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Clinical and Self-Reported Lifestyle Characteristics of Adults With Chronic and Episodic Migraine in Najaf, Iraq: An Exploratory Cross-Sectional Study

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Abstract

Background

Chronic and episodic migraine may differ in headache frequency and clinical characteristics, but comparable descriptions from Iraqi tertiary neurology clinics are limited. We characterized headache phenotype and self-reported lifestyle factors among adults attending a clinic in Najaf, Iraq.

Methods

This single-center prospective observational cross-sectional study included 178 consecutive unique adults with clinician-recorded migraine diagnoses assigned using the International Classification of Headache Disorders, third edition (ICHD-3) framework between July 2025 and July 2026. Clinical and lifestyle information was collected during routine neurological consultations under an approved observational protocol and subsequently extracted from records. Two-sided Fisher exact and Mann-Whitney U tests compared chronic and episodic migraine. A post hoc six-covariate logistic regression was fitted; Benjamini-Hochberg adjustment was applied separately to 16 exploratory binary comparisons.

Results

Of 178 patients, 60 (33.7%) had chronic and 118 (66.3%) episodic migraine; 147 (82.6%) were women and 129 (72.5%) had migraine without aura. Median headache days/month were 20 and six, respectively; 46 episodic cases reported eight to 14 headache days/month. Phonophobia, photophobia and nausea were common across groups. Unilateral and pulsating headaches were nominally less frequent in chronic migraine. Irregular meals [61.7% versus 42.4%; adjusted odds ratio (aOR) 2.32, 95% confidence interval (CI) 1.18-4.56] and caffeine use (36.7% versus 53.4%; aOR 0.49, 95% CI 0.25-0.96) showed nominal associations, but the global regression test was not significant (P=0.057), and none of 16 binary comparisons survived false-discovery-rate adjustment (minimum q=0.198).

Conclusions

Chronic migraine accounted for approximately one-third of migraine cases in this selected tertiary-clinic cohort. Chronic and episodic subgroups shared many clinical characteristics; observed differences in pain phenotype and reported lifestyle factors require confirmation in larger studies.

Categories: Neurology
Keywords: caffeine consumption, chronic migraine, dietary habits, episodic migraine, headache phenotype, iraq

Introduction

Migraine contributes substantially to health loss worldwide [1]. Chronic migraine is distinguished from episodic migraine by headache frequency and migraine-specific criteria in the International Classification of Headache Disorders, third edition (ICHD-3) [2] and is associated with substantial burden in population-based research [3]. Migraine characteristics may vary along a headache-frequency continuum rather than forming two wholly separate symptom profiles [4]. Describing the clinical features of these diagnostic groups in a tertiary clinic can clarify the local case mix without implying population prevalence.

ICHD-3 requires headache on at least 15 days/month for more than three months, including at least eight monthly days fulfilling qualifying migraine-related criteria, in a patient with an established migraine history [2]. Longitudinal literature distinguishes factors associated with migraine progression from reported attack triggers, which cannot be resolved in a cross-sectional comparison [5].

Lifestyle habits are often discussed during migraine care. Reviews have found heterogeneous evidence regarding missed meals and fasting [6], while caffeine may relate to headache through habitual intake, acute treatment, or withdrawal [7]. Poor sleep may accompany frequent migraine, although temporal direction is difficult to establish from self-reports [8]. The distribution of these routinely assessed characteristics in Iraqi tertiary-care patients remains incompletely described.

Earlier Iraqi migraine cohorts have been reported from Erbil and Misan, and a women-only study from Sulaymaniyah addressed dietary factors [9-11]. A Tehran clinic study examined autonomic symptoms [12], a Turkish series described chronic-migraine phenotype [13], and the hospital-based Head- Middle East, North Africa, Asia (MENAA) study applied ICHD-3 across several regions [14]. A separate Iranian series addressed chronic daily headache, a wider diagnostic construct that should not be equated with chronic migraine [15]. Differences in eligibility and ascertainment limit direct comparisons among these reports.

