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KNOWLEDGE, SELF-CARE PRACTICES, MEDICATION-OVERUSE AWARENESS AND PHARMACIST COUNSELLING NEEDS AMONG WORKING ADULTS WITH RECURRENT HEADACHE AND MIGRAINE-LIKE SYMPTOMS

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ABSTRACT

Background: Recurrent headache and migraine-like symptoms are common among working adults and may affect concentration, productivity, self-care, and medicine use. Limited evidence is available on medication-overuse awareness and pharmacist counselling needs. **Objective:** To assess knowledge, self-care practices, medication-overuse awareness, OTC analgesic use, consultation behaviour, work impact, and pharmacist counselling needs among working adults with recurrent headache and migraine-like symptoms. **Methods:** A cross-sectional questionnaire-based study was conducted among working adults aged ≥21 years with recurrent headache or migraine-like symptoms. Data were collected using a Google Forms questionnaire covering demographics, headache characteristics, triggers, knowledge, self-care, medication use, consultation, work impact, and pharmacist responses. Categorical variables were summarized as frequencies and percentages. Pearson chi-square test was used to examine the association between migraine-like self-classification and episode frequency. **Results:** Overall, 377 participants were included. A total of 256 participants (67.9%) self-classified their headache as migraine-like; however, migraine was not clinically confirmed using ICHD-3 criteria or a validated screening instrument. Weekly episodes were most frequent, and stress was the leading trigger, followed by lack of sleep, loud noise, bright light, and screen exposure. Awareness of headache-migraine differentiation was reported by 218 participants (57.8%), while medication-overuse headache awareness was reported by 190 (50.4%). OTC drugs or painkillers were selected as the main self-reported response during episodes by 189 participants [50.1%], while paracetamol was the most commonly selected OTC analgesic option [233, 61.8%]. Only 162 participants (43.0%) consulted a doctor or pharmacist. Pharmacist role recognition was high (295, 78.2%), but counselling willingness was lower (196, 52.0%). **Conclusion:** Working adults with recurrent headache and migraine-like symptoms showed frequent headache episodes, moderate knowledge, common selection of OTC drugs or painkillers as an episode response, and consultation gaps. Structured pharmacist-led education may improve safe analgesic use, medication-overuse awareness, trigger management, and timely referral support.

KEYWORDS: Migraine Disorders; Headache; Self Care; Self Medication; Medication Overuse Headache; Pharmacists.

INTRODUCTION

Headache disorders are among the most common neurological conditions and contribute substantially to disability, healthcare use, and loss of productive functioning. Migraine is a recurrent neurological disorder characterized by episodic headache attacks that may be accompanied by nausea, vomiting, photophobia, phonophobia, and, in some individuals, aura. Recent evidence continues to show that migraine is not merely a severe headache but a disabling brain disorder with considerable personal, social, and economic consequences.[1,2] Despite advances in diagnosis and

treatment, migraine and recurrent headache remain underrecognized and undertreated in many settings, particularly when individuals normalize symptoms or rely on repeated self-management without professional evaluation.[2]

The burden of migraine is especially relevant among working adults because headache episodes can affect attendance, concentration, decision-making, and work efficiency. In occupational settings, migraine-related productivity loss may occur not only through absenteeism but also through presenteeism, where individuals continue working despite symptoms but with reduced performance. An India-focused scoping review highlighted the productivity and economic burden of migraine among adults, supporting the need for better recognition and management in working populations.[3] Workplace self-management may include rest, hydration, trigger avoidance, medicine use, and environmental modification; however, these strategies are often difficult to implement consistently during working hours.[4]

