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Epidemiology in a Globalising World: New Challenges for Researchers

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Epidemiological data on neurological diseases in Africa are sparse: from 2005 to 2009, 7 articles in *Neuroepidemiology* were directly related to Africa (around 2% of all articles published in that period). Furthermore, only 3 of them referred to some form of population-based study or addressed the topic of incidence and prevalence of neurological disorders in a review [1–3] .

Surely, there are several reasons for this dearth: epidemiological research on the African continent has generally focused on infectious diseases, especially malaria, and, in the last 2 decades, HIV/AIDS. Even for the latter, the present infrastructure and basic conditions appear to make epidemiological research difficult, hampering the ascertainment of incidence (as opposed to prevalence and mortality) [4] . This stands in stark contrast to the possibilities of epidemiology in developed countries, where we have established not only clinical 'mega trials' but also extensive cohort studies, elaborate surveillance systems for infectious diseases and nationwide cancer registries.

In a globalised world, diseases like dementia, stroke or cancer, which are dominant in developed countries, will likely gain importance in developing countries in Asia and Africa in the near future [5] .

It is therefore imperative that epidemiologists take the initiative to develop methods adapted to local conditions rather than wait for more advanced infrastructure to be established.

Some actions in this direction have already been taken.

The World Health Organisation has developed the STEPS programme for surveillance of stroke and vascular risk factors in lowand middle-income countries [6] , and in a recent issue of *Neuroepidemiology,* a screening instrument to measure the prevalence of neurological disability in resource-poor settings was presented [7] .

The featured article of Paraïso et al. [8] is another interesting example of applying epidemiological methods tailored to very low income countries, in this case Benin, where less than half of the children attend school, only 1 in 9 persons aged 60 years or more obtains a primary school education, and a large (albeit unknown) portion of the population does not have a birth certificate.

In the current article, the authors describe a method of assessing age with the use of 2 historical landmarks and show a good correspondence comparing the estimate with the actual age as confirmed by official documents. Using this method in a door-todoor survey, the authors were able to show a relatively low prevalence of dementia among subjects aged over 65 years in Benin [9] , a result not only of regional relevance but which also has some interesting implications for the discussion of risk factors for dementia per se.

Such methods are more than just a creative way of dealing with missing data: in this case, they make use of the West African culture of oral transmission of important events. This tradition may help keep alive the memory of events such as a solar eclipse (one of the historical landmarks used) in the elderly generation. This study also highlights another advantage that may be related to the local culture: the high willingness to participate in such surveys. Both the present validation study and the door-to-door

survey cited participation rates around 95%, a number which is very rarely achievable in Europe or other developed countries. Low participation rates may limit the validity of many well-designed and elaborate population-based studies from these latter regions.

Proxy substitution of missing data when these are more or less completely missing may still seem rather adventurous for some people. However, its use is not limited to developing countries. Especially in the field of population-based registries, where the set of variables is sometimes small and desirable information like socioeconomic status or ethnicity is often missing, similar methods have been applied successfully. One recent example is the use of a computerised name-based algorithm to identify subjects of Turkish origin in a study on the cancer incidence of Turkish immigrants in Germany [10] .

Paraïso et al. [8] present an accurate tool for estimating the age of elderly residents of Benin without relying upon official documents. This work highlights the potential for using standard approaches tailored for local conditions to conduct valid epidemiological research in the absence of a highly developed health infrastructure.

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