We aimed to describe headache phenotype, associated symptoms, and routinely documented lifestyle characteristics in a consecutive tertiary-clinic migraine cohort and to compare patients classified as having chronic versus episodic migraine. These local descriptive data may help identify clinical assessment and research priorities; the study was not designed to determine population prevalence, regional disease burden, or the effectiveness of clinical care.

Materials And Methods

Study design, setting, and participants

This single-center, prospective observational cross-sectional study included 178 consecutive unique adults (aged ⩾18 years) with migraine attending a tertiary neurology clinic in Najaf, Iraq, between July 2025 and July 2026. Clinical and lifestyle information, including headache characteristics, medical history, sleep patterns, and dietary habits, was collected during routine neurological consultations under the approved observational research protocol, documented in clinical records and subsequently extracted for analysis. Eligible patients had clinician-recorded diagnoses of migraine assigned using the ICHD-3 framework. Eligibility, migraine diagnosis, and subtype classification were determined by the treating consultant neurologist, who was trained in general neurology without formal headache subspecialty training. Consecutive eligible migraine patients were included during the recruitment period, with one analytical observation per individual; repeat consultations and follow-up visits did not generate additional cases. Patients whose principal diagnosis was a headache disorder other than migraine were excluded. This exclusion does not imply that possible coexisting medication-overuse headache (MOH) precluded chronic migraine, as both diagnoses may coexist under ICHD-3. The analytical sample comprised 178 eligible individuals; a screening log of all attendees with other headache diagnoses and overall clinic activity/catchment information were unavailable. The sample size reflects the consecutive migraine cohort enrolled during the study period. Reporting followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [16].

Migraine definitions and clinical measures

Migraine subtype assignment was based on the treating consultant neurologist's final clinical diagnosis during routine assessment using the ICHD-3 diagnostic framework [2]. The relevant diagnostic criteria were assessed clinically during the original consultations; classification was not based solely on monthly headache frequency. Under ICHD-3, chronic migraine requires headache on ⩾15 days/month for >3 months, with ⩾8 days/month fulfilling qualifying migraine-related criteria in a patient with an established migraine history. Individual diagnostic components, including qualifying migraine-day counts, the duration of the chronic headache pattern, migraine-history details, and assessment of alternative diagnoses, were not separately retained in the analytical dataset. The dataset included final clinician-recorded subtype and total monthly headache days, so the ICHD-3 classification could not be independently re-adjudicated retrospectively. Episodic migraine was identified from the documented final clinical diagnosis. Frequency values are reported as headache days, not independently measured qualifying migraine days. Because information about acute medication exposure was not systematically available, coexisting MOH could not be assessed; under ICHD-3, MOH does not automatically exclude a chronic-migraine diagnosis.

Recorded characteristics included age, sex, migraine aura, family history, monthly headache days, headache phenotype and associated symptoms, reported sleep duration and subjective sleep quality, caffeine use, smoking, residence and dietary habits. These characteristics were documented during routine assessments and extracted from clinical records; no separate research questionnaire or validated sleep/diet scale was used for the present comparisons. Short sleep was defined as <7 hours/night. Subjective sleep quality was recorded as good, fairly good, fairly bad, or bad; fairly bad and bad were combined as poor sleep quality, while good and fairly good were classified as not poor sleep quality. All 178 included patients had a classifiable sleep-quality response, with no absent or ambiguous sleep-quality observations requiring exclusion or imputation.

