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Research Submission

Development and Validation of the Migraine Screen Questionnaire (MS-Q)

Miguel J.A. Láinez, MD, PhD; Manuel Domínguez, MD, PhD; Javier Rejas, MD, PhD; Gemma Palacios, PhD; Encarnación Arriaza, MD; Margarida Garcia-Garcia, MSc; María Madrigal, MD

Aim.—To develop and evaluate the clinimetric properties of a new migraine screening questionnaire: the Migraine Screen Questionnaire (MS-Q).

Background.—Migraine is a public health problem requiring screening programs and tools to ensure early detection.

Methods.—A questionnaire was developed based on the criteria of the International Headache Society (IHS) and a review of the literature by a committee of experts. Stage I: The original version of the MS-Q was distributed by mail and completed by Pfizer employees and self-administered to neurological patients; all subjects were afterward evaluated by a neurologist who was blinded to the MS-Q results, to establish an independent IHS diagnosis. Stage II: A final version of the MS-Q was administered to neurological patients to confirm clinimetric properties. Logistic regression and receiver–operator characteristic curve statistical methods were used and the 95% confidence interval, sensitivity, specificity, and positive (PPV) and negative (NPV) predictive values, were estimated.

Results.—Of the 605 subjects recruited, 465 were evaluable (325 in stage I and 140 in stage II). Of the original 15 items, 5 conformed the final version of the MS-Q: frequency and intensity of headache; a duration of between 4 hours and 3 days; nausea; sensitivity to light/noise; and disability. A cutoff point of $\geq$4 points showed a sensitivity of 0.93 (95% CI = 0.87 to 0.99), specificity of 0.81 (95% CI = 0.72 to 0.91), PPV of 0.83 (95% CI = 0.75 to 0.91), and NPV of 0.92 (95% CI = 0.85 to 0.99). Cronbach's alpha coefficient = 0.82.

Conclusions.—The MS-Q showed adequate validity and reliability, and it could be a good screening tool for application to clinical practice and research.

Key words: migraine, primary care, questionnaire, screening, validation

Abbreviations: MS-Q Migraine Screen Questionnaire

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From Hospital Clínico Universitario, Universidad de Valencia, Neurology Department, Valencia, Spain (Dr. Láinez); Hospital Puerta de Hierro, Neurology Department, Madrid, Spain (Dr. Domínguez); Pfizer SA, Health Outcomes Research, Medical Unit, Madrid, Spain (Dr. Rejas); Pfizer SA, CNS Therapeutic Area, Medical Unit, Madrid, Spain (Drs. Palacios and Madrigal); Pfizer SA, Company Medical Service, Madrid, Spain (Dr. Arriaza); Biométrica CRO, Project Management Department, Barcelona, Spain (Ms. Garcia-Garcia).

Address all correspondence to Dr. Miguel J.A. Láinez, Hospital Clínico Universitario, Universidad de Valencia, Neurology Department, Avda. Blasco Ibáñez 17, 46010 Valencia, Spain.

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Migraine is one of the most frequent primary headaches. Active migraineurs account for 10% of the general population,[1] and the prevalence of migraine in the course of a lifetime is at least 18%.[2,3] On the other hand, beyond 16 years of age, the prevalence of migraine is two- to threefold greater in females than in males.[4-6] In the United States, it is estimated that the 1-year prevalence of migraine is 17.2% in females and 6.0% in males,[6] having increased 56% the incidence of migraine in the last 10 years among women between 20 and 29 years of age.[7] In addition, the impact of migraine in terms of occupational productivity

is very important. It has been estimated that in the United States alone, the disorder is responsible for the loss of 113 million equivalent working days per year—representing economical losses in excess of 13 billion dollars annually.[8] Considering that migraine should be viewed as a public health problem, it is necessary to introduce screening programs and tools to ensure early detection[9] and thus reduce the mentioned occupational productivity losses. The occupational impact of migraine in a European country like Spain is similar to the United States, with a loss of 8.2 working days by migraineur and year, using the most comparable parameter that is the working days lost.[10]

