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Title

Complementary and Alternative Medicine use for Headache and Migraine: A Critical Review of the Literature

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Abstract

Contexts: An evidence base for CAM consumption within general populations is emerging. However, research data on CAM use for headache disorders remains poorly documented. This paper, constituting the first critical review of literature on this topic, provides a synopsis and evaluation of the research findings on CAM use amongst patients with headache and migraine.

Methods: A comprehensive search of literature from 2000 to 2011 in CINAHL, MEDLINE, AMED, and Health Sources was conducted. The search was confined to peer-reviewed articles published in English reporting empirical research findings of CAM use among people with primary headache or migraine.

Results: The review highlights a substantial level of CAM use among people with headache and migraine. There is also evidence of many headache and migraine sufferers using CAM concurrent to their conventional medicine use. Overall, the existing studies have been methodologically weak and there is a need for further rigorous research employing mixed method designs and utilizing large national samples.

Discussion: The critical review highlights the substantial prevalence of CAM use amongst people with headache and migraine as a significant health care delivery issue and healthcare professionals should be prepared to enquire and discuss possible CAM use with their patients during consultations. Healthcare providers should also pay attention to the possible adverse effects of CAM or interactions between CAM and conventional medical treatments amongst headache and migraine patients.

Keywords

Headache, migraine, complementary and alternative medicine, prevalence, review

Complementary and Alternative Medicine use for Headache and Migraine: A Critical Review of the Literature

The use of complementary and alternative medicine (CAM) – a diverse group of healthcare practices and products not traditionally associated with the medical profession or medical curriculum¹ – has increasingly become a mainstream healthcare activity in Western societies.²⁻⁶ In recent years, CAM has become an issue of growing importance for healthcare practitioners as well as policy-makers.^{1,7,8}

Over recent decades, the evidence base for CAM consumption within general populations has emerged.⁹⁻¹³ However, research data on CAM use for specific health or clinical conditions remains less well documented and the use of CAM specifically for headache and migraine is no exception. This paper provides the first critical, systematic examination of the evidence-base of this crucial healthcare issue, synthesizing empirical research findings and highlighting a number of gaps and challenges facing future research in this increasingly important practice area.

Headache and Migraine: The Significance of Exploring CAM Use

Headache and migraine is a very common health condition and according to the International Headache Society the percentage of the global adult population with an active general headache disorder is 46% with 11% suffering from migraines, 42% suffering tension-type headaches and 3% suffering chronic daily headache.¹⁴ A systematic review has identified the global prevalence of chronic migraine at 0–5.1%,

with estimates typically in the range of 1.4–2.2% of the general population.¹⁵ The impact of headache disorders is substantial and the World Health Organization ranks headache disorders as some of the most disabling conditions for both men and women.¹⁴ Given the substantial effect of headache and migraine on the quality of life of the sufferer and the significant disruption to work, family and social duties¹⁶⁻¹⁸ it is imperative that all effective headache and migraine treatments be explored and researched.

Conventional medical intervention for headache and migraine often involves pharmacological treatment. Acetaminophen (paracetamol), acetylsalicylic acid (aspirin), dipyrrone, derivatives of ergot fungus, chlorpromazine, triptans (Imitrex/Imigran et al.), and non-steroidal anti-inflammatories are the most commonly prescribed drugs for the acute treatment of headache and migraine.¹⁹ Tricyclic anti-depressants, beta-blockers and anti-epilepsy drugs are the most commonly prescribed and best evidence based classes of pharmacologic preventative interventions for episodic migraine.²⁰ Despite many patients reporting benefits from these drug treatments, the pharmacological interventions are not without their limitations or side-effects. For instance, amitriptyline, one of the most widely used preventive antimigraine agents, has side-effects ranging from drowsiness, dry mouth, constipation and weight gain to the possibility of precipitating cardiac arrhythmias, seizures or exacerbating closed angle glaucoma.¹⁹ In addition, headache and migraine are often long term with relapses and remissions that create continuing distress and disruption to patients' daily lives.¹⁶

The treatment of headache and migraine is one area of health care where CAM treatment shows some promise.²¹⁻²⁸ Nevertheless, the benefits and risks of CAM in

treating and managing headache and migraine disorders remain contested and a recent systematic assessment of the evidence base of CAM treatment for primary headache found that the overall quality of research of CAM approaches still lags behind studies of conventional medical approaches to primary headache.²⁹

Results from large cohort/population studies suggest that CAM use is common among headache and migraine patients. For instance, a United States (US) study on symptoms and conditions among CAM users in a large military cohort (n=86,131) suggested that about 10% of the respondents reported the problem of migraine headache and the study suggested this condition is more likely to be reported by CAM users than by people not using CAM.³⁰ Analysis of the US National Health Interview Survey (n=31,044) also identified headache as one of the most common health problems experienced by CAM users.³¹ While these studies highlight a relationship between CAM use and headache disorders, they provided little information on the patterns of and motivations for CAM use among people with headache and migraine.

Although evidence of CAM use for headache and migraine is emerging, there has been no review or synthesis of CAM user characteristics, perceptions or motivations amongst headache and migraine sufferers. Such a review is essential in order to provide important insights for health practitioners and policymakers with regards to the safety and continuity of care for patients – an issue pronounced by the fact that CAM users appear not to disclose such use to their conventional doctors. Previous studies reveal that a lack of GP interest in their patients' use of CAM or the patients' perception that CAM use is not an important issue that should be raised with their doctor are the two major factors contributing to nondisclosure of CAM.³²⁻³⁴ In

response, this paper provides the first synopsis and evaluation of the research findings on CAM use amongst patients with headache and migraine as identified from recent international empirical literature. Specifically, this paper aims to: 1) identify the relevant studies that examine the use of CAM among people with headaches; 2) analyse the quality of these studies; and 3) summarise the key findings from these studies using theme-based analysis.