Dietary variable definition

Dietary habits were elicited during routine clinical assessment. The original response categories were

irregular meals, missed breakfast, high sugar intake, high salt intake, and “other”; multiple listed categories could be recorded for a patient. Irregular meal patterns were specifically assessed in all 178 patients and coded Yes when reported and No when explicitly denied or when the documented dietary response established that they were not reported. In 43 records categorized as “other” only, this response indicated that none of the listed dietary factors were reported; these records were therefore coded "no" for irregular meals, not treated as missing. Under the confirmed recording and coding procedure, all 178 irregular-meal responses were classifiable as "yes" or "no", with no undocumented or ambiguous responses reported for this variable and no imputation required. This coding description reflects the original recording convention and is not presented as an independent source-note audit. High sugar and high salt intake were qualitative, self-reported categories without standardized amounts or thresholds, limiting their interpretation as dietary exposures. These categories were recorded but omitted from the selected, non-exhaustive family of 16 reported exploratory binary comparisons; no prospectively specified selection rule for that family is claimed. Their omission does not establish the absence of associations. Any caffeine consumption was coded "yes/no"; dose, beverage type, frequency, timing, and withdrawal were not quantified.

Statistical analysis

Categorical variables were summarized as counts and percentages, and continuous variables as medians and interquartile ranges (IQRs). Binary comparisons used two-sided Fisher exact tests; unadjusted odds ratios (ORs) with 95% confidence intervals (CIs) are presented as descriptive effect sizes. Age and sleep duration were assessed by two-sided Mann-Whitney U tests and were not included in the multiplicity-adjusted binary family. Headache-day frequency was described without a between-group test because it was part of the subtype definition. The analysis reported 16 selected exploratory binary comparisons of demographic, headache-phenotype, and lifestyle characteristics; this comparison family was defined for the present analysis, not prospectively registered, and did not exhaust every recorded clinical or dietary variable. Benjamini-Hochberg-adjusted q values were calculated only across these 16 comparisons. Regression coefficient P values and the global regression likelihood-ratio P value were reported separately without multiplicity adjustment; a nonsignificant global test does not mathematically invalidate individual coefficient tests. All variables used in the reported analyses had classifiable values for the 178 participants; no imputation or complete-case exclusion was necessary. This does not imply that every item in every original clinical note was complete.

An additional post hoc logistic regression modeled clinician-assigned chronic migraine (1) versus episodic migraine (0) using six covariates: age, female sex, migraine with aura, any caffeine use, irregular meals, and poor subjective sleep quality. Age was entered continuously in years; the other predictors were binary (yes=1, no=0). Age, sex, and aura provided basic clinical adjustment, while the lifestyle variables were selected as routinely documented candidate exposures. The model was exploratory rather than prespecified, with 60 chronic-migraine outcomes and six slope parameters; it did not include every potentially relevant clinical or psychological characteristic and was not intended for individual prediction. We report adjusted odds ratios (aORs), 95% Wald CIs, nominal coefficient P values, the global likelihood-ratio test, McFadden and Nagelkerke pseudo-R^2, convergence, the Hosmer-Lemeshow goodness-of-fit test, and classification performance at a probability cutoff of 0.50. The fitted coefficients were verified against the patient-level analytical dataset using IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, USA). Because the published aggregate tables do not include patient-level joint covariate combinations, they cannot independently reproduce the adjusted regression coefficients; supplementary Fisher exact tests, effect-size CIs, and false-discovery-rate calculations were obtained in Python with SciPy and statsmodels. Analyses were two-sided.

Ethics

The research protocol was approved by the Institutional Ethics Committee of the Middle Euphrates Center for Neurological Sciences, Najaf, Iraq (Approval No. 94, June 22, 2025). The committee waived the requirement for individual informed consent because the study involved anonymized data collected during routine clinical care. The present analysis used anonymized clinical records, and no additional patient contact was undertaken.

Results

Participants and baseline characteristics

The analytical sample included 178 unique adults with migraine: 60 (33.7%) classified clinically as chronic and 118 (66.3%) as episodic. Women comprised 147 patients (82.6%), and 129 (72.5%) had migraine without aura. Median age was 29.0 years (IQR 23.0-40.0) in the chronic group and 32.0 years (IQR 25.0-42.8) in the episodic group. Median headache days/month were 20.0 (IQR 15.0-25.0; observed range 15-30) and 6.0 (IQR 3.3-8.0; observed range 1-14), respectively (Table *1*). No episodic patient had ⩾15 recorded headache days/month, and no chronic patient had fewer than 15. This frequency pattern was consistent with the assigned categories, but it did not independently verify the remaining ICHD-3 criteria. Among patients with episodic migraine, 46 of 118 (39.0%) reported eight to 14 headache days per month, including 20 reporting exactly eight headache days. These counts refer to headache days rather than separately established qualifying migraine days.

