Global prevalence of dementia: a Delphi consensus study

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The following are documents synthesising research evidence on the prevalence of dementia worldwide, which were reviewed by the expert panel.

Further information on the methods and the results of the analysis are given in The Lancet article.

EURO A, B and C

REGION	Studies	setting	Institution	Sample size	Design	Diagnostic criteria
EURO A	Hofman et al, 1991	Population-based studies (65 and over) 12 studies (1 Germany, 1 Finland, 1 Italy, 2 Netherlands, 2 Norway, 1 Spain, 1 Sweden, 4 UK)	YES	23 datasets considered 12 selected	Pool and re-analyse of original data of prevalence studies of dementia carried-out in European countries between 1980 and 1990.	Only studies using DSM-III or equivalent criteria
	Lobo et al , 2000	1 Finland, 1 sweden, 1 denmark, 1 netherlands, 2 UK, 1 France, 3 spain, 1 italy	PROBABLY - BUT NOT CLEAR FROM META-ANALYSIS	11 studies (31032 subjects over 65)	Update of the review above, 11 studies conducted in the 1990s. No overlap with the above. These studies are generally larger than those in the earlier metaanalysis	DSM III-R or equivalent
EURO B	Turkey Harmance , H et al 2003	Over 70 Randomly selected from the registries in Kadikoy, Istanbul		PHASE 1 1067 1019 screened PHASE 2 223 positive (69.5% accepted CA) +8.3% of negative	Two phases 8.3% sampled from the screen negative	DSM-III-R
EURO C	NO INFORMATION AVAILABLE					

1. Hofman A, Rocca WA, Brayne C et al The prevalence of Dementia in Europe: a Collaborative study of 1980-1990 findings, *International Journal of Epidemiology,* 20(3): 736-747.
2. Lobo A, Launer LJ, Fratiglioni L et al Prevalence of Dementia and major subtypes in Europe: a collaborative study of population-based cohorts, *Neurology, sup5:S4-S9, 2000.*
3. Harmanci H, Emre M, Gurvit H et al Risk factors for Alzheimer Disease: a population-based case-control study in Istanbul, Turkey, *Alzheimer Dis Assoc Disord,*17(3):139-145, 2003.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
EURO A	1. Hoffman et al 1991 Male Female Total	 1.6 0.5 1.0	 2.2 1.1 1.4	 4.6 3.9 4.1	 5.0 6.7 5.7	 12.1 13.5 13.0	 18.5 22.8 21.6	 32.1 32.2 32.2		 Age gp 95-99 31.6 36.0 34.7
	2. Lobo et al , 2000 Male Female		1.6 1.0	2.9 3.1	5.6 6.0	11 12.6	12.8 20.2	17.6 30.8		6.4
YOUR ESTIMATES										
BRIEF COMMENTS										
EURO B	This only study doesn't give the prevalence figures, although they describe how the initial survey was done (see table above). Give results of a case control designed from the survey on risk factors only. They don't give reference on any other publication. I've sent an e-mail to the author requesting the figures. No reply so far. The authors refer to a total of 68 cases of probable and possible dementia (if it was a one phase simple random it would give roughly a prev of 6.7% on those over 70)									
YOUR ESTIMATES										
BRIEF COMMENTS										
EURO C	NO INFORMATION AVAILABLE									
YOUR ESTIMATES										
BRIEF COMMENTS										