However, despite the important prevalence[1-7] and enormous impact of migraine,[8,11-17] different studies have reported that the problem is in fact underdiagnosed and undertreated.[18,19] It has been calculated that fewer than half of all patients with migraine have been diagnosed with the problem at some time in life[20] and that only one third of these subjects have received some kind of treatment.[6,21] Moreover, because of such diagnostic deficiencies, migraine is often subjected to inadequate treatment, including the use of over-the-counter drugs and traditional analgesics—while the use of specific substances for migraine treatment is observed in only a small proportion of cases.[22] In this context, primary care physicians play a fundamental role in improving the diagnosis and management approach to migraine, since they are often the first to see the problem and refer patients to the neurologist as required.

In order to improve the detection and diagnosis of migraine in primary care, the Guidelines of the U.S. Headache Consortium recommend the use of screening tools to detect undiagnosed cases of migraine.[23] Accordingly, and in order to ensure that the disease is adequately diagnosed and treated, specific and validated screening instruments are required—ie, tools that can be used in clinical practice and which meet a series of clinimetric specifications including sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV), and reliability. As the clinimetric properties of a measure reflect its capability to indicate the characteristics and severity of a clinical manifestation, attempts have been made to develop different migraine screening tools, such as the Diagnostic Headache Diary,[24] the UCSD Migraine Questionnaire,[25] the ID Migraine,[26] the Brief Headache Screen,[27] the 3-Question Headache Screen,[28] and others.[29-33] Some of these tools are not applicable to clinical practice in the general population or primary care setting, or have shown clinimetric shortcomings.[24,27,29-31] Studies of other tools have revealed limitations in terms of a lack of confirmation of the diagnosis of migraine based on International Headache Society (IHS) criteria,[34,35] diagnosis by a specialized neurologist,[31,32] or regarding the study sample involved.[24,25,33] In this latter aspect, the results obtained are not always extendable to the general and primary care populations.[24,33] Recently, the ID Migraine questionnaire has shown adequate clinimetric properties, though its specificity is somewhat improvable (0.75, 95% confidence interval [95% CI]: 0.64 to 0.84).[26] Even more recently, the 3-Question Headache Screen has also demonstrated adequate clinimetric properties, though with shortcomings in terms of sensitivity (77% of true positive cases).[28]

The present study was therefore designed to develop and evaluate the clinimetric properties of a new migraine screening questionnaire, the Migraine Screen Questionnaire (MS-Q), for use in clinical practice and research in the general population and in occupational medicine.

MATERIALS AND METHODS

Selection and Description of Participants.—For the present evaluation of the psychometric properties of the MS-Q, two stages were required:

- **Stage I (preliminary validation).** This stage included individuals aged 18 years or older, who had been working full time for at least 3 months in a company (Pfizer). Women who were either pregnant or on maternity leave were excluded, as were those subjects unable to complete the questionnaires. In addition, this stage included 50 patients aged 18 years or older with a diagnosis of migraine according to neurologist evaluation and IHS criteria,[34,35] recruited in a neurological clinic. Written informed consent was obtained in all cases.

- **Stage II (confirmation of the clinimetric properties).** An additional 140 patients aged 16 years or older were recruited in a headache clinic. Of these subjects, 70 were required to present a diagnosis of migraine according to neurologist evaluation and IHS criteria,[34,35] while the remaining 70 had no migraine.

Procedures.—Prior to the study, the original version of the self-administered MS-Q was developed based on the migraine diagnostic criteria of the IHS.[34,35] The construction of this questionnaire was carried by a committee of experts: a neurologist (M.J.A.L.), a specialist in occupational medicine (E.A.), and four specialists in clinimetry and methodology (J.R., G.P., M.G.-G., and M.M), who defined the pool of questions based on IHS criteria,[34,35] leading to the original version of the MS-Q—comprising a total of 15 items (see Appendix I).

