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**Headache Disorders  
and Public Health**

**Education and  
Management  
Implications**



Department of Mental Health and Substance Dependence  
Noncommunicable Diseases and Mental Health Cluster

**World Health Organization**  
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This document results from the Meeting on Headache and Related Disorders, held at WHO headquarters, Geneva, 13-14 March 2000.

These experts took part:

Professor K. El Borolossy (Egypt)  
Dr L.A. Gardella (Argentina)  
Professor W. Gerber (Germany)  
Dr R.B. Lipton (USA)  
Dr M. Menken (USA)  
Professor J. Olesen (Denmark)  
Dr B.K. Rasmussen (Denmark)  
Dr K. Ravishankar (India)  
Dr F. Sakai (Japan)  
Professor J. Schoenen (Belgium)  
Dr F. Sheftell (USA)  
Dr T.J. Steiner (UK)  
Professor A.D. Tehindrazanarivelo (Madagascar)  
Professor N. Wells (UK)

The following representatives of non-governmental organizations also participated on behalf of those affected by headache:

Ms C. Andrée (Switzerland)  
Mr M-J. Coleman (USA)  
Mrs A. Craven (Republic of Ireland)  
Mr R. Fabian (Germany)  
Mrs A.F. Páásche (Norway)  
Mrs V. South (Canada)  
Mrs A. Turner (UK)

*WHO Secretariat*

Dr L. Prilipko, Management of Mental and Brain Disorders,  
Department of Mental Health and Substance Dependence,  
World Health Organization, Geneva  
Dr T.B. Üstün, Team Coordinator, Classification, Assessment,  
Surveys and Terminology, World Health Organization, Geneva  
Dr M. Leonardi, Classification, Assessment, Surveys and  
Terminology, World Health Organization, Geneva

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## HEADACHE DISORDERS AND PUBLIC HEALTH

### EDUCATION AND MANAGEMENT IMPLICATIONS

#### Introduction

Headache is a symptom of a range of neurobiological disorders, including some of the most common and ubiquitous. Adults aged 20-50 years are the most likely sufferers<sup>1</sup> but children and adolescents are affected too.<sup>2</sup> The term *headache disorder* encompasses a number of conditions which vary in severity, incidence and duration. As a consequence, establishing their overall prevalence has been difficult. There is a lack of worldwide studies on the different headache sub-types. Those carried out have employed different methodologies although headache definitions were standardized by the International Headache Society in 1988.<sup>3</sup>

What is undisputed is that migraine and tension-type headache are the most prevalent headache disorders and, both with disabling potential, they have the greatest impact on public health.

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<sup>1</sup> Pryse-Phillips W., Findlay H., Tugwell P., Edmeads J., Murray T.J., Nelson R.F. A Canadian population survey on the clinical, epidemiologic and societal impact of migraine and tension-type headache. *Can J Neurol Sci* 1992; **19**: 333-339; Rasmussen B.K. Epidemiology of headache in Europe. In: Olesen J., ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 231-237; Rasmussen B.K. Epidemiology of headache. *Cephalalgia* 1995; **15**: 45-68.

<sup>2</sup> Linet M.S., Stewart W.F., Celentano D.D., Ziegler D., Sprecher M. An epidemiologic study of headache among adolescents and young adults. *JAMA* 1989; **261**: 2211-2216.

<sup>3</sup> Headache Classification Committee of the International Headache Society. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. *Cephalalgia* 1988; **8 Suppl 7**: 1-96.