Knowledge and self-care practices play a central role in the day-to-day management of recurrent headache and migraine-like symptoms. Individuals with inadequate understanding of migraine features, trigger factors, or appropriate medication use may delay consultation or depend on over-the-counter analgesics. Previous questionnaire-based studies have reported gaps in public knowledge and practice regarding migraine, including uncertainty about symptoms, triggers, preventive strategies, and the need for medical care.[5] Self-medication is common in headache conditions, but frequent or inappropriate use of acute headache medicines may increase the risk of medication-overuse headache, a preventable condition associated with worsening or chronification of headache.[6,7]

Pharmacists are accessible healthcare professionals who can support headache-related care through appropriate over-the-counter medicine selection, counselling on safe analgesic use, identification of medication-overuse risk, recognition of warning symptoms, and referral when necessary. Recent pharmacy-focused literature emphasizes the potential role of community pharmacists in migraine management and integration of pharmacists into structured headache services.[8,9] However, patient-level evidence on pharmacist counselling needs among working adults with recurrent headache and migraine-like symptoms remains limited, particularly in local Indian community settings.

Therefore, this study was conducted to assess knowledge, self-care practices, medication-overuse awareness, over-the-counter medication use, consultation behaviour, work-related impact, and pharmacist counselling needs among working adults with recurrent headache and migraine-like symptoms. Therefore, this study was conducted to assess knowledge, self-care practices, medication-overuse awareness, over-the-counter medication-related responses, consultation behaviour, work-related impact, and pharmacist counselling needs among working adults with recurrent headache and migraine-like symptoms.

METHODOLOGY

Study design and setting

This study was a cross-sectional, questionnaire-based observational study conducted among working adults with recurrent headache and migraine-like symptoms. A cross-sectional survey design was selected because it is suitable for assessing knowledge, self-care practices, medication-use behaviour, and healthcare-seeking patterns in migraine-related studies.[5] The study was designed to assess knowledge, self-care practices, medication-overuse awareness, over-the-counter medication use, consultation behaviour, work-related impact, and pharmacist counselling needs among working adults experiencing recurrent headache or migraine-like symptoms.

Study population and eligibility criteria

The study population included working adults aged 21 years and above who were engaged in full-time or part-time work and reported recurrent headache or migraine-like symptoms. Participants were included if they had a self-reported history of recurrent headache or migraine-like symptoms with at least one episode per month and were willing to provide informed consent.

Pregnant women, participants with diagnosed secondary headache disorders, duplicate responses, and incomplete survey responses were excluded from the analysis. Participants with secondary headache disorders were excluded because such headaches may arise from identifiable underlying clinical conditions and require separate diagnostic evaluation. Since the questionnaire did not apply ICHD-3 criteria or a validated migraine screening tool, headache and migraine status were treated as self-reported outcomes rather than clinically confirmed diagnoses.

Sample size and sampling technique

The sample size was estimated for a single population proportion using the Raosoft online sample size calculator. The calculation was performed using an estimated target population size of 19,000 working adults, 95% confidence level, 5% margin of error, and 50% response distribution. The 50% response distribution was selected as a conservative assumption because the expected proportion of key descriptive outcomes, including headache-migraine differentiation awareness, medication-overuse headache awareness, and pharmacist counselling willingness, was uncertain. Based on these assumptions, the minimum required sample size was estimated as 377 participants.

A convenience sampling technique was used. Eligible participants were invited through workplace communication platforms, WhatsApp, email, and other

social media-based circulation of the questionnaire. Although the calculated minimum sample size was achieved, recruitment was based on voluntary response and convenience sampling; therefore, the sample should not be interpreted as a probability-based representative sample of all working adults.

Study instrument and variables

Data were collected using a structured, self-administered questionnaire developed based on the study objectives and relevant migraine literature. Similar questionnaire-based migraine studies have assessed domains such as headache frequency, triggers, self-medication, knowledge, healthcare-seeking behaviour, and work-related impact.[4] The questionnaire included sections on sociodemographic details, occupational characteristics, headache and migraine-related characteristics, triggering factors, associated symptoms, knowledge regarding headache and migraine, awareness of medication-overuse headache, self-care practices, medication use, consultation behaviour, work impact, and pharmacist counselling needs.

