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Report

Pharmacists' Strategies to Promote Medical Consultation Among Patients With Migraine: Patient Referral Forms and MIBS-4 Assessment

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This study aimed to identify factors influencing medical consultation among patients with migraine and to explore pharmacists' roles in promoting appropriate care through the use of pharmacist-provided patient referral forms and burden assessment tools. An internet-based survey was conducted among 400 women aged 20–59 years identified as having migraine using a screening tool. Respondents were classified into the doctor-visited group (those who had visited a medical institution at least once) and the non-doctor-visited group (those who had never visited a medical institution). The doctor-visited group showed significantly higher scores on headache-related burden measures, including the Headache Impact Test-6 (HIT-6) and the Migraine Interictal Burden Scale-4 (MIBS-4) ($p < 0.05$), and a higher prevalence of symptoms such as aura, photophobia, and osmophobia. Although some participants in the non-doctor-visited group had high HIT-6 and MIBS-4 scores, they tended to perceive their headaches as “mild” or “temporary,” suggesting an underestimation of their burden. Approximately 70% of participants in both groups expressed positive attitudes toward patient referral forms, indicating potential usefulness in reducing anxiety regarding medical consultation. Among respondents in the non-doctor-visited group with little interest in patient referral forms, approximately 80% used over-the-counter (OTC) medications, and some had high HIT-6 and MIBS-4 scores. These findings suggest the potential role of burden assessment tools and patient referral forms in supporting patients in considering appropriate medical consultation during pharmacist intervention at the time of OTC medication purchase.

Key words migraine, MIBS-4, patient referral forms, pharmacist, medical consultation

INTRODUCTION

Migraine is a chronic neurological disorder characterized by moderate to severe headaches lasting 4–72 h and often accompanied by nausea, vomiting, photophobia, phonophobia, and osmophobia.^{1,2} Patients with migraine experience a substantial burden not only during headache attacks but also during the headache-free interictal period.³ During the interictal period, symptoms such as hypersensitivity, vestibular dysfunction, visual disturbances, anxiety, and depression have been reported, all of which can significantly impair patients' quality of life (QOL).⁴ Many patients experience anxiety during the interictal period, which may negatively affect academic performance and career development.³ In addition, some patients report a lack of understanding of migraine from friends, family members, and employers.³ Therefore, it is important to consider not only the physical burden but also the social and economic burden experienced during both the ictal and interictal periods.³

To quantitatively assess the impact of migraine, sever-

al validated instruments have been developed. The Headache Impact Test-6 (HIT-6) evaluates the impact of headache attacks on daily life,⁵ whereas the Migraine Interictal Burden Scale-4 (MIBS-4) assesses the burden experienced during the interictal period.⁶ The burdens measured by these scales have been reported to be associated with central sensitization, a key mechanism underlying migraine pathophysiology. Central sensitization is implicated not only in the ictal period but also in the interictal period, potentially increasing the overall burden in patients with migraine.^{7,8} Furthermore, calcitonin gene-related peptide (CGRP), which is abundantly expressed in the trigeminal ganglion and plays a critical role in migraine pathogenesis, has been shown to enhance central sensitization.⁹

In recent years, novel therapeutics, including CGRP-targeted monoclonal antibodies, have been introduced and have been shown to improve not only headache attacks but also interictal burden and central sensitization.^{10,11} However, many patients with chronic headache disorders, including migraine, do not seek medical care and instead self-treat with over-the-counter (OTC) medications.^{12,13} Even among patients experi-

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encing a substantial burden, some do not consult healthcare providers or pharmacists.¹³⁾ Given that many patients manage their condition using OTC medications, follow-up and support by pharmacists are warranted.¹⁴⁾

Referral forms play an important role in facilitating appropriate transitions to secondary medical care.¹⁵⁾ However, pharmacist-initiated referrals are often made verbally, and written documentation is rarely used.¹⁶⁾ Given that many patients with chronic headaches do not seek medical consultation, appropriate referral recommendations by pharmacists are increasingly important. Although previous studies have examined consultation with pharmacists and referral practices among patients with migraine,¹⁴⁾ patients' perceptions and expectations regarding patient referral forms issued by pharmacists remain unclear.

In this study, a "patient referral form" is defined as a pharmacist-initiated, patient-held document provided to patients for presentation to physicians at the time of consultation. This study aimed to identify factors associated with healthcare-seeking behavior among patients with migraine and to examine patients' perceptions and expectations regarding patient referral forms issued by pharmacists, thereby clarify the roles of pharmacists in encouraging medical consultation.

METHODS

Questionnaire Survey We conducted an online survey using a research company (Loyalty Marketing, Inc.), targeting women aged 20–59 years who had experienced headaches within the past three months. A migraine screening tool was used to identify respondents with migraine.^{17,18)} This screener consists of four items—headache exacerbation during activities of daily life, nausea, photophobia, and osmophobia—and assesses symptoms over the past three months.^{2,17,18)} Following the method described by Lipton *et al.*, participants reporting two or more symptoms as "sometimes" or "more than half the time" were classified as having migraine; the remainder were classified as having other types of headache.¹⁷⁾

Participants who reported visual aura symptoms as occurring "sometimes" or "more than half the time" were classified as migraine with aura (MA); others were classified as migraine without aura (MO), based on the International Classification of Headache Disorders, 3rd edition (ICHD-3).¹⁾

Invitation emails were sent to 65,952 registered monitors on June 5, 2025, and 6,249 individuals responded. The survey was discontinued on June 6, 2025, when the planned number of responses (400 women, with 100 in each 10-year age group) was reached. Individuals who screened negative for migraine, males, those aged under 20 years, and those aged 60 years or older were excluded from the analysis.