Following elaboration of the original version of the MS-Q, the construction and validation process with patients was carried out in the following two stages:

- **Stage I:** All Pfizer employees who met the selection criteria were contacted by mail and requested to complete a case report form including the original version of the MS-Q (see Appendix I), to be returned by mail along with the signed informed consent. Afterward, a visit was scheduled with the subjects for confirmation of the possible diagnosis of migraine by a neurologist, according to IHS criteria.[34,35] The original version of the MS-Q for the detection of cases of migraine (see Appendix I) was also applied to a sample of 50 patients with a diagnosis of migraine confirmed according to IHS criteria[34,35] by a neurologist. The neurologist evaluation was blinded to MS-Q results. Based on the original version comprising 15 items (see Appendix I) administered to the total sample of subjects included in this stage I, regression analysis yielded an intermediate version with four items: frequency and intensity of headache, a duration of between 4 hours and 3 days, nausea, and sensitivity to light/noise.
- **Stage II:** As a result of feedback from interviewers on stage I and panel expert, a final version of the MS-Q was formed with the previous intermediate version plus the addition of a fifth question exploring disability in which attribute being one of the most specific criteria for diagnosing migraine.[20] This version (see Appendix II) was administered by a neurologist to an additional sample of patients with confirmed migraine according to IHS and neurological patients without migraine. Clinimetric properties of this final version of the MS-Q were assessed.

Statistical Analysis.—The following methods were used to determine whether MS-Q version best suited as differential screening tool between patients with migraine and controls without migraine. First, backward and stepwise logistic regression analysis was used to determine the most relevant items of the original version for inclusion in the questionnaire, followed by fitting of the scores for each response option by adjusting the coefficients of the regression model. For this adjustment round numbers were used in order to simplify the scoring system for making it more feasible for use on clinical. Secondly, receiver–operator characteristic curve analysis was used to determine the sensitivity and specificity of the different scoring cutoff points—with estimation of the area under the curve (AUC), which is a measure of the correlation between prediction of the screening tool and the diagnostic gold standard. In addition, sensitivity, specificity, the PPV and NPV, and the positive and negative likelihood ratio, were calculated, with estimation of the corresponding 95% CI. These same parameters were calculated for the final version of the MS-Q for the overall score by groups of subjects according to sex and age ($\leq$44 and $>$44 years—as this was the median age) and for each item for the total sample. In addition, the reliability was assessed in terms of internal consistency by using the Cronbach's alpha coefficient.

After tabulating the study data and performing the corresponding quality control, all analyses were made using the SPSS version 11.5.1 statistical package (Chicago, IL).

RESULTS

Sample Description.—The Figure provides a schematic representation of the study samples, detailing the patients (recruited, evaluable, and excluded) in each of the samples in each of the two stages of