The main variables included age, gender, occupation, working hours, self-reported condition, episode frequency, pain duration, pain intensity, pain location, associated symptoms, triggering factors, knowledge of headache and migraine differentiation, awareness of migraine as a neurological disorder, perception regarding caffeine use, medication-overuse headache awareness, non-medical preventive practices, painkiller use, type of OTC medication used, consultation with a doctor or pharmacist, work-performance impact, concentration impairment, recognition of pharmacist role, and willingness to receive pharmacist counselling.

The medication-use and medication-overuse awareness domains were included because frequent or inappropriate use of acute headache medicines is clinically relevant in recurrent headache and migraine-like symptom management and may contribute to medication-overuse headache.[6,7] Pharmacist-related variables were included because community pharmacists can support headache-related care through OTC analgesic counselling, identification of medication-overuse risk, recognition of warning symptoms, and timely referral.[8,9]

Data collection and ethical considerations

The questionnaire was prepared using Google Forms and circulated electronically. An electronic informed consent section was included at the beginning of the questionnaire. Participation was voluntary and anonymous. Participants were informed about the purpose of the study, confidentiality of responses, and use of anonymized data for academic and research purposes.

Responses were automatically recorded in Google Sheets and later exported to Microsoft Excel for data cleaning and analysis.

Ethical consideration

Ethical approval was obtained from the Institutional Ethics Committee of J.K.K.Nattraja College of Pharmacy, approval number JKKNCP/IEC-CER/2601/BP/05. The study was conducted in accordance with the Declaration of Helsinki ethical principles for research involving human participants (World Medical Association, 2025).[10] Electronic informed consent was obtained from all participants, and anonymized aggregate data were used for analysis and reporting.[11]

Statistical analysis

Data were analyzed using IBM SPSS Statistics. Categorical variables were summarized as frequencies and percentages. Percentages were calculated using the total sample size of 377 and rounded to one decimal place. Descriptive frequency distributions were presented without inferential testing because no predefined theoretical distribution was hypothesized for single categorical variables. The chi-square goodness-of-fit test was not used. Pearson chi-square test of independence was used only to examine the association between migraine-like self-classification and episode frequency. Fisher's exact test was planned where expected cell counts were less than 5. A p-value <0.05 was considered statistically significant.

RESULTS

Demographic and occupational characteristics

A total of 377 working adults with recurrent headache or migraine-like symptoms were included in the study. The study population was predominantly composed of young adults, with a higher representation of male participants. Office or desk-based workers formed the largest occupational group, and nearly half of the participants reported working for 6 to 8 hours per day. The demographic and occupational characteristics of the participants are summarized in Table 1.

Table 1: Demographic and occupational characteristics of participants.

Variable	Category	Frequency (n)	Percentage, %
Age group	21 to 23 years	217	57.6
	24 to 26 years	73	19.4
	27 years and above	87	23.1
Gender	Male	254	67.4
	Female	123	32.6
Occupation	Field work	67	17.8
	Office or desk job	149	39.5

	Self-employed	96	25.5
	Shift work	65	17.2
Working hours per day	Less than 6 hours	119	31.6
	6 to 8 hours	177	46.9
	More than 8 hours	81	21.5

Note: *Values are presented as n (%). Percentages were calculated using the total sample size, n = 377, and rounded to one decimal place.*

Characteristics of recurrent headache and migraine-like symptoms

Most participants self-classified their headache as migraine-like rather than recurrent headache; however, this classification should be interpreted only as self-reported symptom identity and not as clinically confirmed migraine. Weekly episodes were the most frequently reported pattern, followed by daily and occasional episodes. Most participants reported either short-duration pain lasting less than 1 hour or prolonged episodes lasting more than 12 hours. Low-intensity pain was most common, while severe pain was reported by a smaller proportion of participants. One-sided headache was the most frequent pain location, and sensitivity to light and sound were the most commonly reported associated symptoms. The characteristics of recurrent headache and migraine-like symptoms are presented in Table 2.