Methods

Design

The aim of the review is to examine the current prevalence, pattern and details of CAM use among people with headache and migraine. A comprehensive search of the literature between 2000 and 2011 was undertaken in line with the exponential growth in CAM use and growing research attention upon this topic over the past decade. The CINAHL, MEDLINE, Health Source and AMED databases were searched, using the following key terms and phrases: *complementary medicine/therapy, alternative medicine/therapy, natural medicine/therapy, holistic medicine/therapy, headache, primary headache, migraine, cephalalgia, cephalgia, cranial pain and hemicrania*. The CINAHL, MEDLINE and Health Source are three of the most popular, comprehensive databases for health and medicine scholarship. The AMED database was also chosen as an authoritative resource on allied health and complementary medicine scholarship. The database search was confined to peer-reviewed articles published in English.

To ensure all relevant international literature was identified, the authors also conducted hand searches in prominent headache and migraine journals including

Headache, Cephalalgia and *Journal of Headache and Pain*. Relevant works were also identified by examining bibliographies of publications.

The search results were imported into Endnote,³⁵ a bibliographic management system software program, with all duplicated items removed. The remaining titles and their abstracts were screened and assessed independently by two authors who employed the following criteria to identify relevant studies for inclusion in the review: Peer-reviewed, research-based papers reporting new empirical findings focusing upon either CAM use among people with primary headache or migraine, or CAM use amongst a broader population or general population where CAM use among headache and/or migraine patients was clearly identifiable and extractable.

Those papers identified as individual case reports or CAM clinical trials were excluded from the review. In those circumstances where the abstract was deemed to not provide sufficient information, the full article was retrieved and examined prior to a final decision regarding inclusion or exclusion status.

Search Outcomes

The initial search identified 565 papers and a total of fourteen articles met the selection criteria. Two of these fourteen articles^{36 37} were subsequently eliminated due to reporting the findings of surveys which were already covered elsewhere.^{38 39} As a result, a total of twelve papers were included in this review. Figure 1 reports the literature search process and Table 1 summarizes the basic details of the included papers.

Figure 1: Flowchart of Literature Search Process

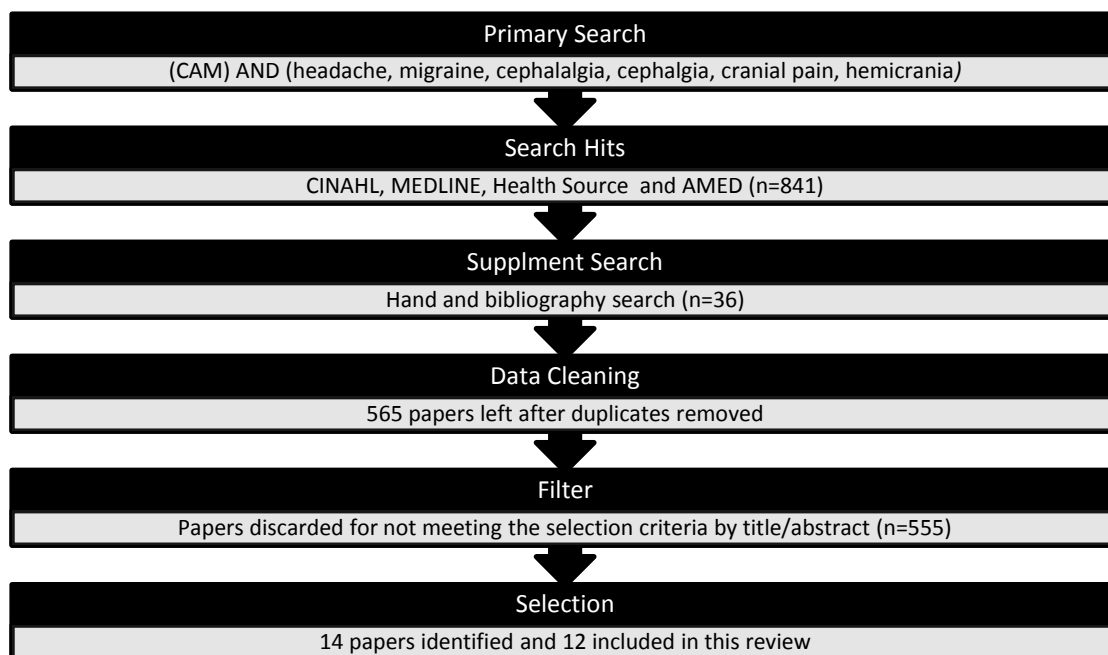


Table 1: Research-based studies on the use of complementary and alternative medicine for headache and migraine, 2000 - 2011

Author/Country	Design/Sampling	Use Rate	Popular Therapies Used	Predictors of Use	Special Remark
Eisenberg <i>et al.</i> , ⁴⁰ USA	Survey of adults who saw a medical doctor and used CAM therapies National representative sample, n=831	N.A.	N.A.	N.A.	Study on the general population
Gaul <i>et al.</i> , ³⁸ Austria and Germany	Survey of patients of 7 tertiary headache centres Convenience sample, n=432	81.7% used at least 1 CAM (life time use) for headache therapy 71.1% used CAM in addition to conventional treatment for headache Median CAM therapies used for headache = 3.9 during the course of disease	Acupuncture (58%) Massage (46%) Relaxation techniques (42%) Homeopathy (23%)	A higher number of headache days* Longer duration of headache treatment* Higher personal costs* Use of CAM for other diseases*	Study on people with headache and migraine