The questionnaire consisted of multiple-item questions and was completed anonymously to protect respondents' personal information. Respondents were provided with an explanatory document describing the purpose of the study, and informed consent was obtained via a checkbox.

The questionnaire items included demographic characteristics, past and current headache treatment status, and perceptions and expectations regarding patient referral forms. Before responding to questions regarding patient referral forms, respondents were shown an example of a patient referral form intended to communicate symptoms, chief complaints, clinical course, allergy history, adverse effects, and concomitant

medications to physicians. The study was conducted with the approval of the Human Research Ethics Committee at Teikyo Heisei University (approval number: 2024-198).

Measurement Items HIT-6⁵⁾ is a validated instrument developed to assess the impact of headache attacks on daily functioning. It consists of six items rated on a five-point Likert scale, with higher scores indicating greater headache-related burden. Total scores range from 36 to 78 and were categorized as follows: ≤ 49 (little/no), 50–55 (some), 56–59 (substantial), and ≥ 60 (severe).

MIBS-4⁶⁾ measures the burden experienced during the interictal period, that is, the impact of migraine on patients' lives when they are not experiencing an attack. The recall period is four weeks. The scale comprises four items rated on a six-point Likert scale, with higher scores indicating greater interictal burden. Total scores range from 0 to 12 and were categorized as follows: 0 (none), 1, 2 (mild), 3, 4 (moderate), and ≥ 5 (severe).

Statistical Analysis Data are presented as the mean $\pm$ standard deviation (SD) or as numbers (%). Respondents were classified into two groups based on their history of seeking medical care for headaches: the doctor-visited group (those who had visited a medical institution at least once) and the non-doctor-visited group (those who had never visited a medical institution). Among the non-doctor-visited group, individuals with low interest in patient referral forms were identified. Low interest was defined as responding "do not think so very much" or "do not think so at all" to three or more of the six items assessing expectations for referral forms. These individuals were further classified into two groups based on their MIBS-4 scores: the severe/moderate group and the mild/none group.

Comparisons between groups were conducted using Student's t-test for continuous variables and the χ^2 tests for categorical variables. When the expected frequencies were small, Fisher's exact test or Fisher–Freeman–Halton exact test was applied as appropriate. A p-value of < 0.05 was considered statistically significant. Pearson's correlation coefficient was used to assess the relationship between HIT-6 and MIBS-4 scores, with significance set at $p < 0.05$. Statistical analyses were performed using Excel Statistics software (version 3.21, Social Information Service). Additional analyses using Fisher–Freeman–Halton exact tests were conducted with EZR (version 4.5.2, Saitama Medical Center, Jichi Medical University, Saitama, Japan), which is a graphical user interface for R (The R Foundation for Statistical Computing, Vienna, Austria). EZR is a modified version of R commander designed to add statistical functions frequently used in biostatistics, as described by Kanda (2013).¹⁹⁾

RESULTS

Respondent Characteristics Respondent characteristics are presented in Table 1. Among all participants, 190 women were in the doctor-visited group and 210 were in the non-doctor-visited group. In the doctor-visited group, women in their 50s constituted the largest proportion, whereas those in their 20s were most common in the non-doctor-visited group. No significant differences in age distribution were observed between the groups.

Significant differences were observed in the frequency of photophobia ($p = 0.024$) and osmophobia ($p = 0.011$), with a