Table 2: Characteristics of recurrent headache and migraine-like symptoms.

Variable	Category	Frequency, n	Percentage, %
Self-reported condition	Migraine-like self-classification	256	67.9
	Recurrent headache	121	32.1
Episode frequency	Daily	94	24.9
	Weekly	187	49.6
	Occasionally	90	23.9
Pain duration	Less than 1 hour	178	47.2
	1 to 2 hours	14	3.7
	4 to 12 hours	52	13.8
	More than 12 hours	133	35.3
Pain intensity	Low	186	49.3
	Mild	98	26.0
	Moderate	66	17.5
	Severe	27	7.2
Location of pain	Both sides	120	31.8
	One side of head	162	43.0
	Behind one eye	65	17.2
	Back of head	30	8.0
Associated symptoms	Nausea and vomiting	50	13.3
	Sensitivity to light	129	34.2
	Sensitivity to sound	126	33.4
	Aura	72	19.1

Note: *Values are presented as n (%). Percentages were calculated using n = 377. Headache and migraine status were self-reported and were not clinically confirmed using ICHD-3 criteria or a validated migraine screening tool. Abbreviation: ICHD-3, International Classification of Headache Disorders, 3rd edition.*

Triggering factors

The most frequently reported triggering factor was stress, followed by lack of sleep, loud noise, bright light, and screen exposure. Skipping meals, dehydration, and strong smells were less frequently reported. The distribution of common triggering factors is illustrated in

Knowledge and self-care practices

More than half of the participants reported awareness of the difference between regular headache and migraine and recognized migraine as a neurological disorder. However, uncertainty remained regarding medication-overuse headache, as a considerable proportion of participants were either unaware or unsure about the effect of frequent painkiller use on headache worsening. Awareness of trigger factors was comparatively higher. Slightly more than half of the participants reported using non-medical preventive practices, including acupressure, hydration, resting in a dark and quiet environment, and heat or cold therapy. A high proportion of participants also believed that caffeine reduces migraine-like symptoms [255, 67.6%], indicating a potentially important misconception or incomplete understanding because caffeine may have variable effects depending on dose, frequency of intake, and individual headache

pattern. Knowledge and self-care practices are shown in Table 3.

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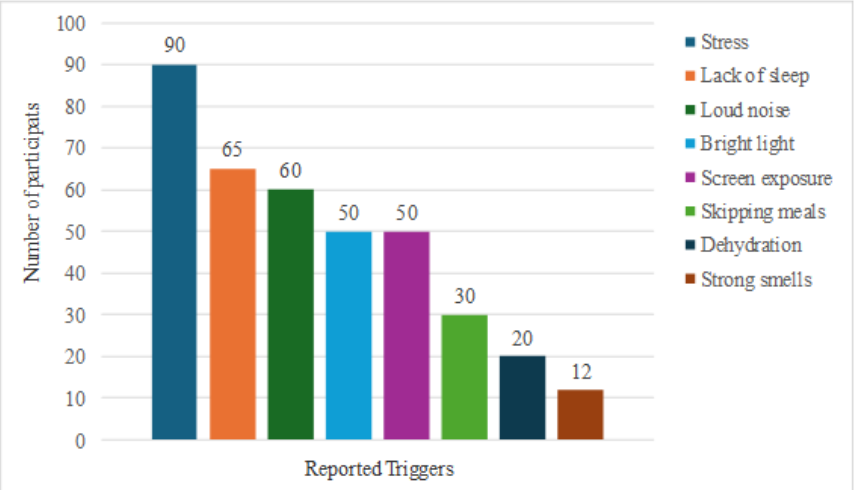

Figure 1: Common triggering factors of recurrent headache and migraine-like symptoms among participants.
Note: *Values are shown as frequency of participants reporting each trigger.*