AMRO A

REGION	Studies	setting	Inclusion of Institution	Sample size	design	Diagnostic criteria
AMRO A	1. USA, Evans D.A., 1989	All individuals over 65 living in a delimited area of east Boston.	NO	PHASE 1 4485 eligible 3623 screened PHASE 2 714 selected 467 examined	Two phases. First phase participants were divided in three groups according to their performance in the 'memory test'. A random sample of each group were selected and further examined in the second phase. Interval between the 2 phases 16.3 months in average	DSM-III NB - The DSM criteria: 'loss of intellectual abilities sufficient to interfere with social or occupational functioning' was not used. It was thought to be inappropriate for a community setting
	2. USA, Bachman D.L. et al, 1992 Male Female Total	Cohort aged 30 to 62 years old free of stroke and CV disease at entry since 1950 (Framingham study)	YES	PHASE 1 From the original Exam 1 cohort of 5208, 2180 (42%) were seen at Exam 17 in 1982/1983 (used for the purpose of this study PHASE 2 399 selected 322 examined	Two phases. Second phase was done 1 to 2 years after phase 1. The authors don't report selecting a sample of screen negatives	DSM-III-R for severity All moderate and severe cases were reviewed by a panel and mild cases were not reviewed but re-examined within 1 to 2 years.
	3. USA, Beard C.M., 1995	Numerator = cases of dementia attending at any form of health care setting Denominator = whole Rochester population	PRESUMABLY	Prevalence was assessed in 1975, 1980 and 1985.	The medical records of all individuals in the community with a diagnostic code representing 'dementing illness' during the years 1960 to 1990 were reviewed by a neurologist who assigned year of onset, and using all data available (including death certificates and autopsy results) made a final diagnosis	The authors used their own diagnostic criteria for dementia.
	4. USA Graves A.B., 1996	Target: all persons over 65 years of at least 50% JAPANESE heritage	YES	PHASE 1 3045 were eligible and invited to participate 1985 participated (5.1%	Two phases Individuals were classified in three groups according to their performance in	DSM-III-R Consensus committee: two neurologists, a geriatrician, a neuropsychologist, an

		living within King county, Washington		from nursing or care home) PHASE 2 450 selected 382 examined	CASI. All low, a sample of intermediate (33%) and high (4%) were selected for phase 2 Weighting back carried out appropriately	epidemiologist and a research nurse.
	5. USA, Fillenbaum GG, 1998	Community residents over 65 from the original Duke EPESE study. A stratified random sample was taken of those evaluated in 1989-90 The sample is evenly divided between urban and rural residence and within of these locations by race (black vsnon black).	NO	Phase 1 4136 (original, baseline participants) 3219 available at follow-up PHASE 2 363 screened (251 survivors and 112 deceased) Too little information about conduct of phase 1 and phase 2 to be clear on response rates	Two phase survey Stratified sampling for phase 2 in three groups according to performance in the SPMSQ. Complex weighting back procedures; seem in order. Participants who declined to participate in phase two were substituted with those who agreed. Assessment of dementia status in deceased relied on information from informant.	DSM-IV 2 clinicians blind to each others' diagnosis. Discrepancies went to a consensus conference
	6. USA, Gurland BJ.,1999	13 catchment areas in North Manhatan Complicated design 1. Reporting component. Ascertaiment by service contact for whole pop'n of catchment areas 2. Survey component. Ascertainment by two phase survey on random sample in each catchment area from medicare	YES	Survey component PHASE 1 5403 (target) 470 died, 1481 not eligible, 1340 refused 2112 were interviewed (I) +50 from nursing homes PHASE 2 no information on numbers of screen +, or on response rate for phase II 1056 were assessed in Phase II	A) Survey component Two phase design 25% of screen(-) selected for phase 2 appropriate weighting back conducted B) Reporting component Data from survey and reporting component were combined with appropriate weighting for sampling	Investigators used their own criteria; advanced or borderzone dementia. Instruments used in the interview: Katz, Lawton ADL, CARE

		register				
	7. USA, Breitner JCS, 1999	Catchment area whole pop'n survey. Over 65 permanent population of Cache County, Utah	YES	PHASE 1 5677 eligible 5092 screened PHASE 2 1989+ 1801 completed phase II PHASE 3 1196+ 1033 completed CA 265 nursing home residents	Three phase 1. 3MS 2. Dementia questionnaire (DQ) by phone 3. Clinical No further examination of screen (-) in second and third phase No weighting but prevalence estimates were adjusted for the sensitivity of the 3MS and DQ obtained from other sources.	A DSM-III-R criteria was applied in a diagnostic consensus conference
	8. USA Hendrie et al, 1995	African Americans over 65 living in Indianapolis, Indiana	YES	'community' 2582 eligible 2212 screened 351 were assessed (response rate in phase 2 for the poor performance group was 66.4%) All 106 subjects from nursing homes were fully clinically assessed	Institution One phase design Community Two phase design. Sample divided into three groups according to performance on first phase screen. Random samples of each proceed to second phase. Appropriate weighting carried out The median time between screening interview and clinical assessment was 5 months.	DSM-III-R and ICD-10
	9. Canada, Ebly E.M. et al 1994	National survey of community and institution residents over 65 Subjects who could not be contacted or	YES	Community 19398 target (3753 died, wrong age, 1020 could not speak English or French and 534 were away during the study)	One phase for institution Two phases for community Prevalence estimates	DSM-III-R

