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Review Article

Prevalence of migraine headache and its weight on neurological burden in Africa: A 43-year systematic review and meta-analysis of community-based studies

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ABSTRACT

Background: Headache burden is not adequately explored in Africa. Here, we measured weighted migraine prevalence from community-based studies in Africa.
Methods: PubMed search was employed using terms 'headache in Africa' AND/OR 'migraine in Africa' for published literature from 1970 until January 31, 2014. PRISMA was applied for systematic review. Forest-plot meta-analysis, inter-study heterogeneity, and odds ratio were used to measure weighted prevalence, inter-gender, and urban–rural differences. Disability adjusted life years (DALYs) for migraine and other neurologic disorders in Africa were extracted from Global Burden of Diseases (GBD) 2000–2030.
Results: Among 21 community-based studies included (n = 137,277), pooled migraine prevalence was 5.61% (95% CI 4.61, 6.70; random effects) among general population; while 14.89% (14.06, 15.74; fixed effects) among student cohorts. Female students had weighted OR of 2.13 (1.34, 3.37; $p = 0.0013$). Prevalence of migraine was higher among urban population compared to rural settings. Migraine burden is bound to increase by more than 10% DALYs within the next decade.
Conclusion: Africa has a crude estimate of 56 million people suffering from migraine. By virtue of mainly afflicting the younger working-age group, migraine disability has wider socioeconomic implications. Improving early headache management access points at community-level, training and research at facility-level, and healthy lifestyle modification among urban residents can help reduce this costly and disabling chronic progressive health problem.

Contents

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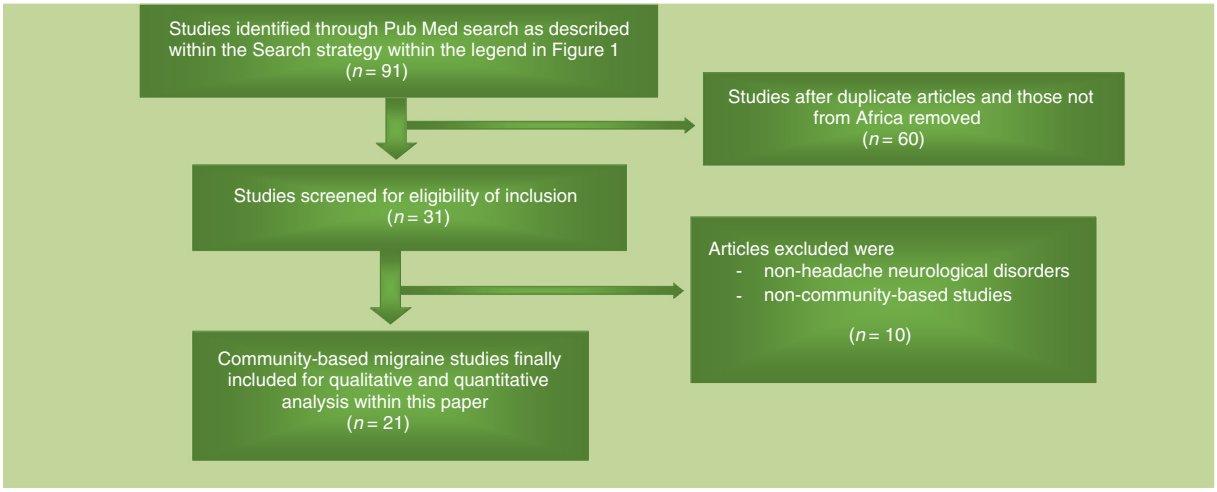

Fig. 1. PRISMA[12] flowchart used for selection of studies reviewed. Search strategy: A MEDLINE/PubMed search was employed using the following terms, both in keywords and MeSH headings: 'headache in Africa' AND/OR 'migraine in Africa'. Additional papers were included through reference search relevant to migraine headache in African countries. We limited to search from 1970 until January 31, 2013 inclusive. Relevant data on migraine and neurological disorders was extracted from the WHO GBD health statistics and health information systems for the years 2000, 2002, 2004, 2008, 2015, and 2030 (projections for 2015 and 2030)[14] to trace the trend line for migraine burden throughout the 43-year period.