Knowledge and self-care practices

More than half of the participants reported awareness of the difference between regular headache and migraine and recognized migraine as a neurological disorder. However, uncertainty remained regarding medication-overuse headache, as a considerable proportion of participants were either unaware or unsure about the effect of frequent painkiller use on headache worsening. Awareness of trigger factors was comparatively higher. Slightly more than half of the participants reported using non-medical preventive practices, including acupressure, hydration, resting in a dark and quiet environment, and heat or cold therapy. A high proportion of participants also believed that caffeine reduces migraine-like symptoms [255, 67.6%], indicating a potentially important misconception or incomplete understanding because caffeine may have variable effects depending on dose, frequency of intake, and individual headache pattern. Knowledge and self-care practices are shown in Table 3.

Table 3: Knowledge and self-care practices among participants.

Domain	Response or category	Frequency (n)	Percentage, %
Knows difference between headache and migraine	Yes	218	57.8
	No	83	22.0
	Not sure	76	20.2
Migraine is a neurological disorder	True	215	57.0
	False	65	17.2
	Not sure	97	25.7
Perception that caffeine reduces migraine	Yes	255	67.6
	No	43	11.4
	Maybe	79	21.0
Awareness of medication-overuse headache	True	190	50.4
	False	71	18.8
	Not sure	116	30.8
Awareness of trigger points	Yes	272	72.1
	No	34	9.0
	Maybe	71	18.8
Non-medical preventive practice	Dark and quiet environment	50	13.3
	Heat or cold therapy	30	8.0
	Hydration	55	14.6
	Acupressure	65	17.2
	No non-medical method	177	46.9

Note: *Values are presented as n (%). Percentages were calculated using n = 377. Knowledge and self-care responses were self-reported. Medication-overuse headache refers to headache worsening associated with frequent or excessive use of acute headache medications.*

Medication use, consultation behaviour, work impact, and pharmacist-related responses.

OTC drugs or painkillers were selected as the main self-reported response during recurrent headache or migraine-like symptom episodes by 189 participants [50.1%]. Paracetamol was the most commonly selected OTC analgesic option [233, 61.8%]. Because the OTC analgesic item was answered by the total sample, this finding should be interpreted as a self-reported analgesic preference or selection rather than verified medication consumption. Less than half of the participants consistently consulted a doctor or pharmacist, while many consulted only sometimes or did not consult at all. Recurrent headache or migraine-like symptoms affected work performance and concentration among participants, mostly at mild to moderate levels. Most participants recognized the role of pharmacists in identifying medication-overuse headache, but willingness to receive pharmacist counselling was lower than pharmacist role recognition. These findings are summarized in

Table ***4***.

Table 4: Medication-related responses, consultation behaviour, work impact, and pharmacist-related responses.

Domain	Response or category	Frequency, n	Percentage, %
Main self-reported response during pain episode	Rest in dark or quiet room	39	10.3
	Sleep	105	27.9
	Drink water	28	7.4
	Reduce screen time	16	4.2
	OTC drugs or painkillers	189	50.1
Preferred OTC analgesic option selected by participants	Aspirin	75	19.9
	Diclofenac	42	11.1
	Ibuprofen	27	7.2
	Paracetamol	233	61.8
Consulted doctor or pharmacist	Yes	162	43.0
	No	85	22.5
	Sometimes	130	34.5
Impact on work performance	Mild impact	192	50.9
	Moderate impact	155	41.1
	Severe impact	30	8.0
Effect on concentration	Yes	282	74.8
	Sometimes	95	25.2
Reason for referring to pharmacist	Choosing safe painkillers	220	58.4
	Identifying triggers	54	14.3
	Lifestyle counselling	60	15.9
	Preventive strategies	43	11.4
Pharmacist role in identifying MOH	Yes	295	78.2
	No	82	21.8
Willingness to receive pharmacist counselling	Yes	196	52.0
	No	80	21.2
	Maybe	101	26.8