		who refused to participate were replaced by another person of the same sex, age group and geographic area.		Community PHASE 1 14091 eligible 9008 participated 8949 screened PHASE 2 1614 selected 1165 evaluated Institution 1586 eligible 1255 participated +1255 from institution had Clinical Assessment	adjusted using estimates of sensitivity of 3MS from independent community samples Appropriate weighting to combine institutional and community data	
	10. Cuba, Llibre, JJ, 1999	A multi stage stratified sample of Lisa municipality Over 65		Random sample 294	Two phases No sample from screen negatives	DSM-III-R
	11.Cuba LLibre 1999b	A multi stage stratified sample of Marinao, Havana Over 65		Random Sample 779	Two phases No sample from screen negatives	DSM-III-R

1. Evans DA, Harris Funkenstein H, Albert MS, Scherr PA, et al, Prevalence of Alzheimer's Disease in a community population of older persons, higher than previously reported, *JAMA,* 262(18):2551-2556, 1989
2. Bachman DL, Wolf PA, Linn R et al, Prevalence of dementia and probable senile dementia of the Alzheimer type in the Framingham Study, *Neurology,* 42:115-119, 1992.
3. Beard CM, Kokmen E, O'Brien PC and Kurland LT, The prevalence of dementia is changing over time in Rochester, Minnesota, *Neurology,* 45:75-79, 1995.
4. Graves AB, Larson EB, Edland, SD, et al, Prevalence of dementia and its subtypes in the Japanese American population of King County, Washington State, *American journal of Epidemiology,* 144(8):760-771, 1996.
5. Fillenbaum GG, Heyman A, Huber MS et al, The prevalence and 3-year Incidence of dementia in older black and white community residents, *J Clin Epidemiology*, 51(7):587-595, 1998.
6. Gurland BJ, Wilder DE, Lantigua R et al Rates of Dementia in three ethnoracial groups, *International Journal of Geriatric Psychiatry,* 14: 481-493, 1999.

7. Breitner JCS, Wyse, BW, Anthony JC, Welsh-Bohmer KA, et al, APOE-4 count predicts age when prevalence of AD increases, then declines. The Cache County Study, *Neurology,* 53: 321-331, 1999.
8. Hendrie HC, Osuntokun BO, Hall KS et all, Prevalence of Alzheimer's Disease and Dementia in two Communities: Nigerian Africans and Africans Americans, *American journal of Psychiatry,* 152: 1485-1492, 1995.
9. Canadian Study of Health and Aging Working Group. Canadian Study of Health and Aging: study methods and prevalence of dementia, *Can Med Assoc J,* 150(6): 899-911, 1994.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
AMRO A	1. USA, Evans D.A., 1989	**AD estimates and not total dementia**	3.0(0.8-5.2)		18.7 (13.2-24.2)		47.2(37.0-63.2)			
	2. USA, Bachman D.L. et al, 1992 Total	0.35 0.00-1.04	0.90 0.18-1.62	1.79 0.63-2.95	3.58 1.63-5.53	10.53 6.55-14.51	23.75 17.16-30.34			4.13 3.29-4.97
	3. USA, Beard C.M., 1995 1975 M 1975 F 1980 M 1980 F 1985 M 1985 F		1.5 0.9 0.8 0.7 0.9 0.7	3.0 1.8 3.2 1.8 5.2 1.7	2.4 5.9 4.0 4.0 5.0 5.0	12.0 9.0 9.5 10.0 9.5 14.0	15.0 22.0 24.0 23.0	28.0 29.0 31.0 30.0	20.0 30.0 10.0 45.0	
	4. USA Graves A.B., 1996		0.76 0.57-1.09	1.35 0.94-1.77	6.26 4.29-8.36	12.67 10.91-14.42	29.69 25.99-33.39	50.20 44.84-55.57	74.28 70.83-77.73	6.32 5.90-6.78
	5. USA, Fillenbaun GG, 1998 White Male White Female		(from 68 to 74 years) 3.5 (0.0-11.0) 2.8 (0.0-9.9)		5.1(0.0-15.1) 13.5 (0.7-26.4)		7.2 (0.0-28.0) 10.8 (0.0-30.6)			7.1 (overall) (3.5-10.8) 4.4(0.0-10.3) 8.7 (1.5-16.0)