		Mean duration of CAM use			
		for headache = 7.2 yrs			
Kazak <i>et al.</i> , ⁴¹ Switzerland	Survey of outpatients of a headache and pain clinic Convenience sample, n=1,625	29.8% reported use of CAM treatments before and after referral to the clinic	Acupuncture (69.8%) Homeopathy (24.8%)	N.A.	Study on people with headache and migraine
Lambert <i>et al.</i> , ⁴² UK	Survey of patients attending an outpatient headache clinic Convenience sample, n=92	32% used a median of 3 CAM therapies for headache (life time use) 46% used CAM for headache had also used it for other conditions (life time use)	Massage (15%) Acupuncture (13%) Herbal medicine (12%) Exercise (11%) Vitamins/Supplements (10%)	Headache Impact Test (HIT-6) score in the range of 42-60 and 61-78	Study on people with headache and migraine
Metcalfe <i>et al.</i> , ⁴³ Canada	A community health survey of people aged ≥12 National representative	19.0% of people with migraine visited a CAM practitioner (in last 12 months)	People with migraine had significantly higher odds in using chiropractic service (OR=1.48) and massage therapist	Migraine remained significant predictors (OR=1.42) of CAM use after controlling	Study on the general populatio

	sample (n=400,055)	People with migraine had a significantly higher odds of using CAM (OR=1.78)	(OR=1.13) than the general population	for demographic factors	n
Rossi <i>et al.</i> , ⁴⁴ Italy	Interview of patients 16-65 yrs of a headache clinic with different migraine subtypes Convenience sample, n=481	31% - used for migraine (in the past) 17% - used for migraine (in last 12 months) 69% - never use for migraine 89% CAM users - used specifically for headache Median CAM therapies used for migraine = 1	Acupuncture (27%) Homeopathy (22%) Massage (10%) Chiropractic (9%)	A diagnosis of medication overuse + migraine without aura and chronic migraine Higher number of specialists consults Higher number of conventional general practitioner (GP) consults Co-morbid psychiatric disorders Higher annual household income Headache either misdiagnosed or not diagnosed	Study on people with headach e and migraine

Rossi <i>et al.</i> , ⁴⁵ Italy	Interview of patients 18-65 yrs of a headache clinic suffering from chronic tension-type headaches (CTTH) Convenience sample, n=110	40% - used for CTTH (in the past) 23% - used for CTTH (in last 12 months) 60% - never used for CTTH	Chiropractic (22%) Acupuncture (18%) Massage (18%) Homeopathy (8%)	Higher number of lifetime conventional GP consults Co-morbid psychiatric disorders Higher annual household income Had never used pharmacological preventative therapy	Study on people with headache and migraine
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Rossi <i>et al.</i> , ⁴⁶ Italy	Interview of patients 18-65 yrs of a headache clinic suffering from cluster headaches (CH) Convenience sample, n=100	29% - used for CH (in the past) 10% - used for CH (in last 12 months) 71% - never used for CH	Acupuncture (30%) Homeopathy (14%) Acupressure (12%) Chiropractic (12%) Therapeutic touch (10%)	Higher number of lifetime conventional GP consults Higher number of cluster headache per year	Study on people with headach e and migraine
Soon <i>et al.</i> , ⁴⁷ Singapore	Surveys at baseline and 3 months interval of patients of a specialist headache clinic Convenience sample, n=38	34% reported use after consult with GP 18% reported use after consult with specialist	31% - traditional medicine (the most widely used therapies at baseline) 11% - acupuncture (the most widely used therapies at 3 months interval)	N.A.	Study on people with headach e and migraine
von Peter <i>et al.</i> , ⁴⁸ USA	Interview of patients 18 yrs and older with headache syndromes attending a head and neck pain clinic	84% used ≥ 1 treatments for headache, with a mean amount of 3 ± 2 modalities used per	Massage (42%) Exercise (30%) Acupuncture (19%) Biofeedback (15%) Chiropractic (15%)	N.A.	Study on people with headach e and

	Convenience sample, n=73	patient (life time use) A mean knowledge of 7±9 treatments per patient	Herbs (15%) Vitamins/Supplements (14%) Therapeutic touch (10%)		migraine
Vukovic <i>et al.</i> , ⁴⁹ Croatia	Survey of adults >18 yrs old Convenience sample, n=616 115 with migraine (M) 327 with tension-type headache (TTH) 174 with probable migraine (PM) and TTH	27% of M and 27% of TTH and 28% of PM patients used CAM (life time use)	<i>For M patients:</i> Physical therapy (10%) Acupuncture (9%) Yoga, meditation (7%) <i>For TTH patients:</i> Physical therapy (12%) Chiropractics (4%) Acupuncture/Yoga, meditation (3%) <i>For PM patients:</i> Physical therapy (10%) Chiropractics (7%) Acupuncture (5%)	N.A.	Study on the general populatio n

Wells <i>et al.</i> , ³⁹ USA	Secondary analysis of a national health survey Representative sample, n = 23,393	50% of adults with migraines or severe headaches used at least 1 CAM (in last 12 months), compared with 34% of those without migraines or severe headaches; adjusted odds ratio = 1.29 with 95% CI	Mind–body therapies (including deep breathing exercises, meditation, yoga, progressive relaxation, guided imagery) were used most frequently among adults with migraines or severe headaches (30%)	Higher educational attainment, a history of anxiety, joint or low back pain, light or heavy alcohol use, and living in the western USA	Study on people with headach e and migraine
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* Predictors for a *higher* number of used CAM treatments

Quality Appraisal

In order to appraise the quality of the papers identified for review, the authors employed a quality scoring system (Table 2) drawing upon quality assessment tools previously used for assessing prevalence studies on low-back pain⁵⁰ and CAM use amongst cancer patients.^{51 52} The use of these established analytical tools allowed for systematic comparison and evaluation of the CAM surveys reviewed.

Table 2: Description of quality scoring system for the CAM surveys reviewed

Dimensions of Quality Assessment	Points Awarded*
<i>Methodology:</i>	
A. Representative sampling strategy	1
B. Sample size >500	1
C. Response rate >75%	1
D. Low recall bias (prospective data collection or retrospective data collection within past 12 months)	1
<i>Reporting of participants' characteristics:</i>	
E. Types of headache/migraine	1
F. Age	1
G. Ethnicity	1
H. Indicator of socioeconomic status (e.g. income, education)	1
<i>Reporting of CAM use</i>	
I. Definition of CAM or modalities provided to participants	1
J. Participants can name CAM therapies/modalities used (open question)	1
K. Use of CAM modalities assessed	1

* Maximum score: 11 points

Source: Adopted from Fejer, *et al.*⁵⁰ and Bishop, *et al.*^{51 52}

Two authors assigned scores to the studies separately, the results were then compared and disagreements and differences resolved by discussion. Table 3 reports the quality score of each individual study.

