

# Epidemiology of headache in Arab countries

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**Abstract** The epidemiology of headache in Arab countries was systematically reviewed through Medline identification of four papers reporting headache prevalence in the Arab nations of Qatar, Saudi Arabia (2 papers) and Oman. The prevalence of headache varied from 8 to 12% in Saudi Arabia to 72.5% in Qatar and 83.6% in Oman. Headache was commoner in females and younger people. The prevalence of tension headache was 3.1–9.5% in Saudi Arabia and the 1-year prevalence in Qatar was 11.2%. The migraine prevalence was 2.6–5% in Saudi Arabia and 7.9% in Qatar, while the 1-year migraine prevalence was 10.1% in Oman. The results show a migraine prevalence within that estimated worldwide. However, it is clear that epidemiological data from Arab countries are lacking, and there is disparity in the reported prevalence from Saudi Arabia when compared with its two neighbours, Qatar and Oman. Wider study adopting the same methodology in the six Gulf countries (Saudi Arabia, Qatar, Oman, Bahrain, United Arab Emirates and Kuwait) is needed to examine variations in headache and migraine prevalence.

**Keywords** Headache · Migraine · Prevalence · Epidemiology · Arab countries

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## Introduction

Headache is the most common neurological symptom, but has a low healthcare and public profile, which is associated with under treatment and under recognition, despite being amongst the top ten causes of disability [1].

The Arab world covers a large geographical area over the continents of Africa and Asia with an estimated population of 315 million. There has been major improvement in living standards, education and health services in the past four decades in most Arab countries. Increased health awareness and diagnosis rates may increase the prevalence of various conditions including headache.

The Arab countries are diverse economically and climatically, therefore a comparison of disease epidemiology could help in determining the burden of the headache disorders and identifying potential risk factors. The first step involves a review of current epidemiological studies, as a baseline to future research and medical service planning for headache.

## Methods

Arab countries are defined primarily on a geographical basis, as members of the Arab league: Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, Djibouti, Comoros, Somalia, Eritrea, Lebanon, The Palestine territory (Gaza strip and West Bank), Jordan, Syria, Iraq, Saudi Arabia, Qatar, Kuwait, United Arab Emirates, Oman, Bahrain, and Yemen.

Publications on headache in Arabs were identified by searching the keywords “headache” or “vascular headache” or “tension-type headache” or “headache disorders, primary” or “cluster headache” or “post-dural puncture

headache” or “headache disorders” or “post-traumatic headache” or “headache disorders, secondary” or “migraine disorders” or “migraine with aura” combined with “Arabs”, “Arab countries”, “North Africa”, “Middle East”, “Gulf” and “Specific Country Names” in Medline (1950 date). References in all relevant papers were reviewed for additional publications.

Only studies with data on the epidemiology of any type of headache, using International Headache Society (IHS) criteria, published prior to 30 April 2009 and written in English were included. Studies in selected populations (e.g. university students, children) were excluded.

## Results

Thirty-seven published reports relating to headache in Arab countries were identified. Thirteen articles had data on headache epidemiology. Nine papers were excluded (4 did not apply the IHS criteria, 3 studied children exclusively, 1 was a duplicate publication, and one reported headache prevalence in medical students). Therefore, four articles fulfilled the inclusion criteria and represented three Arab countries: Saudi Arabia (2 reports) [2, 3], Qatar [4] and Oman [5] (Table 1).

Headache was common in females than in males, with a ratio of 1.15:1 [4], 1.6:1 [3] and 2:1 [2, 5]. The female preponderance was similar for migraine: 1.02:1 [4], 1.25:1 [5] and 2:1 [3]. For tension headache, a ratio of 2.6:1 was reported for women in one study [5] and 1.5:1 in another [3]. The prevalence tended to be higher in younger patients below the age of 40 [4, 5], although two studies had a peak age-specific prevalence in the sixth and seventh decades [2, 3].

Headache frequency in the preceding year was 5.4% in Oman and 6.5% amongst all people with headache [5]. A significantly higher frequency was observed in women with tension headache, accounting for 14.8% of subjects and with migraine, accounting for 11.1% of subjects [5]. In the Oman study, half of patients with headache sought medical help [5]. The same study showed that 46% of patients had prescription medication, 37% self-medication and 4% used traditional medicine.