Table 1. Respondent Characteristics

	Total n=400		Doctor-visited group n=190		Non-doctor-visited group n=210		p-value
	n	%	n	%	n	%	
Age							
20s	100	25.0	40	21.1	60	28.6	0.105
30s	100	25.0	45	23.7	55	26.2	
40s	100	25.0	48	25.3	52	24.8	
50s	100	25.0	57	30.0	43	20.5	
Headache exacerbation during daily activities							
Never	44	11.0	24	12.6	20	9.5	0.120
Rarely	47	11.8	22	11.6	25	11.9	
Less than half the time	198	49.5	83	43.7	115	54.8	
More than half the time	111	27.8	61	32.1	50	23.8	
Nausea							
Never	53	13.3	21	11.1	32	15.2	0.493
Rarely	86	21.5	43	22.6	43	20.5	
Less than half the time	191	47.8	89	46.8	102	48.6	
More than half the time	70	17.5	37	19.5	33	15.7	
Photophobia							
Never	45	11.3	18	9.5	27	12.9	0.024 *
Rarely	45	11.3	17	8.9	28	13.3	
Less than half the time	210	52.5	95	50.0	115	54.8	
More than half the time	100	25.0	60	31.6	40	19.0	
Osmophobia							
Never	92	23.0	53	27.9	39	18.6	0.011 *
Rarely	63	15.8	24	12.6	39	18.6	
Less than half the time	157	39.3	64	33.7	93	44.3	
More than half the time	88	22.0	49	25.8	39	18.6	
Visual aura							
Never	219	54.8	93	48.9	126	60.0	<0.001 *
Rarely	70	17.5	28	14.7	42	20.0	
Less than half the time	76	19.0	53	27.9	23	11.0	
More than half the time	35	8.8	16	8.4	19	9.0	
Type of migraine							
MA	111	27.8	69	36.3	42	20.0	<0.001 *
MO	289	72.3	121	63.7	168	80.0	
HIT-6 Score (36-78)							
Severe (≥ 60)	295	73.8	146	76.8	149	71.0	0.189
Substantial (56-59)	55	13.8	26	13.7	29	13.8	
Some (50-55)	36	9.0	15	7.9	21	10.0	
Little or no (≤ 49)	14	3.5	3	1.6	11	5.2	
Mean $\pm$ SD	66.7 $\pm$ 7.8		65.0 $\pm$ 7.6		62.5 $\pm$ 7.8		0.001 *
MIBS-4 Score (0-12)							
Severe (≥ 5)	230	57.5	117	61.6	113	53.8	0.378
Moderate (3,4)	50	12.5	21	11.1	29	13.8	
Mild (1,2)	46	11.5	22	11.6	24	11.4	
None (0)	74	18.5	30	15.8	44	21.0	
Mean $\pm$ SD	5.4 $\pm$ 3.9		5.8 $\pm$ 4.0		5.0 $\pm$ 3.8		0.040 *
Have you ever visited a medical institution for headache treatment?							
Yes	190	47.5	190	100.0	0	0.0	(-)
No	210	52.5	0	0.0	210	100.0	

* $p < 0.05$, Doctor-visited group vs. Non-doctor-visited group

higher proportion of respondents in the doctor-visited group reporting these symptoms as occurring “more than half the time.” Regarding migraine classification, the prevalence of MA, which was classified based on visual aura symptoms, was significantly higher in the doctor-visited group than in the non-doctor-visited group ($p < 0.001$).

No significant differences were observed between the groups in the severity categories of HIT-6 or MIBS-4; however, the mean scores for both HIT-6 and MIBS-4 were significantly higher in the doctor-visited group ($p = 0.001$ and $p = 0.040$, respectively).

Relationship between HIT-6 and MIBS-4 Scores The correlation between HIT-6 and MIBS-4 scores for all respondents is shown in Fig. 1A. A moderate positive correlation was observed ($r = 0.55$, $p < 0.001$), suggesting that higher headache-related disability was associated with greater interictal burden. Fig. 1B illustrates the distribution of HIT-6 and MIBS-4 scores. The largest subgroup comprised 200 respondents who scored in the severe categories on both scales. Even

among patients whose HIT-6 scores were categorized as “some” or “little or no,” there were individuals whose MIBS-4 scores exceeded the “moderate” burden categories.

Past Headache Treatment Status and Pharmacist Involvement Table 2 shows respondents’ experiences with pharmacist advice and support in past headache treatment. A significantly higher proportion of respondents in the doctor-visited group (48.9%) reported having previously consulted a pharmacist compared with the non-doctor-visited group (8.6%) ($p < 0.001$). Among items assessed only in the doctor-visited group, 29.1% responded “very applicable” or “somewhat applicable” to the statement that “Consulting with a pharmacist was the reason for my visiting a medical institution.” Additionally, 51.6% responded similarly to the statement that “The information provided by the pharmacist helped resolve my anxiety or questions regarding the use of prescribed medications.”

In questions asked to both groups, significant differences were observed in the distribution of responses to “I was inter-