Table 3: Quality score of studies on complementary and alternative medicine use among headache and migraine patients *

Authors/Year	Dimensions of Quality Assessment			Total Score
	Methodology	Reporting of Participants' Characteristics	Reporting of CAM Use	
Gaul <i>et al.</i> (2009)	1 [C]	3 [E,F,H]	3 [I,J,K]	7
Kozak <i>et al.</i> (2005)	2 [B,C]	3 [E,F,H]	1 [I]	6
Lambert <i>et al.</i> (2010)	1 [C]	3 [F,G,H]	3 [I,J,K]	7
Rossi <i>et al.</i> (2005)	0	3 [E,F,H]	3 [I,J,K]	6
Rossi <i>et al.</i> (2006)	0	3 [E,F,H]	3 [I,J,K]	6
Rossi <i>et al.</i> (2008)	0	3 [E,F,H]	3 [I,J,K]	6
von Peter <i>et al.</i> (2002)	0	4 [E,F,G,H]	2 [I,K]	6
Wells <i>et al.</i> (2011)	3 [A,B,D]	3 [F,G,H]	2 [I,K]	8

* Eisenberg *et al.* 2001, Metcalfe *et al.* 2010, Soon *et al.* 2005 and Vukovic *et al.* 2010 do not focus solely upon CAM use for headache and migraine and as such the criteria 'reporting of CAM use' does not apply to these four studies and they were not assessed via the quality scoring system above.

Results

The context and findings of the twelve papers were extracted, grouped and summarized using an integrative review approach.^{53 54} The data extracted were synthesized using the following themes: *the prevalence of CAM use, user profile and predictors of use, motivation and perception of CAM use, and referral and disclosure of CAM use.*

The Prevalence of CAM Use

The twelve papers selected for review reported a wide range of prevalence rates for CAM use among people with headache and migraine (refer to Table 1). For instance, an analysis of national health survey data identified 50% of US adults with migraines or severe headaches as using at least one CAM over the past 12 month period.³⁹ A similar analysis in Canada discovered that 19% of people with migraine visited a CAM practitioner in the last 12 months.⁴³ A large cross-sectional cohort study among patients of tertiary headache centers in Austria and Germany found that 82% of the respondents had used CAM at some stage in their lifetime.³⁸ Three studies conducted in Italy on patients with different types of headache disorders reported CAM use rates of 31% (amongst patients with migraine), 40% (amongst patients with chronic tension-type headaches) and 29% (amongst patients with cluster headaches).⁴⁴⁻⁴⁶ Meanwhile, another survey of adults in Croatia identified 28% of respondents with headache disorders had used CAM (lifetime prevalence).⁴⁹ Despite these variations in findings, the studies do indicate

relatively substantial prevalence of CAM use among people suffering from headache and migraine.

There are several factors that may account for the differences in reported prevalence of CAM use. First of all, the differences may reflect variations in study or sample design with different studies targeting different populations or types of headache/migraine patients. For instance, patients in the general population may be different from patients presenting in headache specific clinics. In addition, studies have adopted different definitions of CAM which may also contribute to the differences in reported prevalence rates. For example, Rossi *et al.*^{44: 493} defined CAM as ‘a wide range of pharmaceutical-type and non-pharmacological therapies that do not, on the whole, fall within the sphere of conventional medicine’. In contrast, Lambert *et al.*^{42: 129} adopt a definition of CAM in their study that was ‘essentially respondent-defined’ and Metcalfe *et al.*,⁴³ confined their analysis of CAM use to visits to CAM practitioners. Finally, the variation in ways of measuring CAM use (e.g. lifetime use or use in the past year) is another factor that renders the interpretation and comparison of prevalence estimates *between* studies of a particular challenge.

Acupuncture, massage, chiropractic and homeopathy were the most common therapies reported as used by those suffering from headache and migraine in the studies reviewed. The findings of a large national representative survey suggested that mind-body therapies such as meditation, breathing exercise and yoga were the most common CAM used by US respondents with migraines or severe headaches.³⁹ There is evidence that a majority of CAM

users seek CAM *concurrent with* (ranged from 7% to 30%) or *following* (ranged from 64% to 93%) a GP visit.^{42 44-46} In contrast, only a small proportion of respondents (ranging from 5% to 19%) used CAM *before* they visited a doctor.^{42 44-46} Lambert *et al.*⁴² also found that 80% of their study respondents did not relinquish their use of prescribed medications while consuming CAM. Together these results suggest that CAM is likely used as a *complementary* (alongside) rather than an *alternative* treatment (as a replacement) to conventional medicine among people with headache and migraine.

CAM User Profile and Predictors of CAM Use

The socio-demographic characteristics of headache and migraine sufferers who use CAM are similar to the profile of CAM users identified in the general population.^{9 12} Specifically, people with headache and migraine who use CAM are more likely to be female,^{38 39 42 44-48} be married,^{44-46 48} have a higher education level,^{38 39 42 44-46 48} report a higher annual income^{38 39 44-46} and be full-time employed.^{42 44-47}

Research evidence indicates that the seriousness of headache conditions (in terms of number of headache days, duration of headache treatment or frequency of GP/specialist consulted) is an important factor that determines CAM consumption; people with more severe headache conditions are more likely to use CAM.^{38 43-46} Lambert *et al.*⁴² also found that a Headache Impact Test score – a widely used tool to measure the impact of headaches on a person’s ability to function on the job, at home, at school and in social situations – is of significance as a predictor of CAM use. In addition, analysis

of data from the 2007 National Health Interview Survey indicates that other health conditions or lifestyle characteristics such as a history of anxiety, joint or low back pain and alcohol use are independently associated with higher CAM use among patients with migraines or severe headaches.³⁹

Motivations for and Perceptions of CAM Use

Table 4 summarises the findings regarding motivations and perceptions of CAM use from the twelve studies selected for review. Wells *et al.*³⁹ identified that headache and migraine patients who employed CAM perceived conventional treatment as ineffective more often than those who did not use CAM and a national representative survey in the US revealed that 39% of those people who consulted a doctor and used CAM considered CAM as more effective than conventional medicine in treating headache.⁴¹ However, findings from other studies indicate that only a small portion of headache and migraine patients sought CAM in response to a bad experience or dissatisfaction with their conventional treatment.^{38 42 44-46}