1. Introduction

Primary headache disorders are disabling neurological disorders characterized, beyond the head pain, by a number of sensory disturbances [1–3]. Headache disorders are among the most common neurological disorders worldwide [4]. The 2010 Global Burden of Disease (GBD) Study revealed that global years lived with disability (YLD) for migraine and tension types of headache have increased by 40% since 1990, making primary headache disorders the leading causes of sequelae[1] of up to 35.5% prevalence in both sexes (10.7% in males, 18.8% in females for migraine; 18.9% in males, 22.7% in females for tension type headache) [4].

In Africa, migraine ranked as the 13th leading cause of YLDs in 2010 [4]. In 2004, migraine on its own accounted for 15% of the continent's DALYs[2] (Disability Adjusted Life Years) due to neurological disorders [5]. African health metrics are largely constructed from facility-based reports; only a handful of community-based studies are available [6,7]. In 2011, societal impact of headache information existed only in 6% of African countries, while economic burden has not been effectively measured to date [8]. Headaches in Africa are mostly self-treated [8] due to limited availability of primary care, neurologic consultations, imaging facilities, and related investigative modalities [8]. The burden of medication overuse headache (MOH) in Africa has yet to be determined. Health professionals do not get adequate training to manage headache disorders effectively, while headache specialists are extremely rare [8]. Besides common primary headaches like migraine, African headache epidemiology is heavy-laden with secondary-type headaches, mostly due to tropical neuroinfections. Sociodemographic characteristics of African settings comprise of rapidly growing, younger working-age population. By 2040, Africa will contribute nearly half a billion young people to the global labor force; this will make the continent to have the highest number of productive age-group toppling that of China and India [9]. Rapid population growth coupled with unfavorable lifestyle changes and rise of chronic progressive disorders, in particular primary headaches, can lead to significant reduction of regional productivity due to accrued disability, and

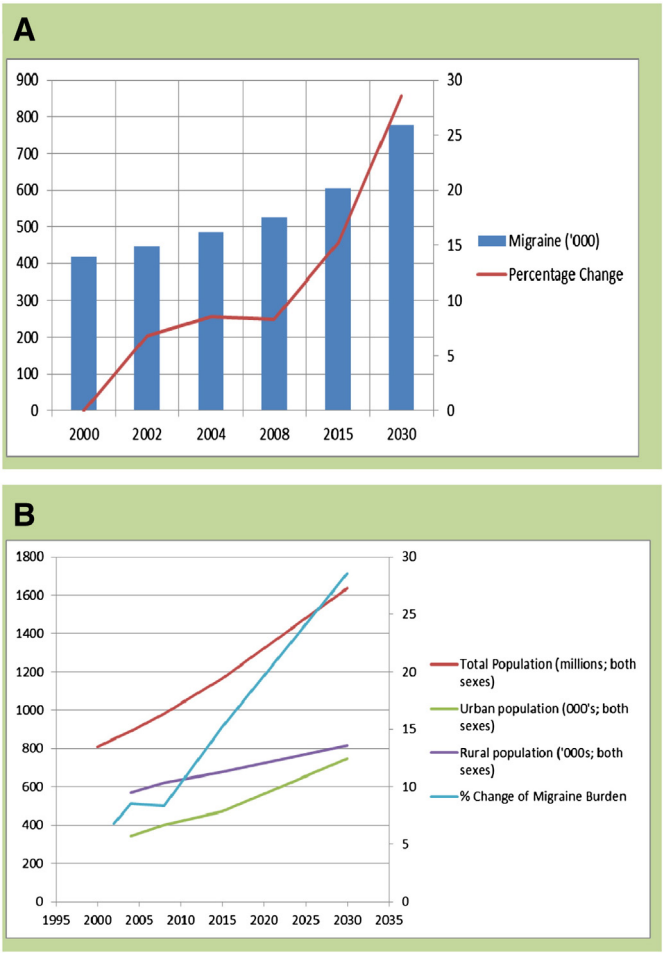

Fig. 2. A: Disability-adjusted life years (DALYs) caused by migraine in the WHO African Region. Data includes migraine burden and projected estimates beginning from the year 2000 up to 2030. Data extracted employed standard DALYs (3% discounting, age weights, and baseline scenario)[14]. B: Migraine burden increase rate is higher than that of population growth rate. Note that urban population growth rate i.e. urbanization is higher than that of rural[16].

[1] GBD 2010 has a list of 291 diseases and injuries, of which 289 cause disability. 1160 sequelae of these diseases and injuries have been identified. For example, diabetic neuropathy is one sequela of diabetes mellitus.

[2] DALYs: Disability Adjusted Life Years – a health biometric adopted by the World Health Organization (WHO) to measure the burden of a disease by adding the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

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