Note: *Values are presented as n (%). Percentages were calculated using the total sample size, n = 377, and rounded to one decimal place. "Main self-reported response during pain episode" and "preferred OTC analgesic option selected by participants" were separate questionnaire items. The OTC analgesic option item was answered by the total sample and represents the analgesic option selected or preferred by participants; it should not be interpreted as verified medication consumption by all participants. Medication-related responses, consultation behaviour, work impact, concentration impairment, and pharmacist-related responses were self-reported and were not verified using prescriptions, pharmacy records, or medication diaries. Abbreviations: MOH, medication-overuse headache; OTC, over-the-counter.*

Association between migraine-like self-classification and episode frequency.

Descriptive frequency distributions for headache characteristics, triggering factors, knowledge, self-care practices, medication use, consultation behaviour, work impact, and pharmacist-related responses are presented

in Tables 2 to 4. Pearson chi-square test was performed to examine the association between migraine-like self-classification and episode frequency. No statistically significant association was observed between migraine-like self-classification and episode frequency [$\chi^2 = 0.60$, df = 2, p = 0.740], indicating that daily, weekly, and occasional episode patterns were broadly comparable between participants with migraine-like self-classification and those with recurrent headache.

Overall, participants with recurrent headache and migraine-like symptoms reported frequent episodes, common lifestyle-related triggers, and noticeable work-related impact. Although participants showed moderate awareness of headache-migraine differentiation and trigger factors, gaps remained in medication-overuse headache awareness, professional consultation, and pharmacist counselling uptake. The findings highlight the need for structured pharmacist-led education on rational use of OTC analgesics, identification of triggers, self-care practices and appropriate referral for recurrent headache and migraine-like symptoms.

DISCUSSION

Participant profile and burden of recurrent headache and migraine-like symptoms among working adults.

In the present study, recurrent headache and migraine-like symptoms were assessed among 377 working adults. Most participants were young adults aged 21 to 23 years [217, 57.6%], with male predominance [254, 67.4%] and a larger representation of office or desk-based workers [149, 39.5%]. A total of 256 participants [67.9%] self-classified their condition as migraine-like; however, this should not be interpreted as migraine prevalence because the study did not use ICHD-3 criteria, physician diagnosis, or a validated migraine screening instrument. Therefore, the findings indicate a high burden of self-reported recurrent headache and migraine-like symptoms rather than clinically confirmed migraine.

The male predominance observed in this study should be interpreted as an important sampling limitation rather than a true sex-based pattern of migraine occurrence. Since migraine status was based only on participant self-classification and was not confirmed using ICHD-3 criteria or a validated migraine screening instrument, the present findings should not be interpreted as clinically confirmed migraine prevalence. Workplace-based studies from Malaysia and the Philippines have reported that migraine and recurrent headache can affect productivity, work performance, and quality of life.[12,13] Similarly, Korean and Spanish survey data have shown that higher migraine or headache frequency is associated with greater productivity loss and unmet care needs.[14,15] A study among healthcare professionals in the United Arab Emirates also reported that migraine affected quality of life, work performance, and disability.[16] In the present study, the occupational relevance is supported by concentration impairment reported by 282 participants [74.8%], indicating that recurrent headache and migraine-like symptoms may affect work efficiency even when individuals continue working.

Symptom pattern, triggering factors, and workplace relevance

In our study, weekly episodes were the most frequently reported headache pattern, while a smaller but clinically relevant proportion reported daily episodes. Most participants reported either short-duration pain lasting less than 1 hour or prolonged episodes lasting more than 12 hours. One-sided head pain was the most common pain location, and sensitivity to light and sound were the leading associated symptoms. These patterns resemble commonly reported migraine-like symptom profiles, but they cannot be used to confirm migraine diagnosis because no validated screening or diagnostic instrument was applied.