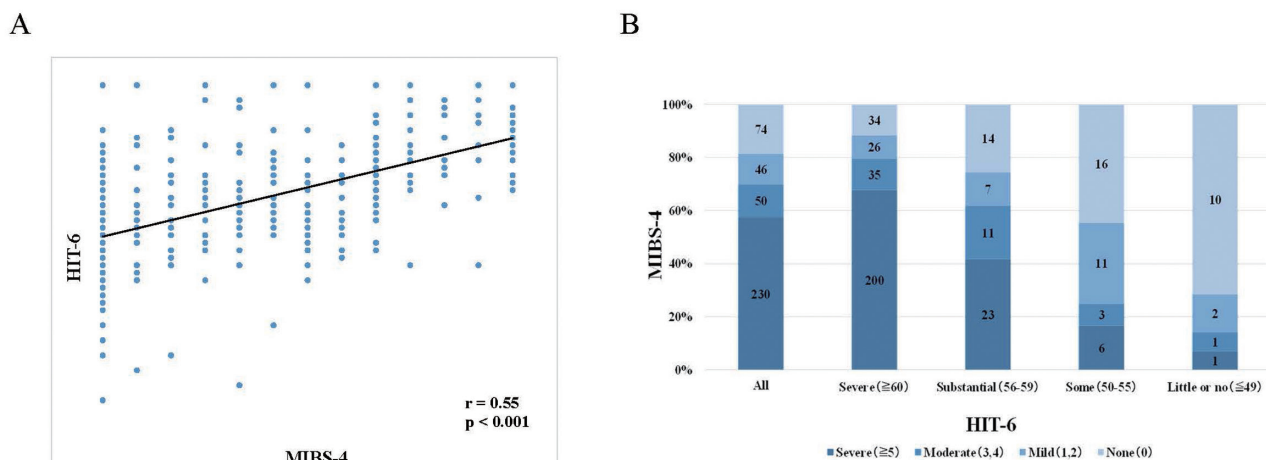


Fig. 1. Relationship between HIT-6 and MIBS-4 Scores

A) Correlation plot of HIT-6 and MIBS-4 scores (n = 400). B) Distribution of MIBS-4 scores according to HIT-6 score categories (n = 400).

Table 2. Past Headache Treatment Status and Pharmacist Involvement

	Doctor-visited group n=93		Non-doctor-visited group n=18		p-value
	n	%	n	%	
Have you ever consulted a pharmacist about your headache, even once?					
Yes	93	48.9	18	8.6	<0.001 *
No	97	51.1	192	91.4	
What kind of impact have the advice and support of pharmacists had on you up to now?					
Consulting with a pharmacist was the reason for my visiting a medical institution.					
Very applicable	6	6.5	(-)	(-)	(-)
Somewhat applicable	21	22.6			
Not very applicable	37	39.8			
Not applicable at all	29	31.2			
Consulting with a pharmacist enhanced my understanding of the appropriate use of medications and their potential side effects.					
Very applicable	14	15.1	1	5.6	0.314
Somewhat applicable	41	44.1	11	61.1	
Not very applicable	27	29.0	6	33.3	
Not applicable at all	11	11.8	0	0.0	
I was interested in the OTC medications suggested by the pharmacist.					
Very applicable	8	8.6	1	5.6	0.059
Somewhat applicable	26	28.0	9	50.0	
Not very applicable	29	31.2	7	38.9	
Not applicable at all	30	32.3	1	5.6	
I was interested in the pharmacist's suggestions regarding headache prevention and lifestyle modification.					
Very applicable	10	10.8	1	5.6	0.016 *
Somewhat applicable	16	17.2	9	50.0	
Not very applicable	41	44.1	7	38.9	
Not applicable at all	26	28.0	1	5.6	
The information provided by the pharmacist helped resolve my anxiety or questions regarding the use of prescribed medications.					
Very applicable	21	22.6	(-)	(-)	(-)
Somewhat applicable	27	29.0			
Not very applicable	32	34.4			
Not applicable at all	13	14.0			
Through the advice of the pharmacist, my ability to self-manage my headaches improved.					
Very applicable	11	11.8	1	5.6	0.039 *
Somewhat applicable	24	25.8	11	61.1	
Not very applicable	39	41.9	5	27.8	
Not applicable at all	19	20.4	1	5.6	

* $p < 0.05$, Doctor-visited group vs. Non-doctor-visited group

ested in the pharmacist's suggestions regarding headache prevention and lifestyle modification." ($p = 0.016$) and "Through the advice of the pharmacist, my ability to self-manage my headaches improved." ($p = 0.039$), with the non-doctor-visited group more frequently selecting "very applicable" or "somewhat applicable." Conversely, for the statement "I was interested in the OTC medications suggested by the pharmacist," the non-doctor-visited group showed a higher proportion of

responses selecting "very applicable" or "somewhat applicable," although the difference did not reach statistical significance ($p = 0.059$).

Current Treatment Status Table 3 shows current headache treatment status. Use of OTC medications was significantly more common in the non-doctor-visited group (77.6%) than in the doctor-visited group (59.5%) ($p < 0.001$). Similarly, the proportion of respondents not using any medication was