Characteristic	Chronic (n=60)	Episodic (n=118)	P	Unadjusted OR (95% CI)
Age, years, median (IQR)	29.0 (23.0–40.0)	32.0 (25.0–42.8)	0.170	—
Female sex	51 (85.0%)	96 (81.4%)	0.677	1.30 (0.56–3.03)
Migraine with aura	16 (26.7%)	33 (28.0%)	1.000	0.94 (0.47–1.88)
Headache days/month, median (IQR)	20.0 (15.0–25.0)	6.0 (3.3–8.0)	—	—
Family history of migraine	43 (71.7%)	89 (75.4%)	0.592	0.82 (0.41–1.66)
Sleep duration, hours, median (IQR)	7.0 (6.0–8.0)	7.0 (6.0–8.0)	0.855	—
Short sleep (<7 hours)	21 (35.0%)	43 (36.4%)	0.870	0.94 (0.49–1.80)
Bad/fairly bad sleep quality	27 (45.0%)	50 (42.4%)	0.751	1.11 (0.59–2.08)
Smoking (yes/no)	10 (16.7%)	19 (16.1%)	1.000	1.04 (0.45–2.41)
Urban residence	45 (75.0%)	86 (72.9%)	0.858	1.12 (0.55–2.27)

TABLE 1: Demographic and baseline clinical characteristics

Counts are n (%); continuous variables are median (IQR). ORs compare the odds of each characteristic in chronic versus episodic migraine, with unadjusted 95% Wald CIs; ORs do not apply to continuous rows. Fisher exact P values are exploratory. Mann–Whitney U tests for age and sleep duration are outside the family of 16 binary false discovery rate (FDR)-adjusted tests; headache-day frequency was not tested because it contributes to subtype definition.

Headache phenotype and lifestyle reports

Across all 178 patients, phonophobia was reported by 84.3%, photophobia by 81.5%, and nausea by 71.9%, with similar observed proportions in the two migraine subgroups. Unilateral pain (55.0% chronic versus 70.3% episodic) and pulsating pain (70.0% versus 83.9%) had nominal Fisher exact P values of 0.047 and 0.049, respectively. Irregular meals (61.7% versus 42.4%) and caffeine use (36.7% versus 53.4%) also differed nominally (Table *2*). None of these 16 binary comparisons remained statistically significant after false-discovery-rate adjustment (Table *3*).

Characteristic	Chronic (n=60)	Episodic (n=118)	P	Unadjusted OR (95% CI)
Nausea	41 (68.3%)	87 (73.7%)	0.483	0.77 (0.39–1.52)
Vomiting	10 (16.7%)	22 (18.6%)	0.838	0.87 (0.38–1.99)
Photophobia	48 (80.0%)	97 (82.2%)	0.839	0.87 (0.39–1.91)
Phonophobia	53 (88.3%)	97 (82.2%)	0.385	1.64 (0.65–4.11)
Unilateral headache	33 (55.0%)	83 (70.3%)	0.047	0.52 (0.27–0.98)
Pulsating headache	42 (70.0%)	99 (83.9%)	0.049	0.45 (0.21–0.94)
Irregular meals	37 (61.7%)	50 (42.4%)	0.018	2.19 (1.16–4.13)
Any caffeine use	22 (36.7%)	63 (53.4%)	0.04	0.51 (0.27–0.96)
Missed breakfast recorded	18 (30.0%)	36 (30.5%)	1	0.98 (0.50–1.92)

TABLE 2: Headache phenotype and selected self-reported behaviors

Values are n (%). The OR and 95% CI are unadjusted and compare chronic with episodic migraine; Fisher exact P values are unadjusted. The 16-test false discovery rate (FDR)-adjusted q values are in Table 3. The 43 “Other-only” dietary responses indicated none of the listed factors, not missing data. OR: odds ratio.