Triggering factors in this study were mainly lifestyle- and environment-related. Stress was the most common trigger, followed by lack of sleep, loud noise, bright light, and screen exposure. This pattern is broadly comparable with headache and migraine literature reporting stress, sleep disturbance, bright light exposure, and sensory stimuli as common headache-related triggers. However, in the present study these should be interpreted as triggers of recurrent headache or migraine-like symptoms, not confirmed migraine triggers.[16] Irfan et al. reported lack of sleep, bright light exposure, and stress as common triggers among migraine patients, while studies among physicians and healthcare professionals also identified stress and sleep deprivation as major contributors to migraine occurrence and work impairment.[17,18]

The workplace relevance of these triggers is important. Office-based work may increase exposure to screen time, artificial lighting, prolonged sitting, irregular breaks, and occupational stress, which may worsen headache susceptibility in vulnerable individuals. Similar findings have been reported among medical students and other professional groups, where stress was associated with migraine frequency, disability, and self-management behaviour.[19,20] Therefore, the trigger pattern observed in this study supports the need for practical workplace-level measures such as regular breaks, sleep hygiene education, hydration, screen-time modification, and early symptom recognition rather than relying only on medication after headache onset.

Knowledge gaps, caffeine perception, and self-care practices in headache management

In the present study, awareness regarding headache and migraine-like symptoms was moderate but incomplete. Although 218 participants [57.8%] reported knowing the difference between regular headache and migraine, only 190 [50.4%] recognized that frequent painkiller use may worsen headache. Similarly, non-medical preventive

practices were reported by 200 participants [53.1%], indicating that self-care behaviour was present but not consistently adopted across the study population. This pattern is comparable with recent public KAP studies and student-based studies, where participants showed partial awareness but continued to have misconceptions regarding symptoms, triggers, treatment, and appropriate healthcare-seeking behaviour.[5,21]

An important finding was that 255 participants [67.6%] believed caffeine reduces migraine-like symptoms. This response should be interpreted cautiously because caffeine may provide short-term relief in some headache episodes and may enhance the effect of some analgesics, but regular or excessive caffeine intake may also trigger headache, contribute to withdrawal headache, and increase the risk of medication-overuse headache when combined with frequent analgesic use.[7,22] Therefore, this finding may represent partial knowledge rather than fully appropriate self-care understanding. Pharmacist-led counselling should specifically address caffeine use, including dose, frequency, caffeine-containing analgesics, withdrawal symptoms, and medication-overuse risk.

From a workplace perspective, self-care may be difficult to implement because of job demands, screen exposure, lighting, limited rest opportunities, and reduced control over work schedules.4 Therefore, educational interventions for working adults should move beyond general migraine awareness and focus on practical trigger recognition, rational analgesic selection, caffeine-use counselling, medication-overuse prevention, and workplace-compatible self-care strategies. Pharmacists can support this process through OTC medicine counselling, medication-overuse risk identification, red-flag screening, and timely referral.[9]

OTC analgesic selection, consultation behaviour, and medication-overuse awareness

In the present study, OTC drugs or painkillers were selected as the main self-reported response during recurrent headache or migraine-like symptom episodes by 189 participants [50.1%]. Paracetamol was the most commonly selected OTC analgesic option [233, 61.8%]. Because the OTC analgesic item was answered by the total sample, these findings should be interpreted as self-reported analgesic preference or selection rather than verified medication consumption. In contrast, only 162 participants [43.0%] reported consulting a doctor or pharmacist, suggesting that self-directed medication-related responses were more common than professional consultation.