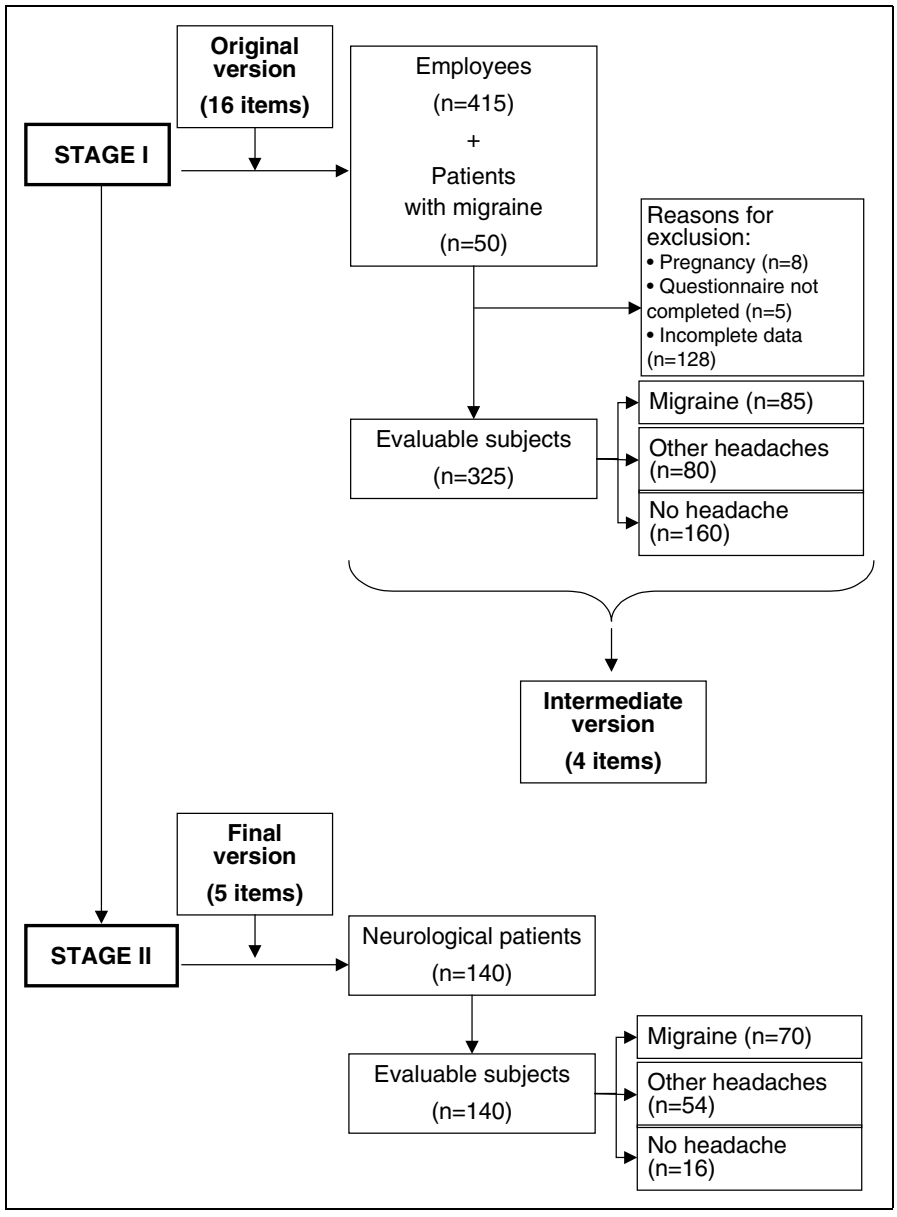

Fig.—Disposition of patients.

the MS-Q construction and validation process. The total sample comprised 605 recruited subjects (465 in stage I and 140 in stage II). This initial sample yielded 465 evaluable subjects (325 in stage I and 140 in stage II). Table 1 describes the principal sociodemographic characteristics and the diagnosis of migraine according to the neurologist and IHS criteria, for the two study samples.

MS-Q Construction and Validation Process.— Based on the 15 preliminary items administered in stage I, logistic regression analysis yielded an intermediate version of the MS-Q with four questions: frequency and intensity of headache; a duration of between 4 hours and 3 days; nausea; and sensitivity to light/noise. Finally, in stage II, the properties of the final version of the MS-Q, formed with the four items of intermediate version plus the item exploring disability, were assessed. Table 2 shows the results of the stepwise logistic regression analysis conducted in stage I, where the backward in addition to the stepwise technique was used, since the model initially obtained proved to be suboptimal, with the corresponding set of questions