Exploratory variable	Chronic	Episodic	P	FDR q
Female sex	51/60	96/118	0.677	1
Migraine with aura	16/60	33/118	1	1
Family history	43/60	89/118	0.592	1
Short sleep (<7 h)	21/60	43/118	0.87	1
Bad/fairly bad sleep quality	27/60	50/118	0.751	1
Caffeine use	22/60	63/118	0.04	0.198
Smoking	10/60	19/118	1	1
Urban residence	45/60	86/118	0.858	1
Irregular meals	37/60	50/118	0.018	0.198
Missed breakfast recorded	18/60	36/118	1	1
Nausea	41/60	87/118	0.483	1
Vomiting	10/60	22/118	0.838	1
Photophobia	48/60	97/118	0.839	1
Phonophobia	53/60	97/118	0.385	1
Unilateral headache	33/60	83/118	0.047	0.198
Pulsating headache	42/60	99/118	0.049	0.198

TABLE 3: Exploratory binary subgroup comparisons and false-discovery-rate adjustment

Two-sided Fisher exact P-values and Benjamini–Hochberg-adjusted q-values are presented for all 16 exploratory binary comparisons. Group denominators were 60 patients with chronic migraine and 118 with episodic migraine. Mann–Whitney U tests for age and sleep duration were excluded from the false discovery rate (FDR)-adjusted comparison family.

Exploratory adjusted model

The exploratory six-covariate regression yielded an aOR for irregular meals of 2.32 (95% CI 1.18-4.56; nominal P=0.015) and for caffeine use of 0.49 (95% CI 0.25-0.96; nominal P=0.038). The model converged after four iterations. The global likelihood-ratio test was not significant ($\chi^2(6)=12.230$, P=0.057); explanatory fit was limited (McFadden pseudo-$R^2=0.054$; Nagelkerke $R^2=0.092$). The Hosmer-Lemeshow statistic was $\chi^2(8)=1.667$ (P=0.990). At a classification cutoff of 0.50, overall accuracy was 66.9%, sensitivity for chronic migraine was 23.3%, and specificity for episodic migraine was 89.0%, indicating limited discriminatory performance (Table *4*). The regression coefficient P values were not subjected to the 16-comparison false discovery rate (FDR) adjustment; the minimum FDR-adjusted q among those separate binary comparisons was 0.198. The nonsignificant global model test does not nullify individual nominal coefficient tests, but these exploratory associations should not be interpreted as validated determinants or causal effects.

Covariate	aOR	95% CI	P
Age (per year)	0.98	0.95–1.01	0.281
Female sex	1.07	0.43–2.67	0.881
Migraine with aura	0.94	0.45–1.97	0.868
Caffeine use	0.49	0.25–0.96	0.038
Irregular meals	2.32	1.18–4.56	0.015
Bad/fairly bad sleep	0.96	0.49–1.86	0.896

TABLE 4: Exploratory logistic regression for chronic migraine

Exploratory model: n=178, 60 chronic-migraine outcomes, six slope parameters. Global likelihood-ratio P=0.057; McFadden pseudo-R^2=0.054. Model selected post hoc. aOR: adjusted odds ratio; CI: confidence interval.

Discussion

Principal findings and clinical interpretation

In this consecutive tertiary-clinic cohort, clinician-assigned chronic migraine accounted for approximately one-third of migraine cases. Women and patients without aura predominated, and phonophobia, photophobia, and nausea were common across both groups. Lifestyle differences were secondary exploratory findings that require independent confirmation. The study provides a local descriptive case mix rather than evidence of population prevalence, regional migraine burden or improvement in clinical care.