This pattern is comparable with recent migraine research showing frequent self-medication and OTC analgesic use. Aljafen et al. reported that paracetamol and NSAIDs were commonly used self-prescribed medicines among healthcare providers with migraine, while the OVERCOME Japan study reported that people with migraine may prefer OTC drugs, although overuse may contribute to medication-overuse headache.[6,23] Medication-overuse headache is a recognized complication of regular excessive use of acute headache medicines, and recent studies continue to highlight gaps in awareness and management.[24] Therefore, the present findings support the need for counselling on rational OTC analgesic use, limits of repeated painkiller intake, early recognition of medication-overuse risk, and timely referral for recurrent or worsening headache.

Pharmacist counselling need and implications for pharmacy practice.

In the present study, most participants recognized the pharmacist's role in identifying medication-overuse headache [295, 78.2%], but only 196 [52.0%] were willing to receive pharmacist counselling. This gap suggests that participants may conceptually accept pharmacists as accessible medicine experts, but may not fully perceive counselling as a routine part of headache-related care. The most common reason for referring to a pharmacist was choosing safe painkillers [220, 58.4%], supporting the practical relevance of pharmacists in OTC analgesic counselling and medication-overuse prevention.

This finding aligns with recent pharmacy-focused studies showing that community pharmacists can contribute to headache-related care through OTC medicine counselling, medication-overuse risk identification, red-flag screening, and timely referral. Alzahrani et al. reported that pharmacists had an important role in migraine care but required stronger knowledge and structured practice support.[8] Similarly, Alfahmi et al. showed that pharmacists had positive attitudes toward newer migraine therapies, although knowledge and practice gaps remained.[25] A recent position statement also emphasized that community pharmacists are an underused resource who can be integrated into structured headache services.[9] Therefore, pharmacist-led headache education should focus on safe OTC analgesic use, medication-overuse risk, trigger counselling, red-flag identification, and timely referral rather than medicine supply alone.

Limitations and Future Directions

This study has some limitations. Headache and migraine status were self-reported and were not confirmed using ICHD-3 criteria, physician diagnosis, ID-Migraine, or any validated migraine screening tool. Therefore, the 67.9% migraine-like self-classification should not be interpreted as confirmed migraine prevalence. Although the calculated sample size was achieved, convenience sampling and voluntary online response may limit representativeness. Medication-related responses were self-reported and were not verified using prescriptions, pharmacy records, or medication diaries. Medication-overuse headache was assessed only as awareness and

not as a clinical diagnosis. Future studies should use validated screening tools, headache diaries, verified medication-use data, and larger multicentre samples to evaluate pharmacist-led headache counselling.

CONCLUSION

Recurrent headache and migraine-like symptoms were common in working adults, with 67.9% of participants self-classifying their headache as migraine-like. This figure should not be interpreted as confirmed migraine prevalence since no validated migraine screening or diagnostic instrument was used. The most frequently reported triggers were stress, lack of sleep, loud noise, bright light, and screen exposure, and headache symptoms affected concentration and work performance. Participants had moderate awareness, but there were gaps in medication-overuse headache awareness, self-care consistency, and professional consultation. During headache episodes, the most frequently chosen response was OTC drugs or painkillers [50.1%], with paracetamol being the most frequently chosen OTC analgesic option. The strong belief that caffeine reduces migraine-like symptoms also suggests the need for counselling about appropriate caffeine use, caffeine-containing analgesics and withdrawal symptoms and medication-overuse risk. Pharmacist counselling may help working adults with recurrent headache and migraine-like symptoms to choose analgesics safely, identify triggers, learn about caffeine use, prevent medication overuse, recognise red flags, and get timely referrals.

Declarations

Conflicts of Interest

The authors declare no conflicts of interest relevant to this study.

Author Contributions

- **Senthil M**: Supervision, Conceptualization, Study Design, Manuscript Writing, Final Manuscript Approval.
- **Lithya S**: Data Collection, Methodology, Data analysis, Manuscript Writing
- **Dinesh V:** Data Collection, Methodology, Data analysis, Manuscript Writing
- **Vasikaran B**: Data Collection, Methodology, Data analysis, Manuscript Writing

All authors have read and approved the final manuscript.

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Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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