Table 3. Current Treatment Status

	Doctor-visited group		Non-doctor-visited group		p-value
	n=190		n=210		
	n	%	n	%	
We will ask about the treatment you are currently receiving for your headache. (Multiple answers possible)					
Use of OTC medication	113	59.5	163	77.6	<0.001 *
Use of prescription medications	92	48.4	(-)		(-)
No medication	15	7.9	47	22.4	<0.001 *
Use of prescription medications	n=92				
Use of OTC medication	30	32.6	(-)		(-)
No medication	0	0.0			
No Use of prescription medications	n=98				
Use of OTC medication	83	84.7	(-)		(-)
No medication	15	15.3			
Please let us know why you visited a medical institution. (Multiple answers possible)					
Headache affects daily life	71	77.2	(-)		(-)
Headache affects work or school	43	46.7			
Headache symptoms have worsened	40	43.5			
OTC medications were not effective	35	38.0			
Prescription medications have become less effective	19	20.7			
Desire to understand the cause of the headache	41	44.6			
Desire to learn how to manage the headache	42	45.7			
Concern that the headache may indicate a serious condition	29	31.5			
Recommendation or encouragement from a pharmacist	4	4.3			
Recommendation or encouragement from a primary care doctor	8	8.7			
Recommendation or encouragement from family or friends	13	14.1			
Other	1	1.1			
Please let us know how you decided which medical institution to visit. (Multiple answers possible)					
I had previously visited the institution	41	44.6	(-)		(-)
It was a neurology department	18	19.6			
It was a neurosurgery department	9	9.8			
It offered a dedicated headache outpatient clinic	15	16.3			
I wanted to consult a headache specialist	13	14.1			
I searched for information online	11	12.0			
It was easy to make an appointment	3	3.3			
I was referred by a pharmacist	0	0.0			
I was referred by my primary care physician	8	8.7			
I was referred by family members or friends	9	9.8			
Other	6	6.5			
Please let us know why you did not visit a medical institution. (Multiple answers possible)					
	n=98		n=210		
Perception that the headaches are mild	15	15.3	72	34.3	<0.001 *
Perception that the symptoms are temporary	25	25.5	86	41.0	0.009 *
Headache manageable with OTC medications	30	30.6	81	38.6	0.175
Previous improvement of similar symptoms with OTC medications	19	19.4	40	19.0	0.944
Concern about medical or consultation costs	31	31.6	74	35.2	0.534
Difficulty visiting a doctor due to work or school commitments	15	15.3	31	14.8	0.900
I visited a medical institution once, but my symptoms did not improve	38	38.8	(-)		(-)
Distrust of medical diagnosis or advice	7	7.1	6	2.9	0.124
Inconvenient access to medical facilities	12	12.2	23	11.0	0.739
Difficulty obtaining a medical appointment	4	4.1	16	7.6	0.241
Lack of perceived need to seek medical care	10	10.2	36	17.1	0.112
Other	12	12.2	7	3.3	

* p < 0.05, Doctor-visited group vs. Non-doctor-visited group

significantly higher in the non-doctor-visited group (22.4%) compared with the doctor-visited group (7.9%) ($p < 0.001$). Among the doctor-visited group, only 48.4% of respondents reported using prescription medications, indicating that approximately half were not currently receiving prescribed therapy. Because treatment status was assessed using a multiple-response format, treatment categories were not mutually exclusive. Among respondents using prescription medications ($n = 92$), 32.6% also reported OTC medication use. In contrast, among those not using prescription medications ($n = 98$), 84.7% reported OTC medication use and 15.3% reported no medication use.

Among questions asked only to the doctor-visited group, the most frequently reported reason for seeking medical care was that “headache affects daily life” (77.2%). Regarding how respondents selected the medical institution they visited, the most common response was “I had previously visited the institution” (44.6%).

When respondents in the doctor-visited group who were not currently using prescription medications and those in the non-doctor-visited group were asked about reasons for not seeking care, the most common response in the former group was “I visited a medical institution once, but my symptoms did not improve,” followed by “concern about medical or consultation costs,” “headache manageable with OTC medications,” and “perception that the symptom is temporary.” In the non-doctor-visited group, the most common response was “perception that the symptoms are temporary,” followed by “headache manageable with OTC medications,” “concern about medical or consultation costs,” and “perception that the headache is mild.” Respondents who selected “perception that the headaches are mild” or “perception that the symptoms are temporary” were significantly more common in the non-doctor-visited group than in the doctor-visited group ($p < 0.001$ and $p = 0.009$, respectively). Fig. 2 shows the HIT-6 and MIBS-4 severity scores for respondents who selected “perception that

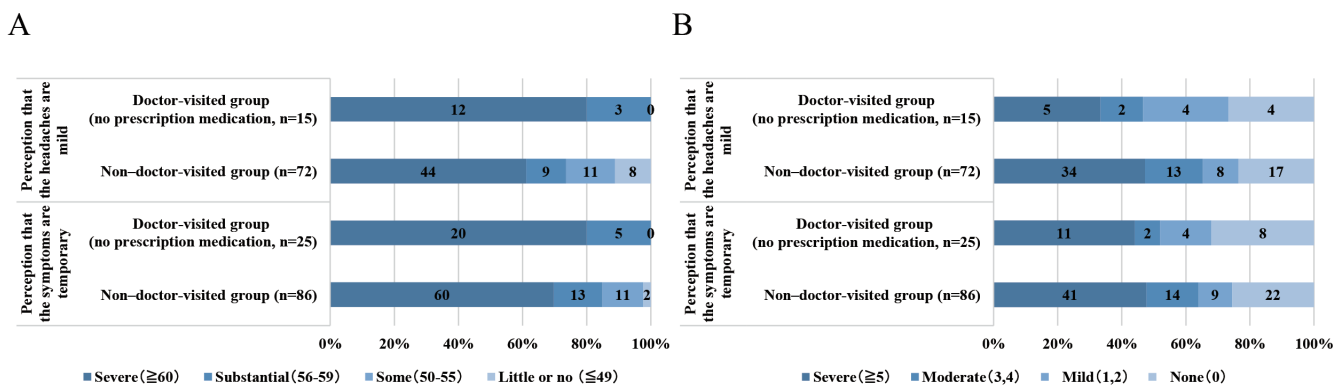


Fig. 2. Distribution of HIT-6 and MIBS-4 Severity Categories among Respondents Who Perceived Their Headaches as Mild or Temporary

A) Distribution of HIT-6 severity categories among respondents who perceived their headaches as mild or temporary (mild: $p = 0.163$; temporary: $p = 0.218$, Doctor-visited group (no prescription medication) vs. Non-doctor-visited group). B) Distribution of MIBS-4 severity categories among respondents who perceived their headaches as mild or temporary. (mild: $p = 0.444$; temporary: $p = 0.624$, Doctor-visited group (no prescription medication) vs. Non-doctor-visited group).

the headaches are mild” or “perception that the symptoms are temporary.” More than 60% of respondents in both groups had severe HIT-6 scores, and approximately half had moderate or severe MIBS-4 scores.