	Black Male Black Female		5.0 (0.0-13.8 1.7 (0.0-6.7)		10.5 (0.0-24.0) 11.9 (0.0-31.8)		11.5 (0.0-51.7) 11.9 (0.0-31.8)			7.8 (0.1-15.5) 6.6(0.3-12.9)
	6. USA,Gurland BJ.,1999 a)Latinos b)African-Americans c)Non-Latino Whites		7.5 9.1 2.9		27.9 19.9 10.9		62.9 58.6 30.2			16.2 10.7 2.5
	7. USA, Breitner JCS, 1999		1.43 0.68-2.17	3.26 2.16-4.36	7.52 5.85-9.19	15.28 13.92-16.64	26.71 22.34-31.08	37.96 31.39-41.31		9.55 8.67-10.43
	8. USA Hendrie et al, 1995		2.62 1.83-3.41		11.43 9.56-13.29		32.44 27.59-37.29			8.24 7.09-9.40
	9. Canada, Ebly E.M. et al 1994		2.4		11.1		34.5			8.0
	10. Cuba, Llibre, JJ, 1999a		2.6	4.9	7.9	35.7	43.8			
	11. Cuba, lllire et al, 1999b	1.35	3.18	7.1	9.2	20.28	39.2			
YOUR ESTIMATES										
BRIEF COMMENTS										

Study 1: this study gives the prevalence of AD (and not overall dementia) by age group, the prevalence rates were weighted according to the sampling procedure. They give the number of other dementias but you can not calculate using the same procedure as they don't say from which group each case come from.

Study 2: CI calculated by CF as it was a simple random sample, one phase. This will underestimate the standard error, i.e. the robustly estimated confidence intervals would be wider.

Study 3: Figures for this study was taken from a graph and are approximations only

Study 5: They give prevalence by age group according to gender, but not total by age group. They also give separated by ethnicity and not total

Study 6: prevalence according to 2 different diagnostic schemes (created by the authors) . I give only one as the figures are not substantially different. It wasn't possible to calculate the SE with the information available in the paper

AMRO B and D

REGION	Studies	setting	Sample size	Design	Diagnostic criteria
AMRO B	1.Brazil, Herrera E et al 2002	Urban, Catanduva, Sao Paulo ; 25% of domiciles plus all nursing homes) Age specific prevalence estimates are for community dwelling participants only	PHASE 1 1681 eligible 1660 screened PHASE 2 234 selected 220 evaluated	Two Phases No sample from screen negative	DSM-IV

1. Herrera E., Caramelli P, Silveira AS, Nitrini R Epidemiologic survey of dementia in a community-dwelling Brazilian population, *Alzheimer Dis Assoc Disord. 16(2):102-8, 2002.*

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
AMRO B	1. Brazil,Herrera E et al 2002		1.6 0.6-1.6	3.2 1.6-4.8	7.9 4.7-11.1	15.1 10.1-20.1	38.9 29.7-48.1			7.1 5.9-8.3
YOUR ESTIMATES										
BRIEF COMMENTS										
AMRO D	NO INFORMATION AVAILABLE									
YOUR ESTIMATES										
BRIEF COMMENTS										

EMRO B and D

REGION	Studies	setting	Sample size	Design	Diagnostic criteria
EMRO D	Egypt., Farrag A-K F. et al, 1998 Male Female	Over 60 living in rural and urban counties in Assiut province (systematic random sampling technique?): sampling unit was all households aged 60 and over in every tenth house until the determined sample size was reached	PHASE 1 2000 (1400 from rural and 600 from urban) PHASE 2 102 selected 98 evaluated	Two phase (they say three, as they did further laboratory examination) on those with DSM-III-r diagnosis of dementia) No sample from screen negative	DSM-III-R
EMRO B	NO INFORMATION AVAILABLE				