The most common reasons for CAM use as identified by Gaul *et al.*³⁸ were ‘to leave nothing undone’ (64%) and ‘to be active against the disease’ (56%). This study also found that other considerations like ‘anxiety of side-effects [of conventional treatments]’ (20%) and ‘request for a therapy without side effects’ (31%) were also important in headache and migraine patients seeking CAM. Lambert *et al.*⁴² found that 48% of their respondents chose to use CAM ‘as a last resort’. The three Italian studies by Rossi *et al.*⁴⁴⁻⁴⁶ identified a belief amongst patients that CAM was ‘potentially beneficial for headache’ (about 45%) or CAM was ‘safer and [with] less side-effects [than conventional

treatments]' (about 27%) as major reasons for CAM use. In contrast, the analysis of the US national health survey data reveals that while nearly half of adults with migraines or severe headaches use CAM, only about 5% of them use CAM to specifically treat their headache/migraine symptoms. Instead, the main reasons of using CAM as reported in this study were 'general wellness/disease prevention' and 'to improve/enhance energy'.³⁹

Table 4: Motivation, perception and referral/disclosure of CAM use for headache and migraine

Author/Country	Motivation for Use	Perception of Use	Referral/Disclosure
Eisenberg <i>et al.</i> , ⁴⁰ USA	N.A.	39% - CAM to be more helpful than conventional medicine for treatment of headache	N.A.
Gaul <i>et al.</i> , ³⁸ Austria and Germany	64% - 'to leave nothing undone' 56%- 'to be active against the disease' 40% - 'not to take a permanent medication' 39% - 'advice from another person' 34% - 'dissatisfaction from conventional treatment' 31% - 'request for a therapy without side- effects' 20% - 'anxiety of side-effects'	N.A.	NA

9% - 'bad experience with regular treatments'

8% - other

Lambert *et al.*,⁴² UK

48% - as a last resort

21% - believed it was effective

17% - unhappy with conventional treatment

14% - GP recommendation

60% - found therapy greatly reduced/reduced headache

40% - found therapy had no effect on headache

58% - satisfied/very satisfied with therapy
35% - dissatisfied/very dissatisfied with therapy

0% - made headache worse

Referral :

72% - Friend/relative

16% - GP

8% - Nurse

4% - Self-recommendation

Disclosure:

58% - informed GP / nurse

42% - did not inform GP /nurse

Rossi *et al.*,⁴⁴ Italy

48% - potential benefit

27% - safer and less side-effects

11% - GP recommendation

10% - proven beneficial for headache

40% - effective

57% - ineffective

4% - made condition worse

Referral:

53% - friends/relatives

34% - Doctor

13% - Self-recommendation

5% - dissatisfied with conventional
treatment

Disclosure :

39% - informed GP

61% - did not inform GP

Rossi *et al.*,⁴⁵ Italy

45% - potential benefit

41% - effective

27% - safer and less side-effects

59% - ineffective

18% - GP recommendation

Referral:

41% - friends/relatives

9% - dissatisfied with conventional
treatment

34% - GP

25% - Self-recommendation

Disclosure:

40% - disclosed to GP

60% - did not disclose to GP

Rossi <i>et al.</i> , ⁴⁶ Italy	<p>45% - potential benefit</p> <p>28% - safer and less side-effects</p> <p>14% - GP recommendation</p> <p>10% - holistic approach to health</p> <p>5% - dissatisfied with conventional treatment</p>	<p>36% - effective or quite effective</p> <p>58% - ineffective</p> <p>6% - made condition worse</p>	<p><i>Referral:</i></p> <p>54% - friends/relatives</p> <p>26% - GP</p> <p>20% - Self-recommendation</p> <p><i>Disclosure:</i></p> <p>38% - disclosed to GP</p> <p>62% - did not disclose to GP</p>
<p>Soon <i>et al.</i>,⁴⁷</p> <p>Singapore</p>	N.A.	N.A.	<p>5% reported informing GP about the use</p> <p>11% reported informing the specialist about the use</p>

von Peter <i>et al.</i> , ⁴⁸ USA	N.A.	60% - considered therapies used to have a benefit The highest percentage of patients believed in massage (28/8%), acupuncture (28.7%) and meditation (16.4%) for the relief of headache	N.A.
Vukovic <i>et al.</i> , ⁴⁹ Croatia	N.A.	39% of M, 60% of TTH and 41% of PM patients satisfied with CAM	N.A.
Wells <i>et al.</i> , ³⁹ USA	Main reasons for CAM use: - general wellness/disease prevention - family/friends recommendation - to improve/enhance energy Only 5% adults with migraines or severe headaches used CAM to specifically treat their headache symptoms Adults with migraines/severe headaches	N.A.	<i>Disclosure:</i> 43% discussed CAM use with healthcare provider Adults with migraines/severe headaches had a higher disclosure rate (47%) than those without (42%)

used CAM more often than those

without because:

- their provider recommended it (31%

vs. 23%)

- conventional treatment was

ineffective (21% vs. 13%)

- conventional treatment was too

expensive (11% vs. 5%)

Previous study findings indicate that perceptions of CAM effectiveness are mixed among headache and migraine patients who are CAM users. Lambert *et al.*⁴² explain that 60% of respondents report CAM as reducing/greatly reducing their headache and 58% were satisfied with the therapy used. Von Peter *et al.*⁴⁸ also found that 60% of the headache patient population interviewed perceived CAM as of potential benefit for the treatment and relief of headache.

However, the three surveys conducted by Rossi *et al.*⁴⁴⁻⁴⁶ reveal that over half of respondents (ranging from 57% to 59%) experienced CAM as ineffective in the treatment of their headache disorders and this was particularly the case among those with migraine (73.1% reporting CAM as being ineffective).⁴⁴ In addition, about 5% of respondents in two of these Italian studies reported CAM treatment as resulting in a deterioration of their condition.^{44 46} Finally, Vukovic *et al.*⁴⁹ report that satisfaction with CAM varied among patients suffering from different kinds of headache conditions, with 39% of patients with migraine, 60% of patients with tension-type headache, and 41% of patients with probable migraine and tension-type headache reporting satisfaction with their CAM treatment.