Table 1.—Patient Characteristics

Characteristics	Stage I (n = 325)		Stage II (n = 140)	
Sex, n (%)	324	100.0	137	100.0
Male	187	57.7	37	27.0
Female	137	42.3	100	73.0
Age, m (SD)	36.5	7.7	39.2	13.0
Marital status, n (%)	311	100.0	—	—
Single	86	27.7	—	—
Married	220	70.7	—	—
Separated/Divorced	5	1.6	—	—
Diagnosis, n (%)	325	100.0	140	100.0
Migraine	85	26.2	70	50.0
Tensional headache	76	23.4	49	35.0
Cluster headache and chronic paroxysmal hemicrania	1	0.3	3	2.1
Secondary headache	2	0.6	2	1.4
Indeterminate headache	1	0.3	—	—
Without headache	160	49.2	16	11.4

selected as those offering the greatest migraine diagnosis predictive probability. Afterward, fitting was carried out of the scores for each response option by adjusting the coefficients of the regression model in order to simplify the scoring system. Table 3 describes the questions corresponding to the intermediate and final versions of the MS-Q.

Properties of the MS-Q as Screening Tool.—Table 4 describes the AUC and the sensitivity, specificity, and PPV and NPV performances with calculation of the corresponding 95% CI, for the intermediate and final versions of the MS-Q in the differential screening of individuals with and without migraine with cutoff points of ≥5 and ≥4, respectively. The lower limit for

Table 2.—Stage I—Preliminary Validation: Selection of Items for the Intermediate Version by Construction of a Logistic Regression Model

	B	SE	Wald	df	Sig.	Exp (B)	95% CI for Exp (B) Lower	Upper
MS-Q 1 (1). Do you have frequent or intense headaches?								
MS-Q 1 (1) (Yes)	2.099	0.535	15.405	1	0.000	8.158	2.860	23.272
MS-Q 2 (4). Do your headaches usually last more than 4 hours?								
MS-Q 2 (Never)	—	—	11.148	2	0.004	—	—	—
MS-Q 2 (1) (1–4 times)	2.491	0.746	11.148	1	0.001	12.069	2.797	52.073
MS-Q 2 (2) (5 or more times)	1.732	0.834	4.311	1	0.038	5.650	1.102	28.967
MS-Q 3 (5a). Do you usually suffer from nausea when you have a headache?								
MS-Q 3 (Never)	—	—	11.045	2	0.004	—	—	—
MS-Q 3 (1) (1–4 times)	1.418	0.605	5.498	1	0.019	4.129	1.262	13.509
MS-Q 3 (2) (5 or more times)	2.400	0.786	9.336	1	0.002	11.026	2.365	51.413
MS-Q 4 (5c). Does light or noise bother you when you have a headache?								
MS-Q 4 (Never)	—	—	6.297	2	0.043	—	—	—
MS-Q 4 (1) (1–4 times)	0.397	0.633	0.392	1	0.531	1.487	0.430	5.144
MS-Q 4 (2) (5 or more times)	1.779	0.719	6.126	1	0.013	5.924	1.448	24.236
Constant	−4.836	0.654	54.672	1	0.000	0.008	—	—

The question number of the original version administered in stage I (see Appendix I) is indicated in parentheses.

Table 3.—Stages I and II: Questions and Cutoff Scores of the Different MS-Q Versions Obtained and Evaluated

	Stage I (n = 325) Intermediate Version			Stage II (n = 140) Final Version	
MS-Q 1 (1). Do you have frequent or intense headaches?	0. No	2. Yes	—	0. No	1. Yes
MS-Q 2 (4). Do your headaches usually last more than 4 hours?	0. No	2. 1–4 times	2. 5 or more times	0. No	1. Yes
MS-Q 3 (5a). Do you usually suffer nausea when you have a headache?	0. No	0. 1–4 times	2. 5 or more times	0. No	1. Yes
MS-Q 4 (5c). Does light or noise bother you when you have a headache?	0. No	0. 1–4 times	2. 5 or more times	0. No	1. Yes
MS-Q 5 (–). Does headache limit any of your physical or intellectual activities?	0. No	1. Yes	0. No	0. No	1. Yes
Total MS-Q Score	Cutoff	Final Cutoff	Cutoff	Final Cutoff	
Migraine	≥4	≥5	≥5	≥4	
No migraine	<4	<5	<5	<4	

The question number of the original version administered in stage I (see Appendix I) is indicated in parentheses.

the mentioned interval was found to be <0.70 in the intermediate version of the questionnaire derived from stage I for sensitivity. Table 4 also describes reliability in terms of internal consistency of the the intermediate and final versions of the MS-Q—yielding a Cronbach's alpha coefficient higher than 0.70 in all cases.