Farrag A-K F, Farwiz HM, Khed EH et al Prevalence of Alzheimer Disease and other dementing disorders: Assiut-Upper Egypt Study, *Dement Geriatr Cogn Disord, 9:323-328, 1998.*

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
EMRO D	Egypt., Farrag A-K F. et al, 1998	1.4 0.5-2.3	1.9 0.7-2.1	4.1 2.1 -6.1	6.5 3.1-9.9	14.9 8.6-21.2	22.0 14.2-29.8			4.5 3.6-5.4
YOUR ESTIMATES										
BRIEF COMMENTS										
EMRO B	NO INFORMATION AVAILABLE									
YOUR ESTIMATES										
BRIEF COMMENTS										

Confidence Intervals were calculated by CF assuming it was a simple random sample (one phase). This will underestimate the standard error, i.e. the robustly estimated confidence intervals would be wider.

WPRO A

REGION	Studies	setting	Institution Included?	Sample size	Design	Diagnostic criteria
WPRO A	1. *Australia Henderson AS et al., 1994	Over 70 in the community of Canberra and Queanbeyan Separate samples of women, men and institutional residents	YES	Community 1377 eligible 945 interviewed Institution 143 eligible 100 interviewed	One phase	DSM-III-R and ICD-10
	2.Japan, Kiyohara, 1994	Comparison between 2 surveys (1985 and 1992) using the same procedures on those over 65 living in Hisayama (an island in Japan with similar characteristics to pop of Japan as a whole)	UNCLEAR	Survey 1 887 839 screened Survey 2 1231 1189 screened	Insufficient information	1985 DSM-III 1992 DSM-III-R
	3.Japan, Ogura, C et al, 1995	Group of islands (Okinawa prefecture) divided into 5 regions. Random sample (one city from the urban districts and one town/village from the rural districts of each region Over 65	YES	PHASE 1 3524 identified 3312 screened PHASE 2 522+ 482 interviewed	Two phase Cut-point selected from pilot study. Sensitivity estimates from one district in first phase used to weight estimates for whole study.	DSM-III-R
	4.Japan, Shiba M et al, 1999	Rural catchment area whole pop'n survey. All over 65 living in the village (Hanazomo-mura).	NONE IN AREA	201 (all 65 and over living in the village) 171 interviewed directly and 30 by a surrogate	Two phase No sample from screen negative Weighting from sensitivity derived from other sources	DSM-III-R
	5.Singapore, Kua et al, 1991	Stratified sample of Chinese over 65 living in a community in Singapore	NO	612 No information on screen positives	Two phase No sample from screen negative	ICD-9

				or response rate		
	6.Singapore, Kua et al, (1995) Chinese Malay	Chinese and Malay over 65 living in two different districts in Singapore (door knocking)	Community only	200 Chinese 8 positive +18 negative completed CA 149 Malay 9positive+ 14 negative completed CA	Two phase 10% sampled from screen negative for further examination. No cases among screen negative sample	DSM-III-R GMS

