

# Can we know the prevalence of MOH?

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The *Global Burden of Disease Survey 2010* (GBD2010) reaffirmed the importance of migraine as a cause of public ill-health and disability (1). It did this beyond doubt, and was welcomed (2). But whereas migraine is neither the most prevalent nor the most disabling of headache disorders, others that may be of similar importance remain largely overlooked. The earlier GBD2000 considered only migraine (3). GBD2010 at least included tension-type headache (TTH), finding it the second most common disease in the world (behind dental caries; migraine was third). But, with ictal disability estimated at just 4% (against 43.3% for migraine), TTH accounted for only 0.25% of all years of life lost to disability (YLDs) (against 3.1% for migraine) (1). Medication-overuse headache (MOH), heavily burdensome at the individual level (4) and very common in headache clinics, did not make the final analysis in GBD2010 (1). Nevertheless it was included in the worldwide consultation undertaken by GBD2010, comparing the various health states attributable to disease, and was allocated a disability weight of 22% (unpublished data). Assuming a global prevalence of 1.5% and headache present on most days (say 60%), a back-of-the-envelope estimate of total YLDs attributable to MOH comes in at about two-thirds of those caused by migraine – about 2% of all YLDs. I do not offer this as an accurate assessment, but do believe it demonstrates that MOH is a far from insignificant cause of public ill-health and disability. In health-policy terms, its importance is magnified not only because it consumes very substantial health-care resources (4) but also, since MOH is an avoidable condition, because this cost is unnecessary.

MOH was omitted from the reports of GBD2010 (1), principally because prevalence data from around the world were inadequate to support regional estimates. This was true but is changing, and future iterations from GBD2013 onwards can be expected to include it. But do we know its prevalence? Population-based studies have not been easy because of two related problems: of case definition and case ascertainment. The definition of MOH has been unstable from the time of its recognition; diagnostic criteria have changed through the various editions of the International Classification of

Headache Disorders (ICHD) (5–8), while alternative proposals (9) have led to an epidemiologically unhelpful conflation of MOH with chronic migraine.

In this issue of *Cephalalgia*, Westergaard et al. directly confront one of these problems and offer proposals to overcome the other (10). They base their arguments on published studies of MOH prevalence, finding, from a systematic literature search, 27 reports of 24 datasets from 16 countries. Diagnostic criteria in these studies, they note, closely followed the consensus of their time. Perhaps surprisingly, therefore, estimates of adult prevalence clustered around 1–2%, although a few were much higher (up to 7.2%).

What this may indicate is greater consistency in the criteria applied by most authors of these studies than existed in the definitions of the time, the result, probably, of pragmatic adaptations. Westergaard et al. want to make this approach explicit. ‘Diagnostic criteria that are useful in the clinic’, they observe, ‘are not always applicable in population-based research’. For example, demonstration of causation – a general requirement in ICHD for secondary headaches – and exclusion of other possible diagnoses demand careful evaluation beyond the means of the epidemiological researcher. The unspoken concern here is that, unless accepted diagnostic criteria are applicable in population-based research, prevalence can never be known. Westergaard et al. find the past experience of adapting criteria instructive as a guide for how future population-based studies can use ICHD-3 beta (8), and propose alternative criteria for MOH specifically for such studies. Essentially these omit criterion C. ‘Exclusion of other headache diagnoses cannot be easily implemented’, they argue, ‘and should not hinder efforts to estimate prevalence’.

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This paper from the Danish Headache Centre – the birthplace of ICHD – thus not only recognises the need for compromise but leads debate on what the compromise should be. This is welcome in the difficult and developing science of headache epidemiology (11). Do their proposals go far enough? In particular, their proposed overuse criteria, with four alternatives according to class(es) of drug(s) overused, appear extremely difficult to operationalise. People are not good at describing their use of medication, and a full and correct account of drug names and amounts over the last 3 months, reliant on recall, is rarely forthcoming. Regularity of overuse is particularly difficult to establish. If this is not recognised in alternative criteria, I doubt that they will succeed. The much simpler criteria used (pre-ICHD-3 beta) by *Lifting The Burden* in the Global Campaign against Headache (12), for probable MOH, require only, in the last month, the concurrence of headache on  $\geq 15$  days and, taken for acute treatment of headache, either simple analgesics only on  $\geq 15$  days or opioids, ergots, triptans or any combination of these with or without simple analgesics on a total of  $\geq 10$  days. Both of these, according to ICHD, should be for  $> 3$  months but, in practice, when frequent headache and medication overuse have coexisted for a month, both have usually been present for much longer. In ICHD-II terminology (6) we called this ‘probable MOH’, but ICHD-3 beta removed probable diagnoses for secondary headaches (8). The distinction between ‘probable X’ as a diagnosis and probable ‘X’ (i.e. a probable diagnosis of ‘X’) appears to be a fine one. It may be unimportant; but, for the primary headache disorders such as migraine and TTH, epidemiologically all cases are probable in this latter sense, not least for lack of exclusion of other possible diagnoses, whereas ‘probable X’ is formally, and differently, defined by ICHD-3 beta for these disorders. This is an inconsistency now built into ICHD.

The broader issue here is about defining disease, the desire in doing so to reflect a truth, and whether single definitions exist to serve all purposes. In the case of headache disorders, the truth is often not known, or not verifiable, so that reliance on (inconstant) expert opinion is evident throughout all editions of ICHD. At the same time, the demands of purpose vary. In clinic, where diagnosis is the basis of management, and likewise in scientific enquiry, on which theories of causation and mechanisms are built or treatments developed, we are intolerant of error. In population-based studies, when the purpose is needs assessment and health-care policy and resource allocation, it is usually sufficient only to be somewhere near the truth.

Our lack of knowledge of headache epidemiology and burden blocks our claims upon resources for headache care. We must remedy this (11), and to have opened up this debate is a methodological step forward. As

Westergaard et al. observe: ‘The often-quoted global prevalence [of MOH] of 1% to 2% may be a gross underestimate in some regions and a slight overestimate in others’. Migraine is the seventh highest cause of disability in the world (1,2); MOH may be on a par with it. It matters greatly to know whether this is so.

### Conflict of interest

TJS is a director and trustee of *Lifting The Burden*, a UK-registered non-governmental organisation which conducts the Global Campaign against Headache in official relations with the World Health Organization.

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