
Other	1 (0.5%)	3 (0.3%)
Search Engines	12 (6.5%)	57 (5.2%)
Social media	32 (17%)	177 (16%)
Specialist doctor	39 (21%)	53 (4.9%)

Table (4): Multiple logistic regression of variables associated with acceptance of other interventional treatments as migraine treatment

Characteristic	OR[1]	95% CI[1]	p-value
(Intercept)	0.45	0.29, 0.69	<0.001
Gender			
Female	—	—	
Male	0.52	0.39, 0.69	<0.001
Education level			
University education	—	—	
High education	1.64	1.01, 2.62	0.042
Secondary or less	1.06	0.78, 1.43	0.7
Uneducated	1.64	0.07, 18.6	0.7
Migraine diagnosis			
Diagnosed	—	—	
Not Diagnosed	0.90	0.64, 1.27	0.6
Age groups			
18 - 29	—	—	
30 - 39	0.80	0.57, 1.13	0.2
40 - 59	0.79	0.58, 1.07	0.13
60 or more	0.30	0.08, 0.84	0.036
Number of options known	1.18	1.09, 1.27	<0.001

[1] OR = Odds Ratio, CI = Confidence Interval

Discussion

This research to the best of our knowledge is the first to investigate variables correlated with awareness towards options other than prescribed medications for treating migraine using unprompted options for response. Literature has discussed the awareness of migraine in terms of diagnosis and triggers, however to our knowledge no research done discussed the awareness towards options of management.

Awareness of the Saudi population about migraine treatment with interventional treatments was low in general. Only 4.1% had knowledge regarding surgery option. The general knowledge about the treatment through OBT-A injection is slightly higher (21.9%). This agrees with our hypothesis that the Saudi population, in general, has limited knowledge about the subject. The survey showed that the primary source of information for a patient with migraine was the specialist physician, accounting for 35%. However, most of those who were not diagnosed depended on social media as a source of knowledge (45%). We recommend that the physicians treating patients with migraine educate them about the disease and the treatment options to raise awareness. On the other hand, as showed by this study social media plays a major role in raising awareness and spreading knowledge.

Multiple studies support the use of OBT-A as a prophylactic treatment for migraine attacks.[14-16] A previous study has revealed the serious adverse effects of CM on patients' jobs and family life and detailed their experiences. Patients with CM should not expect to be pain-free after treatment; however, they should believe that the severity of discomfort and the frequency of migraines will be reduced.[14]

It is well known that bright light and noise are triggers for migraine attacks. Thus, avoiding any source of noise and adjusting the lighting will help reduce the headaches. Moreover, disturbed sleep dramatically affects the daily activities of migraine patients and increases the episodes.

This study reveals that the participants diagnosed with migraine tend to say no to the other interventional treatments. At the same time, females significantly showed more acceptance of these options than males.

The data collection method of this study was conducted by a survey distributed throughout the social media platforms. Despite the advantages that this method offers, there are disadvantages. The accuracy of the information obtained from the survey is compromised, as some cannot understand or choose while having reading disabilities. Also, this is true for people who have no access to online services

and this type of data collection will end with non- probability sample. Fortunately, the advantages of this kind of research outweigh its disadvantages because it will give researchers access to new and larger populations with a wider range of traits.

Conclusion

Awareness of the Saudi population about migraine treatment other than medications is generally low. Physicians treating patients with migraine are advised to educate them about the disease and the treatment options to raise awareness. Also, empowering social media with trusted information plays a major role in raising awareness and spreading knowledge as it appeared to be an important source for diagnosed and non-diagnosed in this study results. We recommend CMD-related organizations, Ministry of health, Governmental and Private hospital to take a step towards the social media and enrich it with trusted information to guide and educate the population.

Sources of support

No source of support.

Conflicts of interest to declare

There is no conflict of interest to declare.

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