Perceptions and Expectations Regarding Patient Referral Forms Table 4 shows respondents’ perceptions of patient referral forms. For all questions assessing perceptions of patient referral forms, more than 70% of respondents in both groups answered “strongly agree” or “somewhat agree.” Among these items, a significantly higher proportion of respondents in the doctor-visited group indicated that they “would like to use patient referral forms issued by pharmacists.” ($p = 0.023$). Regarding the types of information respondents wished to have included in a patient referral form, more than 80% in both groups selected “strongly agree” or “somewhat agree” for all items except for “use health foods or dietary supplements.” Notably, for the item “use prescription medications,” the proportion selecting “strongly agree” or “somewhat agree” was significantly higher in the doctor-visited group ($p = 0.0499$).

In addition, individuals in the non-doctor-visited group who showed low interest in patient referral forms were identified and classified according to their MIBS-4 scores. As a result, 38 respondents were categorized into the severe/moderate group and 15 into the mild/none group. Regarding the relationship between burden severity based on HIT-6 scores and interictal burden, the number of respondents with “severe” was significantly higher in the severe/moderate group than in the mild/none group ($p = 0.015$, Fig. 3A). Concerning headache management behaviors, the severe/moderate group showed a tendency toward higher OTC medication use ($p = 0.062$, Fig. 3B). With respect to migraine subtype, MA was observed only in the severe/moderate group ($p = 0.046$, Fig. 3C). For photophobia, the number of respondents reporting photophobia was significantly higher in the severe/moderate group ($p = 0.030$, Fig. 3D).

DISCUSSION

Participant Characteristics and Study Limitations Among the 400 respondents, 111 individuals (27.8%) were classified as MA, a proportion consistent with previous stud-

ies.²⁰ This suggests that the study population may be broadly comparable to the general population of individuals with migraine. However, several limitations should be acknowledged. First, the sample was restricted to women aged 20–59 years, and social background factors, such as occupation, employment status, and social role, were not assessed. Second, migraine classification was based on subjective self-report rather than physician diagnosis. Third, the use of an internet-based survey may have introduced selection bias. In addition, the number of respondents in the non-doctor-visited group who had consulted a pharmacist was limited; thus, these findings should be interpreted with caution due to the limited sample size. Furthermore, because the survey was conducted after presenting respondents with an example of a patient referral form, further studies are needed to evaluate whether positive perceptions of patient referral forms are associated with actual changes in healthcare-seeking behavior.

Despite these limitations, the findings indicate that many respondents expressed positive expectations toward pharmacist-issued patient referral forms. This suggests that the use of patient referral forms may help reduce anxiety regarding medical consultation, although this may reflect both practical expectations regarding information sharing and psychological reassurance.

Relationship Between Motivation to Seek care and Disability Table 1 shows that respondents in the doctor-visited group had higher levels of photophobia, osmophobia, visual aura, and elevated HIT-6 and MIBS-4 scores, which were associated with a greater likelihood of seeking medical care. These symptoms may affect daily life and act as a trigger for recognizing the need for medical care. In contrast, Table 3 shows that many respondents in the non-doctor-visited group perceived their headaches as “mild” or “temporary.” However, Fig. 2 demonstrated substantial headache-related and interictal burden even among respondents who reported these perceptions. Similar severity distributions were observed between respondents in the doctor-visited group who were not currently using prescription medications and those in the non-doctor-visited group. These findings suggest that some individuals may not fully recognize the burden associated with their headaches, including interictal burden. Furthermore, Fig. 1B shows that some respondents exhibited low HIT-6 scores but