Chronic migraine frequency and comparison with published cohorts

The chronic-migraine proportion was 60/178 (33.7%) in this tertiary neurology sample. It reflects selected patients presenting for specialist assessment, not migraine prevalence in Najaf or the community. The clinic's referral catchment, total headache-clinic attendance, and numbers of other primary and secondary headache diagnoses were unavailable, preventing estimation of regional disease burden or the overall distribution of headache disorders. Clinic-based reports from Misan and the multicountry Head-MENAA project included different recruitment and headache case mixes; their subtype proportions are not directly comparable [10,14].

Median recorded headache frequency was 20.0 days/month among those classified as chronic and 6.0 among those classified as episodic, consistent with the frequency threshold in ICHD-3 [2]. However, headache-day frequency alone does not verify the duration of the pattern, qualifying migraine-day count, migraine history, or exclusion of alternative diagnoses. Longitudinal research identifies possible contributors to progression, but the present cross-sectional data cannot establish such pathways [5,17].

Sex distribution, age and migraine aura

Women represented 82.6% of the Najaf cohort, compared with 77.0% in the 200-patient Erbil series, 77.9% in the 1,412-patient Misan cohort, 77.2% in a Tehran headache-referral cohort and 85.0% in a Turkish chronic-migraine series [9,10,12,13]. Migraine without aura accounted for 72.5% of the Najaf cohort and 72.0% of Erbil cases [9]. Differences in setting and eligibility limit formal cross-cohort comparison, but the broad female predominance and frequency of migraine without aura are consistent.

Within Najaf, female sex (85.0% chronic versus 81.4% episodic), aura (26.7% versus 28.0%), family history (71.7% versus 75.4%) and median age (29.0 versus 32.0 years) showed no clear subgroup differences. The unadjusted effect-size confidence intervals in Table *1* indicate substantial uncertainty, so statistical non-significance should not be equated with clinical equivalence.

Headache phenotype and associated symptoms

Overall, phonophobia (84.3%), photophobia (81.5%), and nausea (71.9%) were common. For context, the Erbil series reported phonophobia in 92.0%, photophobia in 84.0%, and nausea in 86.5% [9]. These descriptive differences could reflect patient selection or how symptoms were elicited and documented.

In the chronic-migraine subgroup, 55.0% reported unilateral pain, 70.0% pulsating quality, 88.3% phonophobia, 80.0% photophobia and 68.3% nausea. A Turkish chronic-migraine series (n=835) reported 39.5% predominantly unilateral headache, 77.2% throbbing pain, 80.2% phonophobia, 71.2% photophobia and 77.6% nausea [13]. However, that study used ICHD-2-era diagnostic ascertainment and excluded

medication-overuse headache, whereas coexisting medication overuse was not systematically characterized in our cohort. These percentages therefore provide descriptive context but are not directly comparable.

Unilateral and pulsating headache were nominally less frequent among chronic than episodic cases in Najaf, but both adjusted q values were 0.198. An Indian clinic-based study described episodic and chronic clinical profiles, although differences in ascertainment limit direct quantitative comparison [18]. Recent population-based evidence supports investigating migraine burden and characteristics across a headache-frequency spectrum [4]; it does not replace ICHD-3 diagnostic requirements or independently validate the clinician-recorded subtype classifications used here.

Sleep, family history and the wider clinical profile

Median reported sleep duration was seven hours in each subgroup. Poor subjective sleep quality was reported in 45.0% of chronic and 42.4% of episodic cases, short sleep in 35.0% and 36.4%, and family history in 71.7% and 75.4%, respectively. Corresponding confidence intervals were wide, and the routine sleep categories were not derived from a validated sleep instrument.

Sleep disruption as a reported trigger, subjective sleep quality, and clinically diagnosed sleep disorders are distinct measures; the available data do not separate them [8]. Information on current preventive treatments, acute medication use and treatment timing was not systematically recorded; treatment-related confounding could not be assessed. Medication-overuse headache could not be classified reliably, and potential coexistence with chronic migraine cannot be excluded. Under ICHD-3, MOH and chronic migraine can both be diagnosed when their respective criteria are met.