In Qatar, headache prevalence was significantly inversely related to education level, but monthly income and lifestyle habits did not correlate with headache frequency [4].

## Discussion

This review found that good quality data on headache and its various types are lacking from the majority of the Arab

**Table 1** The lifetime prevalence of headache and migraine (%) in Arab countries

Author (year)	Country	Study duration in months	Study population	Study type	Sample size	Response rate	Prevalence (%)				
							Headache	Migraine	Tension headache	Mixed migraine and tension headache	Unclassifiable headache
Al Rajeh et al. [3]	Saudi Arabia	6	All population	Two-phase community-based study <sup>a</sup>	16,672	–	12.1 (15.9) <sup>b</sup>	5.0	9.5	2.4	–
Jabbar and Ogunniyi [2]	Saudi Arabia	6	Adult population (>15 year old)	Face-to-face questionnaire interviews, door-to-door household visit, community based	5,891	–	8.0	2.6	3.1	2.3	–
Deleu et al. [5]	Oman	24	Population (>10-year old)	Face-to-face questionnaire interviews, door-to-door household visit, community based	1,158	99%	83.6 (78.8) <sup>c</sup>	10.1	11.2	16	62.7
Bener [4]	Qatar	3	Adult population (>15-year old)	Face-to-face questionnaire interviews, cross-sectional primary healthcare clinic based	1,200	76%	72.5	7.9	–	–	–

<sup>a</sup> The first phase screened the whole community to identify people with possible neurological diseases; the second phase is evaluation by a neurologist for all people who screened positive from the first phase

<sup>b</sup> Age adjustment

<sup>c</sup> Last year prevalence

countries. None of the studies estimated the societal effect, for example, by reporting absenteeism related to headache. Only a single study mentioned headache frequency [5]. The 1-year prevalence, which is considered more reliable than lifetime prevalence, which depends heavily on the patient's recall [6] was only reported in one study [4]. Only three of the four studies reported tension headache prevalence even although this is the commonest headache type [2, 3, 5]. The headache prevalence in Saudi Arabia was very low at 8–12% [2, 3] compared with Qatar (72.5%) [4] and Oman (83.6%) [5]. This is likely to be methodological as the three countries are similar culturally, economically, climatically and ethnically [6]. Methodological differences are important in influencing the results of epidemiological studies in headache [7]. Although each of the reported studies applied IHS criteria, additional factors influence the interpretation. In particular, the age of the studied population varied across studies, some being inclusive of all adults and children, while others included only adults; two studies included subjects aged more than 10 years. Application of screening questions is also relevant, as differences would be expected when applying key questions such as, "Have you ever suffered from headache?" versus "Have you had headache within the past year?"

Although the differences between the Saudi and Omani findings are striking given the similar study design involving a community based, door to door, household, face-to-face questionnaire interview, the questionnaire structure was not standardised and the screening questions varied. It is necessary to design a study using the same validated face-to-face interview questionnaire based on the IHS criteria in the six Gulf countries (Saudi Arabia, Qatar, Oman, Bahrain, United Arab Emirates and Kuwait) to examine whether real variation exists between these countries. Available studies are exclusively from the Gulf area and cannot generalise to all Arab nations.

Acknowledging the above limitations, migraine prevalence in the three Arab countries, Saudi Arabia, Qatar and Oman, is within the estimated worldwide prevalence range of 0.7–21.9% [8]. Similarly, headache is common in female and young people on a worldwide basis [8]. However, the lifetime migraine prevalence in the three Gulf countries was lower than in European studies, which report a range of 12–28% [6]. Other studies have found lower migraine prevalence in Asian and African populations as

well as in Asian-Americans and African-Americans when compared with Caucasians [8, 9], raising the possibility that migraine prevalence varies by race. Further studies in North African Arabs and in differing ethnic groups living in the Arab countries, such as Berbers, Kurds and Blacks are needed as well as from Arab-Americans. Such studies would enrich the knowledge about the genetic susceptibility to migraine in different populations.

In conclusion, this systematic review shows an immense deficit in epidemiological data regarding headache in Arab countries, such that a proper estimate of the burden of headache in the Arab world cannot be measured. Therefore, there are significant opportunities for further well-designed epidemiological studies on a larger scale than currently reported in the majority of the Arab nations. Such research would enhance our understanding and potentially the management of headache in the Arab world.

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