Migraine is the more thoroughly investigated, and better understood. Onset of migraine is from childhood onwards but most commonly in the 20s and 30s<sup>4</sup> and relatively infrequently after the age of 40 years; therefore, prevalence increases from the first to fourth decades and thereafter declines.<sup>5</sup> Migraine may nevertheless be a significant health issue among children. For example, 16% of Egyptian schoolchildren have been found to have this condition.<sup>6</sup>

Overall, migraine has a variable prevalence worldwide. For example, in European and American studies the one-year period prevalence of migraine in adults is estimated at 10-15%;<sup>7</sup> in Africa, community-based studies have yielded figures of 2.9-7.2%;<sup>8</sup> while in Japan the reported prevalence is 8.4%.<sup>9</sup> Probably everywhere, significantly more women are affected than men, in a ratio of 2-3:1.<sup>10</sup>

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<sup>4</sup> Rasmussen B.K. Epidemiology of headache. *Evidence presented to the meeting.*

<sup>5</sup> Stewart W.F., Lipton R.B. Migraine epidemiology in the United States. In: Olesen J, ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 239-246.

<sup>6</sup> El Borolossy K. Epidemiology of headache in the Middle East. *Evidence presented to the meeting.*

<sup>7</sup> Stewart W.F., Lipton R.B., Celentano D.D., Reed M.L. Prevalence of migraine headache in the United States. Relation to age, income, race, and other sociodemographic factors. *JAMA* 1992; **267**: 64-69; Rasmussen B.K. Epidemiology of headache in Europe. In: Olesen J, ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 231-237; Stewart W.F., Simon D., Shechter A., Lipton R.B. Population variation in migraine prevalence: a meta-analysis. *J Clin Epidemiol* 1995; **48**: 269-280; Lipton R.B., Stewart W.F. Prevalence and impact of migraine. *Neurol Clin* 1997; **15**: 1-13; Steiner T.J., Scher A.I., Stewart W.F., Kolodner K., Liberman J., Lipton R.B. The prevalence of adult migraine in England and its relationships to major sociodemographic characteristics. *Cephalalgia* 2000 (submitted).

<sup>8</sup> Tehindrazanarivelo A.D., Andriambo D.S. Headache in Africa: prevalence, distribution, burden and relief strategies. *Evidence presented to the meeting.*

<sup>9</sup> Sakai F. Prevalence of migraine in Japan. *Evidence presented to the meeting.*

<sup>10</sup> Rasmussen B.K. Epidemiology and socio-economic impact of headache. *Cephalalgia* 1999; **19 Suppl 25**: 20-23.

The frequency of migraine attacks is highly variable, from 1/year in some to more than 1/week in as many as 25% of sufferers.<sup>11</sup> The average may be as high as 21 episodes per sufferer per year.<sup>12</sup>

Tension-type headache is the most widespread of headache disorders.<sup>13</sup> Onset is often in the teenage years and prevalence peaks in the fourth decade and then declines.<sup>14</sup> Overall, one-year prevalence may exceed 60% although it is apparently lower in some countries. A large part of the population have mild and infrequent tension-type headache (once monthly or less), with 20-30% experiencing headache episodes more often.<sup>15</sup> Tension-type headache is also more common in women, in a ratio of 1.5:1.<sup>16</sup>

These common neurological complaints impose a significant health burden, with nearly all migraine sufferers and 60% of those with tension-type headache experiencing reductions in social activities and work capacity.<sup>17</sup> Despite this, both the public

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<sup>11</sup> Stewart W.F., Lipton R.B. Migraine epidemiology in the United States. In: Olesen J, ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 239-246.

<sup>12</sup> Edmeads J., Findlay H., Tugwell P., Pryse-Phillips W., Nelson R.F., Murray T.J. Impact of migraine and tension-type headache on life-style, consulting behaviour and medication use: a Canadian population survey. *Can J Neurol Sci* 1993; **20**: 131-137.

<sup>13</sup> Steiner T.J. Disadvantage and discrimination: components of the burden of headache. *Evidence presented to the meeting*.

<sup>14</sup> Rasmussen B.K. Epidemiology of headache in Europe. In: Olesen J., ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 231-237.

<sup>15</sup> *Ibid.*

<sup>16</sup> Rasmussen B.K. Epidemiology and socio-economic impact of headache. *Cephalalgia* 1999; **19 Suppl 25**: 20-23.