Dietary patterns and caffeine: secondary exploratory observations

Irregular meals were recorded in 61.7% of chronic versus 42.4% of episodic cases, while any caffeine use was recorded in 36.7% versus 53.4%. The regression coefficients were nominally associated with subgroup status, but the global model P value was 0.057, and none of the 16 binary subgroup contrasts survived multiplicity adjustment. These results do not establish causality or justify interpreting caffeine as protective.

Woldeamanuel and Cowan reported regular lifestyle behavior in 22% of chronic versus 69% of episodic migraine cases, but their composite included several behaviors and differs from our meal variable [19]. The Iraqi dietary survey and 2025 scoping review likewise used differing exposure definitions [6,11]; the review does not establish that irregular meals cause migraine chronicity. In our study, caffeine was measured only as any use; beverage type, amount, frequency, timing, withdrawal, and behavioral changes after headache onset were unavailable [7]. Self-reported high sugar and high salt categories lacked standardized intake thresholds and were not among the selected 16 subgroup comparisons. Neither irregular meals nor caffeine exposure can be interpreted causally in these cross-sectional data.

Strengths and limitations

Consecutive inclusion of unique patients, clinical use of the ICHD-3 framework, descriptive effect sizes with confidence intervals, and transparent reporting of the selected 16 binary contrasts and the global regression result are strengths. The reported analytical variables had classifiable values without imputation. However, routine clinical documentation may be less uniform than standardized research assessments, and no independent verification of the full diagnostic criteria from the analytical dataset was possible.

The single-center tertiary setting limits generalizability. Referral catchment, overall clinic volume, and screening counts for other headache diagnoses were unavailable, so neither population prevalence nor regional burden can be inferred. Although the treating consultant neurologist assessed ICHD-3 criteria clinically, qualifying migraine-day counts, chronic-pattern duration and other diagnostic components were not separately retained, and some diagnostic misclassification cannot be excluded. Sleep and dietary measures were self-reported without validated instruments. Caffeine type, amount, and timing and standardized measures of sugar and salt intake were unavailable. The selected set of 16 comparisons was not prospectively registered or exhaustive, and no independent patient-by-patient source-note audit of the dietary coding or diagnostic criteria is presented in this study. Preventive treatment, acute medication patterns, and treatment timing were not systematically recorded, preventing adjustment for treatment effects or classification of coexisting MOH. Psychological characteristics, including anxiety and depression, were not included in the six-covariate model. The modest number of chronic-migraine outcomes (60 for six slopes), omission of potentially important covariates, and post hoc model selection allow residual confounding and imprecise or unstable estimates. The nonsignificant overall model test and low sensitivity further restrict its clinical interpretability. Cross-sectional associations cannot establish temporal or causal relationships.

Implications

Future studies should combine multicenter clinical recruitment and population-based sampling with explicit screening denominators and referral-area documentation, prospective recording of all ICHD-3

diagnostic components, standardized symptom and lifestyle measurements, detailed caffeine and medication histories (including MOH), and standardized evaluation of psychological comorbidity, particularly depression and anxiety. Longitudinal follow-up would help distinguish reported attack triggers from factors preceding changes in headache frequency and determine local healthcare burden more reliably.

Conclusions

In 178 adults with clinician-recorded migraine diagnoses attending a Najaf tertiary neurology clinic, 33.7% were assigned a chronic-migraine diagnosis using the ICHD-3 framework. Women predominated, and phonophobia, photophobia, and nausea were frequent. Most demographic, sleep, and associated-symptom measures showed no clear subgroup differences. Nominal associations involving pain phenotype, irregular meals, and caffeine were not robust to the separate exploratory multiplicity analysis. These findings describe the locally selected clinical cohort, not regional prevalence or burden, and warrant confirmation in larger, more comprehensively assessed studies.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Institutional Ethics Committee, Middle Euphrates Center for Neurological Sciences, Najaf, Iraq issued approval 94. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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