1. Henderson AS, Jorm AF, Mackinnon A, et al., A survey of dementia in the Canberra population: experience with ICD-10 and DSM-III-R criteria, *Psychological Medicine,* 24(473-482).
2. nnn
3. Ogura C, Nakamoto, H, Uema T, et al prevalence of senile dementia in Okinawa, Japan, *International Journal of Epidemiology,* 24(2): 373-380.
4. Shiba M, Shimogaito J, Kose A, et al. prevalence of dementia in the Rural Village of hanazon-mura, japan, *Neuropepidemiology,* 18;32-36, 1999.
5. Kua EH, The prevalence of dementia in elderly Chinese, *Acta Psychiatr Scand,* 83:359-352, 1991.
6. Kua EH and Ko SM, prevalence of dementia among the Elderly Chinese and Malay residents of Singapore, *International Psychogeriatrics,* 7(3):439-446.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
WPRO A	1. *Australia, Henderson AS et al., 1994 ICD-10 DSM-IV			1.4 (0-3.2) 3.2 (1.6-4.8)	1.2 (0-2.4) 5.5 (2.9-8.1)	5.2 (2.5-7.9) 12.4 (8.5-16.3)	10.3 (4.6-16.0) 21.0 (13.7-28.3)			
	2.Japan, Kiyohara, 1994 1985 Male 1992 Male 1985 Female 1992 Female		2.0 2.0 2.5 1.5	3.5 2.0 2.0 2.0	1.5 4.0 7.0 7.0	17.0 4.0 16.0 13.0	42.0 21.0 39.0 32.0			5.4 (overall,1985) 3.3 (overall,1992)
	3. Japan, Ogura, C et al, 1995		1.07 0.46-1.48	2.87 1.79-3.95	4.96 3.18-6.74	13.50 10.16-16.84	17.62 12.54-22.7	36.83 28.09-45.57		6.66 4.43-8.89
	4. Japan, Shiba M et al, 1999		0.0	5.4 0.8-10.0		27.9 (80 to 99 years age group) (14.5-41.3)				8.5(65 to 99 years age group) (4.6-12.4)
	5. Singapore, Kua et al, 1991		0.9 0-2.12	1.5 0-3.18	0.9 0-2.64	4.8 0-11.3	12.0 0-24.7			1.8 0.7-2.9
	6. Singapore, Kua et al, (1995) Chinese Malay		1.6 2.5		4.2 10.3					2.5 4.0
YOUR ESTIMATES										
BRIEF COMMENTS										

Study 1: Confidence Intervals calculated by CF using the SE provided by the authors.
Study 2: Figures were taken from a graph and are approximations only.

Confidence Intervals for studies 3, 4 and 5 were calculated by CF assuming it was a simple random sample (one phase). This will underestimate the standard error, i.e. the robustly estimated confidence intervals would be wider.

WPRO B

REGION	Studies	setting	Sample size	Design	Diagnostic criteria
WPRO B	1.Korea, Woo, 1998	Random multistage cluster sample One cluster urban 3 clusters rural over 65	2171 eligible PHASE 1 1674 screened PHASE 2 436 selected 436 evaluated	Two phases Divided in three groups according to performance in the screen. Random sample from each group (100% low, 50% intermediate, 6% high) Weighting back carried out appropriately	DSM-III-R
	2.Korea, Lee DY et al, 2002	Age-stratified random sample of a district in Seoul (kwanak) 65 and over	953 selected PHASE 1 643 screened PHASE 2 307 selected 207 evaluated	Two phases Divided in three groups according to performance in the screen. Random sample from each group (100% low, 50% intermediate, 20% high) Weighting back carried out appropriately 108 day mean interval between phases	DSM-IV
	3.Korea, Suh G-H et al, 2003	Rural community (Vonchon) IN 1996 Random multistage cluster sampling Over 65	4862 eligible PHASE 1 1217 selected (one per household) 1037 completed PHASE 2 370 selected 333 evaluated (50 from screen negatives)	Two phases Random sample from those screening negative No cases identified from Screen negatives	DSM-III-R
	4.Korea, Kim J et al	Cluster sampling Metropolitan city (Busan)	1230 target PHASE 1 1101 screened	Two phases Divided in three groups according to performance in	DSM-III-R

			PHASE 2 213 selected 158 evaluated	the screen. Random sample from each group (100% low, 30% intermediate, 5% high) Weighting back not carried out. Prevalence estimates are therefore **underestimates** (5 dementia cases from among intermediate group)	
	5. Ferri et al	This is a meta analysis which included 13 studies from China and SE Asia (4 from China main land, 1 from Hong Kong, and 4 from Taiwan). Although there was some heterogeneity between the studies, most presented age standardized prev below or equal prevalence in Europe (EURODEM). Methodological variables seem to partially explain the heterogeneity between studies. Only one study used one phase design and only 3 sampled screen negatives into phase two. The estimates are age adjusted prevalence using Poisson random effects model			