Referral to and Disclosure of CAM Use

A review of the research literature identifies three key sources utilised by people with headache and migraine to gain information about CAM. A substantial proportion of headache and migraine patients using CAM (ranging from 41% to 72%) obtain information about CAM from their acquaintances or relatives.^{42 44-46} The patients' doctor or nurse was the second common referral

source through which headache and migraine patients became familiar with CAM (ranging from 16% to 34%) and a relatively small proportion of headache and migraine patients (ranging from 4% to 20%) relied solely upon their own judgement with regards to using these treatments.^{42 44-46}

In line with findings from studies of general CAM users,³² headache and migraine patients utilising CAM do not commonly inform their doctor or nurse about such CAM use. Wells *et al.*³⁹ discovered that although CAM users with migraine or headache had a higher disclosure rate than those without migraine or headache, less than half (47%) discuss their CAM use with their conventional healthcare provider(s). The three surveys conducted in Italy by Rossi *et al.*⁴⁴⁻⁴⁶ identify over 60% of respondents as failing to disclose their CAM use to their conventional doctor. Meanwhile, Soon *et al.*⁴⁷ reveal that only 16% of headache and migraine patients in Singapore using CAM informed their doctor or specialist about such use.

In contrast, Lambert *et al.*,⁴² examining headache and migraine patients in the UK, report 58% of their respondents as disclosing CAM use to their doctor or nurse. However, the same survey also discovered that 80% of respondents report their doctor or nurse as never enquiring or initiating discussion with them about CAM use. Rossi *et al.*⁴⁴ also questioned their respondents about their reasons for failing to inform conventional doctors about their CAM use. In response, 37% of the migraine patients reported that their doctors never ask for this information and 50% of them considered CAM use as a matter either 'not important for the doctor to know' or 'none of the doctor's business'.

Discussion

This paper provides the first critical, comprehensive review of the evidence base of CAM use and users among people suffering from headache and migraine. The use of CAM among patients with headache and migraine is an issue that has increasingly attracted the attention of practitioners and researchers over the past decade^{28 55 56} as reflected by the review findings with the bulk of empirical studies (ten out of the twelve studies identified over the last 11 years) having been published since 2005.

Although the evidence base focused upon CAM use among headache and migraine patients has begun to emerge, the ability of this review to generalise from studies or compare findings across studies remains difficult with variations in research design and the definition of CAM employed between studies of particular challenge. This is a problem that also plagues the assessment of clinical outcomes of CAM therapies on treating primary headache.²⁹ In addition, this review is confined to English language publications and the omission of non-English materials may introduce some bias.

Despite these limitations, the evidence identified and examined in this review does, nevertheless, suggest a substantial level of CAM use among people with headache and migraine. There is also evidence of many headache and migraine sufferers using CAM *concurrent* to their conventional medicine use (as a complement rather than alternative), a finding consistent with survey results of CAM use in the broader general population.^{9 57}

The frequent use of a range of CAM amongst people with headache and migraine warrants further investigation. There is evidence that many people use CAM as a follow-up treatment or last resort in an attempt to relieve their headache and migraine symptoms. In contrast, recent findings of a large national health survey indicate that only a small proportion of people with migraines and severe headaches use CAM specifically for the treatment of their headache conditions.³⁹ The co-existence of a high CAM usage with the fact that a substantial proportion of users consider CAM ineffective in treating their headache symptoms is also interesting.⁴⁴⁻⁴⁶ In short, the role of CAM in treating headache and migraine symptoms or helping patients to cope with their distress in their everyday lives remains unclear. There is a need for further in-depth qualitative studies on the motivations, experiences and perceptions of CAM use amongst headache and migraine sufferers.

The prevalence of CAM use amongst headache and migraine patients also has implications for conventional health care providers. Since the prevalence rate of CAM is high amongst headache and migraine patients and a substantial percentage of these patients appear to not disclose their CAM use to conventional practitioners, healthcare professionals should be prepared to enquire and discuss with their patients about possible CAM use. Relevant healthcare providers should also pay attention to the possible adverse effects of CAM or interactions between CAM and conventional medical treatments amongst headache and migraine patients. This is important given a very small minority of headache and migraine patients who utilize CAM report deterioration in their condition.^{44 46}

In light of this review it is possible to identify areas for future research attention pertaining to headache and migraine patients and CAM use. As the quality scores reported in Table 3 indicate, the studies examining this topic to date have been methodologically weak. Only two of the studies attracted a sample size over 500 with only one of them employing a nationally representative sample. As such, there is a pressing need for rigorous studies examining this important field of CAM use and user research, employing mixed method designs and utilizing large and/or representative national samples where possible.

Meanwhile, given all previous research has utilized cross-sectional study design, there is also a need for longitudinal studies to examine changes in CAM use in accordance with changes in conventional treatments and severity of the headache disorders and throughout different stages of the headache and migraine patient's illness and treatment journey.

While remaining mindful of cultural contexts and variations in CAM, researchers are also recommended to adopt a common taxonomy or classification of CAM practices/exposures in self-reported descriptive surveys of CAM use for headache and migraine where possible.⁵⁸ This will help address challenges resulting from rapid developments regarding evidence and institutional approvals. For example *Petasites hybridus* or butterbur root was recently found to have Level A evidence for proof of benefit in episodic migraine by the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society.²⁰ As the evidence-base

demonstrates, the use and satisfaction with CAM varies among patients suffering from different kinds of headache and migraine.⁴⁹ Future research will benefit from differentiating and/or targeting patients suffering from different and specific types or severities of headache and migraine. Together, these design features will strengthen the evidence base of CAM use on this topic and provide a much better picture of CAM consumption for the treatment of headache and migraine.