Regarding the sensitivity, specificity, and the PPV and NPV of the final version of the MS-Q for males and females and for different age groups, sensitivity and NPV were greater in males (sensitivity = 1.00, 95% CI = 1.00 to 1.00; NPV = 1.00, 95% CI = 1.00 to 1.00) than in females (sensitivity = 0.91, 95% CI =

Table 4.—Stages I and II: Properties of the Different MS-Q Versions Obtained and Evaluated With Cutoff Points ≥5 and ≥4

	Stage I (n = 325)—Intermediate Version						Stage II (n = 140)—Final Version					
	Cutoff migraine if ≥5			Cutoff migraine if ≥4			Cutoff migraine if ≥5			Cutoff migraine if ≥4		
		95% CI			95% CI			95% CI			95% CI	
Property	Value	Lower	Upper	Value	Lower	Upper	Value	Lower	Upper	Value	Lower	Upper
AUC	0.9573	0.9302	0.9845	0.9573	0.9302	0.9845	0.9179	0.8705	0.9653	0.9179	0.8705	0.9653
Sensitivity	0.7089	0.6087	0.8090	0.9114	0.8487	0.9741	0.5217	0.4039	0.6396	0.9275	0.8664	0.9887
Specificity	0.9786	0.9601	0.9972	0.9145	0.8787	0.9504	0.9571	0.9097	1.0046	0.8143	0.7232	0.9054
PPV	0.9180	0.8492	0.9869	0.7826	0.6983	0.8669	0.9231	0.8394	1.0067	0.8312	0.7475	0.9148
NPV	0.9087	0.8732	0.9443	0.9683	0.9452	0.9914	0.6700	0.5778	0.7622	0.9194	0.8516	0.9871
PLR	33.1747	13.7801	79.8661	10.6633	6.9733	16.3060	12.1739	3.9329	37.6827	4.9944	3.0446	8.1930
NLR	0.2975	0.2108	0.4299	0.0969	0.0477	0.1967	0.4997	0.3886	0.6425	0.0890	0.0380	0.2085
Reliability (Cronbach's alpha coefficient)	0.8910	0.8699	0.9095	0.8910	0.8699	0.9095	0.8167	0.7636	0.8608	0.8167	0.7636	0.8608

AUC = area under the curve; PPV = positive predictive value; NPV = negative predictive value; PLR = positive likelihood ratio; NLR = negative likelihood ratio.

Table 5.—Stage II: Sensitivity and Specificity of the Different Items of the Final Version

	Stage II (n = 140) Final version					
	Sensitivity			Specificity		
		95% CI			95% CI	
Item	Value	Lower	Upper	Value	Lower	Upper
MS-Q 1 (1)	0.9286	0.8682	0.9889	0.5286	0.4116	0.6455
MS-Q 2 (4)	0.9000	0.8297	0.9703	0.6429	0.5306	0.7551
MS-Q 3 (5a)	0.6667	0.5554	0.7779	0.8714	0.7930	0.9498
MS-Q 4 (5c)	0.9714	0.9324	1.0105	0.5143	0.3972	0.6314
MS-Q 5 (–)	0.9571	0.9097	1.0046	0.6429	0.5306	0.7551

The question number of the original version administered in stage I (see Appendix I) is indicated in parentheses.

0.84–0.99; NPV = 0.87, 95% CI = 0.77–0.98), while specificity and PPVs were higher in females (specificity = 0.83, 95% CI = 0.72 to 0.94; PPV = 0.88, 95% CI = 0.80 to 0.96) than in males (specificity = 0.77, 95% CI = 0.62 to 0.93; PPV = 0.62, 95% CI = 0.38 to 0.86).