Table 4. Perceptions and Expectations Regarding Patient Referral Forms

	Women		Doctor-visited group		Non-doctor-visited group		p-value
	n=400		n=190		n=210		
	n	%	n	%	n	%	
What do you think about patient referral forms issued by pharmacists?							
Facilitate medical consultation.							
Strongly agree	93	23.3	49	25.8	44	21.0	0.210
Somewhat agree	197	49.3	98	51.6	99	47.1	
Somewhat disagree	90	22.5	35	18.4	55	26.2	
Strongly disagree	20	5.0	8	4.2	12	5.7	
Provide reassurance to patients.							
Strongly agree	91	22.8	47	24.7	44	21.0	0.331
Somewhat agree	211	52.8	104	54.7	107	51.0	
Somewhat disagree	73	18.3	30	15.8	43	20.5	
Strongly disagree	25	6.3	9	4.7	16	7.6	
Facilitate communication of symptoms and clinical course to physicians.							
Strongly agree	152	38.0	80	42.1	72	34.3	0.196
Somewhat agree	177	44.3	79	41.6	98	46.7	
Somewhat disagree	51	12.8	25	13.2	26	12.4	
Strongly disagree	20	5.0	6	3.2	14	6.7	
Facilitate communication of current medications and treatment history to physicians.							
Strongly agree	140	35.0	76	40.0	64	30.5	0.111
Somewhat agree	188	47.0	84	44.2	104	49.5	
Somewhat disagree	54	13.5	25	13.2	29	13.8	
Strongly disagree	18	4.5	5	2.6	13	6.2	
Would like to use patient referral forms issued by pharmacists.							
Strongly agree	75	18.8	47	24.7	28	13.3	0.023*
Somewhat agree	206	51.5	90	47.4	116	55.2	
Somewhat disagree	89	22.3	42	22.1	47	22.4	
Strongly disagree	30	7.5	11	5.8	19	9.0	
Enhance collaboration between physicians and pharmacists (pharmacies).							
Strongly agree	120	30.0	62	32.6	58	27.6	0.414
Somewhat agree	209	52.3	96	50.5	113	53.8	
Somewhat disagree	50	12.5	25	13.2	25	11.9	
Strongly disagree	21	5.3	7	3.7	14	6.7	
Information desired to be included in patient referral forms							
Symptoms, chief complaints, and clinical course							
Strongly agree	225	56.3	114	60.0	111	52.9	0.091
Somewhat agree	141	35.3	65	34.2	76	36.2	
Somewhat disagree	22	5.5	5	2.6	17	8.1	
Strongly disagree	12	3.0	6	3.2	6	2.9	
Use prescription medications							
Strongly agree	217	54.3	112	58.9	105	50.0	0.0499*
Somewhat agree	146	36.5	64	33.7	82	39.0	
Somewhat disagree	26	6.5	7	3.7	19	9.0	
Strongly disagree	11	2.8	7	3.7	4	1.9	
Use OTC medications							
Strongly agree	152	38.0	77	40.5	75	35.7	0.440
Somewhat agree	175	43.8	84	44.2	91	43.3	
Somewhat disagree	53	13.3	20	10.5	33	15.7	
Strongly disagree	20	5.0	9	4.7	11	5.2	
Use health foods or dietary supplements							
Strongly agree	87	21.8	47	24.7	40	19.0	0.572
Somewhat agree	147	36.8	68	35.8	79	37.6	
Somewhat disagree	119	29.8	53	27.9	66	31.4	
Strongly disagree	47	11.8	22	11.6	25	11.9	
History of allergies							
Strongly agree	172	43.0	86	45.3	86	41.0	0.254
Somewhat agree	170	42.5	77	40.5	93	44.3	
Somewhat disagree	43	10.8	17	8.9	26	12.4	
Strongly disagree	15	3.8	10	5.3	5	2.4	
History of side effect							
Strongly agree	183	45.8	87	45.8	96	45.7	0.327
Somewhat agree	166	41.5	82	43.2	84	40.0	
Somewhat disagree	38	9.5	13	6.8	25	11.9	
Strongly disagree	14	3.5	8	4.2	6	2.9	

* p < 0.05, Doctor-visited group vs. Non-doctor-visited group

high MIBS-4 scores, suggesting that lower perceived disability during headache attacks may contribute to perceiving their headaches as “mild” or “temporary,” thereby reducing their motivation to seek medical care. These findings suggest that while higher HIT-6 and MIBS-4 scores may serve as factors associated with medical consultation, insufficient recognition of one’s own burden remains a key barrier to healthcare-seeking behavior.

ing behavior.

One potential approach to addressing this issue is the use of HIT-6 and MIBS-4 check sheets by pharmacists to help visualize and communicate patients’ burden. Pharmaceutical companies such as Daiichi Sankyo Co., Ltd. and Eli Lilly Japan K.K. provide combined Japanese-language check sheets incorporating both MIBS-4 and HIT-6.²¹⁾ The use of these check sheets