<sup>17</sup> Osterhaus J.T., Guterman D.L., Plachetka J.R. Healthcare resource and lost labour costs of migraine headache in the US. *PharmacoEconomics* 1992; **2**: 67-76; Kryst S., Scherl E. A population-based survey of the social and personal impact of headache. *Headache* 1994; **34**:344-350; Rasmussen B.K. Epidemiology of headache in Europe. In: Olesen J., ed. *Headache Classification and Epidemiology*. New York: Raven Press, 1994; 231-237. Stewart W.F., Lipton R.B., Simon D. Work-related disability: results from the American migraine study. *Cephalalgia* 1996; **16**: 231-238; Schwartz B.S., Stewart W.F., Lipton R.B. Lost workdays and decreased work effectiveness associated

and the majority of healthcare professionals tend to perceive headache as a minor or trivial complaint. As a result, the physical, emotional, social and economic burdens of headache are poorly acknowledged in comparison with those of other, less prevalent, neurological disorders.<sup>18</sup>

To understand better the global public health dimensions of headache, a meeting was called by the Department of Mental Health and Substance Dependence of the World Health Organization (WHO). Fourteen physicians and seven lay representatives of non-governmental organizations (NGOs) speaking for 27 countries met in Geneva, Switzerland, in March 2000. Their discussions and recommendations were focused upon awareness of headache disorders among the general public, health care professionals, public health officials and governments, epidemiology, disability and other burdens, collection of data, clinical guidelines for diagnosis and management, and interventions whereby WHO in collaboration with NGOs might achieve beneficial change.

This publication on education and management implications of headache disorders reports the consensus and recommendations of the Group.

## Educational Implications

Headache disorders generate a substantial disability burden and, therefore, should be classified amongst major public health disorders. But there is a specific lack of public and professional awareness of the epidemiology of headache disorders and their impact on individual sufferers, their carers, family and colleagues, and on society.

A considerable number of international, national and local NGOs active in the headache field have achieved much to improve recognition of headache disorders. However, without the

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with headache in the workplace. *J Occupat Environm Med* 1997; **39**: 320-327.

<sup>18</sup> American Association for the Study of Headache, International Headache Society. Consensus statement on improving migraine management. *Headache* 1998; **38**: 736.

committed support of organizations such as WHO it will not be possible to change public perception across the globe.

An education campaign to raise awareness of headache disorders and their consequences is essential. It must alter complacent perceptions of headache disorders as minor, trivial and undeserving of treatment to realizations that a common, ubiquitous and disabling group of neurobiological disorders are under-recognized, under-treated and commonly mismanaged.

Specific issues must be considered in developing an education campaign directed towards headache. In particular, headache disorders are mostly, and rightly, managed in the primary care arena and, here more than anywhere, better headache diagnosis must be an objective of health care professionals. While the International Headache Society produced authoritative guidance on the classification of headache and diagnostic criteria in 1988,<sup>19</sup> there is poor awareness of it outside the specialist neurology field. Further, in many developing countries, traditional healers may be the primary point of contact for the sufferer, engendering additional difficulties in accurate diagnosis.

#### RECOMMENDATIONS

- To include headache disorders within current WHO activities in neurology and public health.
- To produce and disseminate a WHO monograph and fact sheet on headache disorders setting out the argument for priority.
- To develop global and regional education programmes to increase public awareness of the prevalence and impact of headache disorders, and their clinical nature and presentation, and of the necessity, if burdens are to be alleviated, for appropriate disease management.
- To collaborate closely with NGOs in order to adopt sufferer-focused and sufferer-driven approaches in the campaign to increase public awareness of headache disorders.
- To address specific cultural issues in this campaign.

<sup>19</sup> Headache Classification Committee of the International Headache Society. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. *Cephalalgia* 1988; **8 Suppl 7**: 1-96.

