Alzheimer's Disease International

The prevalence of dementia worldwide

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The prevalence of dementia worldwide

Alzheimer's Disease International (ADI) estimates that there are currently 30 million people with dementia in the world, with 4.6 million new cases annually (one new case every 7 seconds)[1]. The number of people affected will be over 100 million by 2050. These estimates were derived from detailed population-based studies of the prevalence of dementia in different world regions.

Prevalence survey

A prevalence survey provides an estimate of the proportion of individuals within a defined population that have a health condition at one point in time. The proportion, called the prevalence, provides a snapshot of the health status of the community at the time that the survey is conducted. For dementia, this includes those who have recently developed the condition (incident cases) and those that have lived with the condition for some time (prevalent cases). The prevalence is therefore the product of the incidence rate and the average length of survival with the illness.

In a prevalence survey, typically between 1,000 and 5,000 older people are included in the sample to be surveyed. Besides dementia diagnosis, information can be collected about age, gender and living circumstances as well as information about other health conditions, possible risk factors for dementia, use of health and social services, and family care arrangements.

Uses of a prevalence survey

1 Accurate assessment of the numbers of cases within a region, country or district, thereby allowing governments, and health and welfare organizations to plan adequate services

2 Identifying regional variations in the prevalence of dementia and its sub-types, allowing epidemiologists to develop and test theories about possible risk factors for the disease

3 Describing the living circumstances, and care arrangements of people with dementia, including informal care (by family members) and use of health and social services

4 Describing the impact of dementia at the population level including the economic costs

5 Raising awareness about dementia.

Prevalence of dementia

Developed countries

The most recent meta-analysis of European population-based studies carried out in the 1990s, the EURODEM study, used data from 11 studies carried out in eight European countries[2]. There were no important differences in the age-specific prevalence between studies or between countries. The overall prevalence for males and females (Table 1) doubles for every five year increase in age after the age of 65. Dementia is largely a disease of older people, but 2% of those affected are under 65 years of age.

Table 1: Incidence and prevalence rates of dementia from the EURODEM meta-analyses for European studies

Age group	Annual incidence per 100		Prevalence (%)	
	Males	**Females**	**Males**	**Females**
60-64	0.2	0.2	0.4	0.4
65-69	0.2	0.3	1.6	1.0
70-74	0.6	0.5	2.9	3.1
75-79	1.4	1.8	5.6	6.0
80-84	2.8	3.4	11.0	12.6
85-89	3.9	5.4	12.8	20.2
90+	4.0	8.2	22.1	30.8

Developing countries

Demographic ageing is proceeding rapidly in China, India and Latin America. The number of older people in developing countries will have increased by 200% as compared to 68% in the developed countries in the 30 years up to 2020[3]. In the developing world there is much more uncertainty regarding frequency of dementia, with few studies and widely varying estimates[4]. Coverage is good in Europe and North America, patchy in south and south east Asia, and very limited in Africa, the Middle East, Russia and eastern Europe and Latin America. The 10/66 Dementia Research Group has been working with ADI to extend the evidence base on the prevalence and incidence of dementia, with field surveys in Cuba, Brazil, Dominican Republic, Venezuela, Mexico, Argentina, Peru, India and China. New prevalence estimates were published in 2008; these suggested that the criteria used in previous studies may have led to underestimating of the prevalence and numbers of people with dementia in the least developed regions[5].

ADI's work on the global prevalence of dementia

In 2005, ADI commissioned a panel of experts to review all currently available epidemiological data on dementia and reach a consensus estimate of prevalence in each world region, and the number of people affected. The trend for a lower prevalence of dementia in developing as opposed to developed countries was supported by the consensus judgment of the ADI expert panel, reviewing all available evidence[1], at least for the least developed regions in Africa and South Asia (Table 2).

This difference is unexplained merely by shorter survival of people with dementia, as incidence rates are also much lower than those reported in developed countries[6,7]. Some of

Table 2: ADI consensus estimates for the prevalence of dementia (%), by WHO region and age group.

The letters in brackets refer to the level of development of the region; A= lowest mortality regions; E= highest mortality regions.

WHO region		Description	60-64	65-69	70-74	75-79	80-84	85+
EURO	(A)	W Europe	0.9	1.5	3.6	6.0	12.2	24.8
EURO	(B)	E Europe	0.9	1.3	3.2	5.8	12.2	24.7
EURO	(C)	E Europe	0.9	1.3	3.2	5.8	11.8	24.5
AMRO	(A)	N America	0.8	1.7	3.3	6.5	12.8	30.1
AMRO	(D)	S America	0.8	1.7	3.4	7.6	14.8	33.2
AMRO	(C)	S America	0.7	1.5	2.8	6.2	11.1	28.1
EMRO	(B)	Middle East	0.9	1.8	3.5	6.6	13.6	25.5
EMRO	(D)	N Africa, Middle East	1.2	1.9	3.9	6.6	13.9	23.5
WPRO	(A)	Japan, Australia, NZ	0.6	1.4	2.6	4.7	10.4	22.1
WPRO	(B)	China and neighbours	0.6	1.7	3.7	7.0	14.4	26.2
SEARO	(B)	Indonesia, SL, Thailand	1.0	1.7	3.4	5.7	10.8	17.6
SEARO	(D)	India and neighbours	0.4	0.9	1.8	3.7	7.2	14.4
AFRO	(D)	Sub-Saharan Africa	0.3	0.6	1.3	2.3	4.3	9.7
AFRO	(E)	Sub-Saharan Africa	0.5	1.0	1.9	3.8	7.0	14.9

the reasons for this are that mild dementia is ignored in developing countries because of cultural differences and lower levels of exposure to risk factors for dementia such as smoking and cardiovascular disease. Also, in very poor countries few people survive to 65 years of age. However, it seems probable that as patterns of morbidity and mortality converge with those of developed countries, so will dementia prevalence, leading to an increased burden of dementia in poorer countries. Even now, most people with dementia live in developing countries; 60% in 2001 rising to 71% by 2040[8].

The ADI prevalence estimates constitute the best available evidence, for policymaking and planning, on the likely prevalence of dementia in different world regions. We recommend that associations use these with any local estimates that may be available.

Trends in prevalence over time

Two population-based studies have repeatedly surveyed residents of the same area, providing information on the trends in prevalence over time. The Lundby study in Sweden[9] indicated no significant change in the prevalence or incidence of dementia from 1947 to 1972. In Rochester in the US[10] the meticulously maintained health care register suggested no change in the prevalence of either Alzheimer's disease (AD) or dementia between 1975 and 1980. However, despite the recent stability of prevalence estimates we cannot exclude the possibility that dementia is a more common disease nowadays than 100 or even 50 years ago, at a time when developed countries were still developing.

Dementia incidence

Incidence studies start with a group of older people who do not have dementia, and follow them up over time to measure the incidence rates (the rate at which new cases develop in the population). Annual incidence rates as reported in the EURODEM meta-analysis[11] are roughly one quarter of the prevalence (Table 1), suggesting an average disease duration (from onset to death) of four years. Clinical studies have suggested a duration of 5-7 years from diagnosis, and with improved care for people with dementia, survival can be much longer. A recent meta-analysis[12] of the age-specific incidence of all dementias found that the incidence of both dementia and AD rose exponentially up to 90 years, with no sign of levelling off. The incidence rates for Vascular dementia (VaD) also showed a trend for an exponential rise with age. While there was no sex difference in dementia incidence, AD incidence was higher in women for the oldest old, and for the younger old the incidence of VaD was higher in men.

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