Conclusion

The use of CAM appears to constitute a treatment option considered and employed by a substantial proportion of patients suffering from headache and migraine. This review has provided essential insights into the prevalence and details of CAM use and related issues amongst headache and migraine patients with implications for practitioners (both conventional and CAM) and health policy-makers. It is recommended that further research utilizing both quantitative and qualitative methods be undertaken to address a number of important issues still requiring attention and essential to helping a range of stakeholders provide effective, safe and responsive care and services for those suffering from headache and migraine.

References

1. Adams J, editor. *Researching Complementary and Alternative Medicine*. London ; New York: Routledge, 2007.

2. Xue CC, Zhang AL, Lin V, Da Costa C, Story DF. Complementary and alternative medicine use in Australia: a national population-based survey. *Journal of alternative and complementary medicine (New York, N.Y.)* 2007;13(6):643-50.
3. Barnes PM, Bloom B, Nahin RL. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007 Hyattsville: U.S. Department of Health and Human Services, Division of Health Interview Statistics, Centers for Disease Control and Prevention, National Center for Health Statistics, 2008.
4. Ernst E. The role of complementary and alternative medicine. *Bmj* 2000;321(7269):1133-5.
5. Harris P, Rees R. The prevalence of complementary and alternative medicine use among the general population: a systematic review of the literature. *Complement Ther Med* 2000;8(2):88-96.
6. Hanssen B, Grimsgaard S, Launsoslash L, Foslashnneboslash V, Falkenberg T, Rasmussen NK. Use of complementary and alternative medicine in the Scandinavian countries. *Scandinavian Journal of Primary Health Care* 2005;23:57-62.
7. Tovey P, Easthope G, Adams J. *The Mainstreaming of Complementary and Alternative Medicine: Studies in Social Context*. London: Routledge, 2004.
8. Adams J. Utilising and promoting public health and health services research in complementary and alternative medicine: the founding of NORPHCAM. *Complementary Therapies in Medicine* 2008;16:245-46.

9. Bishop FL, Lewith GT. Who uses CAM? A narrative review of demographic characteristics and health factors associated with CAM use. *Evidence-based Complementary and Alternative Medicine* 2008;7(1):11-28.
10. Bishop FL, Yardley L, Lewith GT. Treat or treatment - a qualitative study analyzing patients' use of CAM. *American Journal of Public Health* 2008;98(9):1700-05.
11. Adams J, Sibbritt D, Easthope G, Young A. The profile of women who consult alternative health practitioners in Australia. *Medical Journal of Australia* 2003;179:297-300.
12. Conboy L, Patel S, Kaptchuk TJ, Gottlieb B, Eisenberg D, Acevedo-Garcia D. Sociodemographic determinants of the utilization of specific types of complementary and alternative medicine: an analysis based on a nationally representative survey sample. *Journal of Alternative and Complementary Medicine* 2005;11(6):977-94.
13. Steinsbekk A, Adams J, Sibbritt D, Jacobsen G, Johnsen R. Socio-demographic characteristics and health perceptions among male and female visitors to CAM practitioners in a total population study. *Forschende Komplementarmedizin und Klassische Naturheilkunde* 2008;15(3):146-51.
14. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, et al. The global burden of headache: A documentation of headache prevalence and disability worldwide. *Cephalalgia : an international journal of headache* 2007;27(3):193-210.
15. Natoli JL, Manack A, Dean B, Butler Q, Turkel CC, Stovner L, et al. Global prevalence of chronic migraine: a systematic review. *Cephalalgia : an international journal of headache* 2009;30(5):599-609.

16. Leiper DA, Elliott AM, Hannaford PC. Experiences and perceptions of people with headache: a qualitative study. *BMC Fam Pract* 2006;7:27.
17. Stovner LJ, Andrée C. Impact of headache in Europe: A review for the Eurolight project. *Journal of Headache and Pain* 2008;9(3):139-46.
18. Leonardi M, Raggi A, Bussone G, D'Amico D. Health-related quality of life, disability and severity of disease in patients with migraine attending to a specialty headache center. *Headache* 2010;50(10):1576-86.
19. Couch JR. Update on chronic daily headache: Current treatment options in neurology. *Current Treatment Options in Neurology* 2011;13(1):41-55.
20. Silberstein SD, Holland S, Freitag F, Dodick DW, Argoff C, Ashman E. Evidence-based guideline update: Pharmacologic treatment for episodic migraine prevention in adults. *Neurology* 2012;78 (17):1337-45.
21. Mauskop A. Complementary and alternative treatments for migraine. *Drug Development Research* 2007;68(7):424-27.
22. Bronfort G, Haas M, Evans R, Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. *Chiropr Osteopat* 2010;18:3.
23. Karmody CS. Alternative therapies in the management of headache and facial pain. *Otolaryngologic clinics of North America* 2003;36(6):1221-30.
24. Kemper KJ, Breuner CC. Complementary, holistic, and integrative medicine: headaches. *Pediatrics in Review* 2010;31(2):e17-23.
25. Linde K, Allais G, Brinkhaus B, Manheimer E, Vickers A, White AR. Acupuncture for tension-type headache. *Cochrane Database Syst Rev* 2009(1):CD007587.

26. Sun-Edelstein C, Mauskop A. Complementary and alternative approaches to the treatment of tension-type headache. *Current pain and headache reports* 2008;12(6):447-50.
27. Sun Y, Gan TJ. Acupuncture for the management of chronic headache: a systematic review. *Anesth Analg* 2008;107(6):2038-47.
28. Taylor FR. When West meets East: Is it time for headache medicine to complement “convention” with alternative practices? . *Headache* 2011;51(7):1051-54.
29. Crawford CC, Huynh MT, Kepple A, Jonas WB. Systematic assessment of the quality of research studies of conventional and alternative treatment(s) of primary headache. *Pain physician* 2009;12(2):461-70.
30. Jacobson IG, White MR, Smith TC, Smith B, Wells TS, Gackstetter GD, et al. Self-Reported Health Symptoms and Conditions Among Complementary and Alternative Medicine Users in a Large Military Cohort. *Annals of Epidemiology* 2009;19(9):613-22.
31. Hendrickson D, Zollinger B, McCleary R. Determinants of the Use of Four Categories of Complementary and Alternative Medicine. *Complementary Health Practice Review* 2006;11(1):3-26.
32. Shelley BM, Sussman AL, Williams RL, Segal AR, Crabtree BF. “They don’t ask me so I don’t tell them’: patient-clinician communication about traditional, complementary, and alternative medicine. *Annals of Family Medicine* 2009;7(2):139-47.
33. Shaw A, Noble A, Salisbury C, Sharp D, Thompson E, Peters TJ. Predictors of complementary therapy use among asthma patients: results of a primary care survey. *Health & Social Care in the Community* 2008;16(2):155-64.