## Epidemiology and Outcomes Data

Epidemiology is a rapidly evolving field of medical evaluation. It is concerned with disease characteristics and variation. *Descriptive epidemiology* is essential in assessing the burden of a disease and *analytical epidemiology* deals with risk factor evaluation. Together these estimate the clinical, economic and humanistic impact on people and society of a particular disease.

The epidemiology of headache is only partly documented; for example, migraine is the most extensively studied headache disorder while the more common tension-type headache and the more disabling cluster headache and sub-types of chronic daily headache have been less well investigated. In addition, because of the high cost of conducting large-scale studies, because of obstacles in the way of access to the general population and because headache is accorded low priority in regions where communicable diseases may pose a greater threat to public health, definitive epidemiological data for most developing countries is lacking across all headache types.

Against the background of escalating health care costs, outcomes research principles have been developed. Their intent is to provide clinicians and other decision-makers with relevant data, based on both medical and economic outcomes of medical strategies, to help guide their actions. These principles argue that it is important to involve economic considerations, not only the harm/benefit ratio of medical technologies, in order to allocate scarce health-care resources appropriately.

In the context of headache, it is right to consider the impact of the disorder on public health from the humanistic perspective of suffering rather than limit the discussion to one focused on cost. Using the WHO criteria for measuring burden of disease in Disability-Adjusted Life Years (DALYs), headache disorders can be evaluated and placed correctly in context with other neurological disorders and chronic illnesses.

In order to know the full impact of headache disorders, further work must be conducted around the world to establish their epidemiology and the clinical, economic and humanistic dimensions.

#### RECOMMENDATIONS

- To establish a WHO Working Group to develop methods of applying Disability-Adjusted Life Years (DALYs) to the measurement of headache burden, including impact during interictal periods.
- To consider how standardized methods might be used in developing and developed countries, and applied in order to acquire a global epidemiological understanding of headache disorders.

### Clinical Guidelines

A growing number of organizations are developing clinical practice guidelines that outline recommended care of medical conditions or performance of clinical procedures. By improving medical education and introducing elements of quality assurance, the intended goals of such guidelines include elimination of inappropriate management, with improved patient outcomes. But, in addition, guidelines are potential instruments for reducing the costs of health care.

Developing practice guidelines that enlighten practitioners and patients is a challenging task. It requires diverse skills ranging from analysis of scientific evidence through management of group decision-making to the presentation of complex information in useful forms. The need for these skills has not always been recognized, but the recent focus on guidelines has brought greater awareness of what is required in their development and a higher level of expertise to the field.

Nevertheless, there are difficulties in developing global clinical practice guidelines for headache. Seemingly unbridgeable differences in disease management between countries include the wide range of practitioners involved in diagnosing and managing headache disorders (including primary-care physicians, neurologists, ophthalmologists, pharmacists, physical therapists, nurses and traditional healers) and issues of drug availability with modern headache treatments generally to be had

only in developed countries. However, many headache disorders can be inexpensively yet effectively treated provided that the right initial diagnosis is made, whereas mismanagement commonly leads to aggravation and increased burden, and increased consumption of resources.

Therefore, even without specific management guidelines there are effective measures that may be undertaken worldwide to improve headache management. They depend crucially upon recognition everywhere that a problem requires solution. They do not depend on allocation of additional resources but, through education, on avoidance of wastage in unhelpful or harmful mistreatment together with optimal utilization of the savings. Effective treatment of children in order to prevent the development of troublesome headache later should be amongst the priorities.

#### **RECOMMENDATIONS**

- To promote alleviation of the disability burden of headache disorders as a key objective of management.
- To improve headache diagnosis and management, and eliminate mismanagement, through global and regional education campaigns aimed at health-care providers at all levels.
- To raise the priority of effective treatment and prevention of headache in children.
- To consider the development of regionally-based demonstrational projects in developed and developing countries invoking a recommended care package making optimal use of presently available resources.