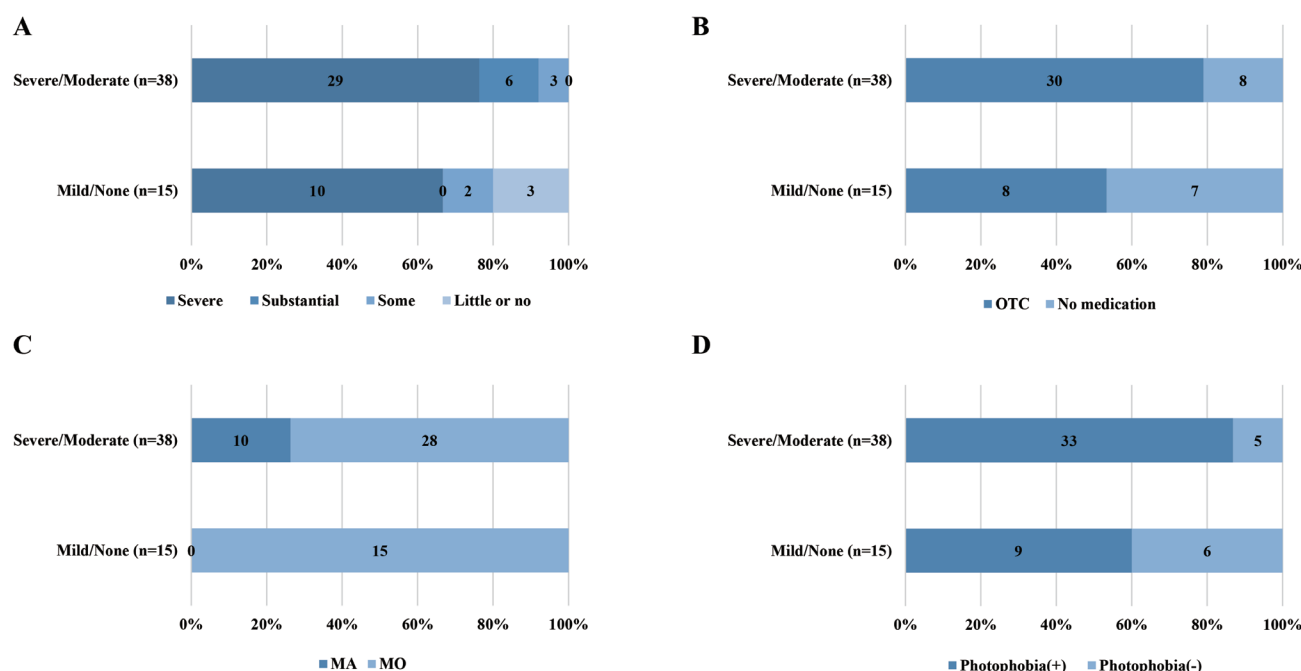


Fig. 3. Classification Based on MIBS-4 Scores among Individuals with Low Interest in Patient Referral Forms in the Non-Doctor-Visited Group (n = 53)

A) Relationship between MIBS-4 score categories and headache-related disability categories (HIT-6) ($p = 0.015$, severe/moderate vs. mild/none). B) Relationship between MIBS-4 score categories and headache management behaviors ($p = 0.062$, severe/moderate vs. mild/none). C) Relationship between MIBS-4 score categories and migraine subtype ($p = 0.046$, severe/moderate vs. mild/none). D) Relationship between MIBS-4 score categories and photophobia ($p = 0.030$, severe/moderate vs. mild/none).

may help patients better understand the impact and burden of both ictal and interictal symptoms on daily life, thereby facilitating recognition of the need for medical consultation.

Patient Referral Forms, Information Sharing, and the Role of Pharmacists Table 4 shows that patient referral forms were positively evaluated by more than half of respondents, regardless of whether they had previously sought medical care. Moreover, for all items regarding the types of information they wished to have included, more than half of respondents expressed positive attitudes. These findings suggest that referral forms may help reduce patients' anxiety and perceived burden. Patient referral forms can include not only information on prescription and OTC medication use and history of adverse effects but also HIT-6 and MIBS-4 scores along with the pharmacist's overall assessment. This may contribute to reducing patient burden and improving the quality of information shared with physicians.

In addition, the use of Tracing Reports (documents used by pharmacists to provide feedback to physicians) is also essential. Patients with high MIBS-4 scores may be candidates for preventive therapy, and if such therapy has not been initiated, pharmacists can use Tracing Reports to propose treatment considerations to physicians. This may contribute to preventing delays in care, reducing the risk of migraine chronification, and improving patients' quality of life.

Among individuals in the non-doctor-visited group who expressed low expectations for referral forms (Table 4), some still exhibited a high interictal burden. Fig. 3 shows that these individuals more frequently had severe HIT-6 scores, MA, or photophobia (Fig. 3A, C, and D). Although many reported managing their symptoms with OTC medications (Fig. 3B),

they may not have fully recognized their interictal burden, which may be associated with a lower motivation to seek medical care. Taken together, these interpretations are based on the results presented in the corresponding tables and figures. Given that many of these individuals rely on OTC medications, it may be a practical and effective intervention for pharmacists to assess HIT-6 and MIBS-4 scores at the time of OTC medication purchase and encourage medical consultation when appropriate. This approach is feasible in community pharmacy settings and may help guide patients toward timely and appropriate care.

Future Directions and Clinical Implications This study demonstrated that patient referral forms were positively received by more than half of respondents, regardless of whether they had previously sought medical care, indicating that patients perceive a need for such forms. For individuals with chronic headache disorders, including migraine, the use of referral forms may play an important role in strengthening collaboration between pharmacists in community pharmacies or drugstores and specialized medical institutions. Referral forms have the potential not only to encourage appropriate medical consultation but also to enhance the quality of inter-professional communication.

Moving forward, it will be necessary to establish a system that supports healthcare-seeking behavior among patients with chronic headaches. This includes increasing awareness of patient referral forms in pharmacies, promoting the use of assessment tools such as HIT-6 and MIBS-4, and enhancing pharmacist education. In addition, future studies are needed to examine whether these interventions are associated with actual changes in healthcare-seeking behavior.

Conflict of interest The authors declare no conflict of interest.

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