Table 5 describes the results corresponding to sensitivity and specificity of each of the five items of the final version of the MS-Q (frequency and intensity of headache; a duration of between 4 hours and 3 days; nausea; sensitivity to light/noise; and disability). The most sensitive but least specific item was item 4 (sensitivity to light/noise), while item 3 (nausea) was the least sensitive but also the most specific.

COMMENTS

The present study was designed to develop and evaluate the properties of a new migraine screening questionnaire, the MS-Q, developed according to the IHS criteria, for use in clinical practice and research in the general population and in occupational medicine.

Regarding the results obtained, the MS-Q was found to be valid—with sensitivity, specificity, and PPV and NPV of over 0.80 in all cases. These values recorded for the MS-Q are slightly better than those reported for other migraine screening questionnaires. In particular, with reference to the previously developed tools, mention should be made of the Brief Headache Screen, ID Migraine, and 3-Question Headache Screen, since these represent the most recent innovations and are the migraine screening questionnaires most comparable to the MS-Q. In this sense, the Brief Headache Screen yielded lower specificity than the MS-Q, and also the ID Migraine instrument yielded sensitivity and specificity values (0.81, 95% CI = 0.77 to 0.85; 0.75, 95% CI = 0.64 to 0.84) that were slightly lower than those of the MS-Q (0.92, 95% CI = 0.86 to 0.98; 0.81, 95% CI = 0.72 to 0.91)—though the PPV (0.93, 95% CI = 0.90 to 0.96) was higher than that of the MS-Q (0.83, 95% CI = 0.75 to 0.91).[26] In turn, the 3-Question Headache Screen, in a study of 3014 patients diagnosed with migraine, effectively screened 77% of the patients.[28] This implies a sensitivity lower than that of the MS-Q (with 92% of true-positive patients).

In addition to confirming its validity, it should be pointed out that the final version of the MS-Q incorporates the main defining criteria of the current IHS classification,[36] according to which a minimum of five-pain attacks are required for the so-called B–D criteria: criterion B (headache episodes lasting 4 to 72 hours and either untreated or unsuccessfully treated); criterion C (headache with at least two of the following four characteristics, of which the MS-Q contemplates the third and fourth options: "moderate or severe pain intensity" and "aggravation by or causing avoidance of routine physical activity [eg, walking or climbing stairs]"); and criterion D (during headache at least one of the following symptoms must be present: (1) nausea and/or vomiting and (2) photophobia and phonophobia—both being included in the MS-Q). The fact that the MS-Q contemplates the IHS criteria

constitutes an advantage of this screening tool over others, since it can make more expectable reaching concordance between the MS-Q and the diagnostic definition of migraine. Other screener developed based on a checklist of IHS questions is the UCSD Migraine Questionnaire, although this tool has been validated with a sample of 50 patients and, therefore, it should be assessed with a larger sample.

In addition, it should be pointed out that the MS-Q exhibited greater sensitivity and NPV in males than in females, while specificity and PPVs were higher in females than in males. The prevalence of a illness may influence the estimation of the PPV and NPV parameters. Therefore, the results obtained can be partially attributed to the greater prevalence of migraine in women, where a higher PPV and a lower NPV are expected since migraine is 2 to 3 times more frequent than in males.[4-6] In fact, in our study only 10 out of 37 males actually had migraine, while 57 out of 99 women actually had migraine. The results of the reliability analyses, revealing a Cronbach's alpha coefficient higher than the recommended value of 0.70, confirm that the tool is reliable as well as valid.