34. Sidora-Arcoleo K, Yoos HL, Kitzman H, McMullen A, Anson E. Don't ask, don't tell: parental nondisclosure of complementary and alternative medicine and over-the-counter medication use in children's asthma management. *Journal of Pediatric Healthcare* 2008;22(4):221-29.
35. Endnote X2 [program]: Carlsbad: Author, 2008.
36. Gaul C, Schmidt T, Czaja E, Eismann R, Zierz S. Attitudes towards complementary and alternative medicine in chronic pain syndromes: A questionnaire-based comparison between primary headache and low back pain. *BMC Complementary and Alternative Medicine* 2011;11(89).
37. Wells RE, Phillips RS, Schachter SC, McCarthy EP. Complementary and alternative medicine use among US adults with common neurological conditions. *Journal of Neurology* 2010;257(11):1822-31.
38. Gaul C, Eismann R, Schmidt T, May A, Leinisch E, Wieser T, et al. Use of complementary and alternative medicine in patients suffering from primary headache disorders. *Cephalalgia : an international journal of headache* 2009;29(10):1069-78.
39. Wells RE, Bertisch SM, Buettner C, Phillips RS, McCarthy EP. Complementary and alternative medicine use among adults with migraines/severe headaches. *Headache* 2011;51(7):1087-97.
40. Eisenberg DM, Kessler RC, Van Rompay MI, Kaptchuk TJ, Wilkey SA, Appel S, et al. Perceptions about complementary therapies relative to conventional therapies among adults who use both: results from a national survey. *Ann Intern Med* 2001;135(5):344-51.

41. Kozak S, Gantenbein AR, Isler H, Merikangas KR, Angst J, Gamma A, et al. Nosology and treatment of primary headache in a Swiss headache clinic. *J Headache Pain* 2005;6(3):121-7.
42. Lambert TD, Morrison KE, Edwards J, Clarke CE. The use of complementary and alternative medicine by patients attending a UK headache clinic. *Complement Ther Med* 2010;18(3-4):128-34.
43. Metcalfe A, Williams J, McChesney J, Patten SB, Jetté N. Use of complementary and alternative medicine by those with a chronic disease and the general population - results of a national population based survey. *BMC Complementary and Alternative Medicine* 2010;10(58).
44. Rossi P, Di Lorenzo G, Malpezzi MG, Faroni J, Cesarino F, Di Lorenzo C, et al. Prevalence, pattern and predictors of use of complementary and alternative medicine (CAM) in migraine patients attending a headache clinic in Italy. *Cephalalgia : an international journal of headache* 2005;25(7):493-506.
45. Rossi P, Di Lorenzo G, Faroni J, Malpezzi MG, Cesarino F, Nappi G. Use of complementary and alternative medicine by patients with chronic tension-type headache: results of a headache clinic survey. *Headache* 2006;46(4):622-31.
46. Rossi P, Torelli P, Di LC, Sances G, Manzoni G, Tassorelli C, et al. Use of complementary and alternative medicine by patients with cluster headache: Results of a multi-centre headache clinic survey. *Complement Ther Med* 2008;16(4):220-7.
47. Soon YY, Siow HC, Tan CY. Assessment of migraineurs referred to a specialist headache clinic in Singapore: diagnosis, treatment strategies,

- outcomes, knowledge of migraine treatments and satisfaction.
- Cephalalgia : an international journal of headache* 2005;25(12):1122-32.
48. von Peter S, Ting W, Scrivani S, Korkein E, Okvat H, Gross M, et al. Survey on the use of complementary and alternative medicine among patients with headache syndromes. *Cephalalgia : an international journal of headache* 2002;22(5):395-400.
49. Vukovic V, Plavec D, Huzjan AL, Budisic M, Demarin V. Treatment of migraine and tension-type headache in Croatia. *Journal of Headache & Pain* 2010;11(3):227-34.
50. Fejer R, Kyvik KO, Hartvigsen J. The prevalence of neck pain in the world population: a systematic critical review of the literature. *European Spine Journal* 2006;15(6):834-48.
51. Bishop FL, Prescott P, Chan YK, Saville J, von Elm E, Lewith GT. Prevalence of complementary medicine use in pediatric cancer: a systematic review. *Pediatrics* 2010;125(4):768-76.
52. Bishop FL, Rea A, Lewith H, Chan YK, Saville J, Prescott P, et al. Complementary medicine use by men with prostate cancer: a systematic review of prevalence studies. *Prostate Cancer and Prostatic Diseases* 2011;14:1-13.
53. Russell CL. An overview of the integrative research review. *Progress in Transplantation* 2005;15(1):8-13.
54. Whitemore R, Knafk K. The integrative review: updated methodology. *Journal of Advanced Nursing* 2005;52(5):546-53.
55. Taylor FR. Headache prevention with complementary and alternative medicine. *Headache* 2009;49(6):966-68.

56. Whitmarsh T. Editorial Commentary: Survey on the use of complementary and alternative medicine among patients with headache syndromes. *Cephalalgia : an international journal of headache* 2002;22:331-32.
57. Featherstone C, Godden D, Gault C, Emslie M, Took-Zozaya M. Prevalence study of concurrent use of complementary and alternative medicine in patients attending primary care services in Scotland. *American Journal of Public Health* 2003;93(7):1080-82.
58. Kristoffersen AE, Fønnebø V, Norheim AJ. Use of complementary and alternative medicine among patients: classification criteria determine level of use. *The Journal of Alternative and Complementary Medicine* 2008;14(8):911-19.