On the other hand, the dichotomic (Yes/No) format of the answers to each questionnaire item is not only simple and acceptable but also coincides with earlier studies that have shown this format to be sensitive also in patients with migraine.[32,33] Regarding the item-by-item validity analysis, it should be mentioned that item 4 (sensitivity to light/noise) was seen to be the most specific but also the least sensitive item, in coherence with its consideration in the IHS classification as the defining criterion of migraine. In contrast, item 5 (disability) also stands out due to its great sensitivity or capacity to detect patients with migraine in most of the studies.[20]

The possible limitations of the study may focus on the selection of the initial working population sample in a single company (Pfizer)—a fact that could question the applicability of the results obtained to other settings. Nevertheless, the use of an additional sample of neurological patients recruited in a headache clinic under true-life conditions supports the extrapolation of the results of the study in the clinical setting. Another limitation is the fact that in our study it has not been possible to explore test–retest reliability, though it should be stressed that this property is of lesser relevance in application to a migraine screening tool. It should also be mentioned that a more extensive validation study is required to confirm in the primary care setting the good clinimetric properties observed in the preliminary validation and development phase of the MS-Q. Finally, an additional limitation is that the capability of the MS-Q for discriminating between patients with chronic from episodic migraine was not evaluated.

Thus, it can be concluded that the MS-Q showed adequate validity and reliability and it could be a good screening tool for application to clinical practice and research.

APPENDIX I: MIGRAINE SCREEN QUESTIONNAIRE (MS-Q)—ORIGINAL VERSION (STAGE I)

The questions below refer to the headaches or migraine episodes without headache that you may have experienced in your lifetime. Answer each question as indicated. If you are not sure how to answer a given question, please answer what you believe is most correct.

1. Do you have frequent or intense headaches?	(mark a single answer) Yes No
2. Have you taken any medication for headache in the last month?	(mark a single answer) Yes No

3. How many times in your life have you had headache with:	(mark a single answer per question)		
	5 or more times	1–4 times	never
a) pain in only one side of the head (right or left half)?	1	2	3
b) pulsing or hammering pain (as if your heart were beating inside your head)?	1	2	3
c) pain so intense as to make daily activities difficult or impossible?	1	2	3
d) pain that WORSENS even when you move your head (eg, bending down, walking up stairs, or making effort of any kind)?	1	2	3

ONLY if you have answered NEVER to ALL questions, move on to question 6

4. Referring to the above-mentioned headaches, how many of them have lasted between 4 hours and 3 days (both when taking ineffective medication or when taking no medicine)?	(mark a single answer per question)		
	5 times/or more times	1–4 times	never
	1	2	3

5. Referring again to above-mentioned headaches, how often have they been associated with	(mark a single answer per question)		
	5 times/or more times	1–4 times	never
a) nausea?	1	2	3
b) vomiting?	1	2	3
c) discomfort caused by light (making you wear sunglasses or stay in a dark room) and also noise, during the pain episodes?	1	2	3

6. How often in your life have you had headache with one or more of the following characteristics (before, after, or at the same time as the headache)?:	(mark a single answer per question)		
	2 or more times	1 time	never
a) Vision alterations such as brilliant white point or black dots or vision loss	1	2	3
b) Pricking or itching on one side of the body only	1	2	3
c) Numbness on one side of the face or body	1	2	3
d) Weak sensation on one side of the body	1	2	3

7. What type of headaches do you think you have? (mark the answer(s) you consider most correct)

1. Migraine	3. Tension-type headache	5. Other types of headache
2. Headache	4. Cluster headache	6. None

A copy of the original Spanish version of questionnaire is available upon request.

APPENDIX II: MIGRAINE SCREEN QUESTIONNAIRE (MS-Q)—FINAL VERSION (STAGE II)

INSTRUCTIONS: The questions below refer to the headaches or migraine episodes without headache that you may have experienced in your lifetime. Answer each question as indicated. If you are not sure how to answer a given question, please answer what you believe is most correct.

1. Do you have frequent or intense headaches?	0. No	1. Yes
2. Do your headaches usually last more than 4 hours?	0. No	1. Yes
3. Do you usually suffer from nausea when you have a headache?	0. No	1. Yes
4. Does light or noise bother you when you have a headache?	0. No	1. Yes
5. Does headache limit any of your physical or intellectual activities?	0. No	1. Yes

A copy of the original Spanish version of questionnaire is available upon request.

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