1. Woo JI, Lee JH, Yoo K-Y, Prevalence estimation of dementia in a rural area of Korea, *Journal of the American geriatric Society,* 46:983-987, 1998
2. Lee DY, Lee JH, Ju Y-S, et al The prevalence od dementia in older people in an urban population of Korea: the Seoul study, *Journal of the American geriatric society,* 50: 1233-1239, 2002.
3. Suh G-H, Kim JK & Cho MJ, Community study of dementia in the older Korean rural population, *Australian and New Zealand Journal of Psychiatry,* 37: 606-612, 2003.
4. Kim J, Jeong I, Chun JH and Lee S The prevalence of dementia in a metropolitan city of South Korea, *International journal of Geriatric Psychiatry,* 18: 617-622.
5. Ferri ,C et al Prevalence of Dementia in China and South east Asia – Unpublished manuscript – shortly to be submitted

6.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
WPRO B	1. Korea Woo, JI, 1998 Male Female		5.4 3.3-8.7 2.2 1.0-4.5	5.0 2.8-8.7 8.4 5.5-12.5	16.7 11.1-24.2 13.5 8.9-19.8	20.9 12.8-31.9 31.4 26.0-37.3				8.4 10.3 (age/sex adjusted prev=9.5)
	2.Korea, Lee DY et al, 2002		2.6 (0.5-4.7)	3.7 (0.5-7.0)	8.5 3.3-14.7	27.8 19.6-36.0	32.6(25.5-40.0)			9.1(7.1-11.2)
	3.Korea, Suh G-H et al, 2003		2.2 1.5-2.8	5.0 3.8-6.1	8.6 6.8-10.5	13.8 10.8-16.9	15.7 10.8-20.5	45.8 33.6-58.0		6.8 6.1-7.5
	4.Korea, Kim J et al, 2003		0.8	3.3	8.3	21.3	54.66	68.8		7.4
	5.Ferri, et al (review)	0.59 0.32-1.07	1.36 0.40-4.48	2.46 0.75-7.65	4.35 1.36-14.9	9.63 3.11-26.18	15.85 (5.67-38.39)			
YOUR ESTIMATES										
BRIEF COMMENTS										

SEARO B

REGION	Studies	setting	Sample size	Design	Diagnostic criteria
SEARO B	1. Thailand Phanthu-mchinda K, 1991	A random sample of those over 60 living in a large urban slum in Bangkok for at least 1 year	A random sample of 588 was identified 500 were screened (85%) No information on phase 2 response	Two phases. All screen negatives (total figures are not given) were reviewed by a physician. Different procedures were used in phase two for screen+ and screen – ve with a less intensive assessment for screen -ve.	DSM-III-R
	2. Thailand, Senanar-ong V, 2000	Over 60 living in 3 districts in Bangkok	1070 No information on non-response at either phase	Two phases No sample from screen negative	DSM-IV
	3. Thailand, Jitapunku-l S, 2001	Stratified multi-stage national sample over 60	5010 4048 interviewed	One-phase	No dementia diagnosis per se. Those with CMT score of 14 or below who were dependent on any of the 6 personal activities of daily living were classified as “dementia”
	4.Sri Lanka, Silva HA, 2003	Semi urban town (Ragama) Random sample from 4 public health midwife areas (total population=15828) over 65	703	Two phases No sample from screen negative	DSM-IV

1. Phanthumchinda K, Jitapunkul S, Sitthi-Amorn C & Srichitra, C, *International Journal of Geriatric Psychiatry,* 6:639-646, 1991.
2. Senanarong V, Harnphadungkit K. et al, Prevalence of dementia, including vascular dementia . in 1070 Thai elderly in Bangkok.
3. Jitapunkul S, Kunanusot C, et al Prevalence estimation of dementia among Thai elderly: A National Survey, *J Med Assoc Thai,*84:461-467, 2001.
4. Silva HA, Gunatilake, SB and Smith AD, Prevalence of dementia in a semi-urban population in Sri Lanka: report from a regional survey, *International Journal of Geriatric Psychiatry,* 18:711-715, 2003.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
SEARO B	1. Thailand, Phanthumchinda K, 1991	0.97 0.0-2.31	0	1.15 0.0-3.39	4.44 0.0-10.46	16.67 0.0-33.89	7.69 0.0-22.17			1.80 0.0- 2.96
	2. Thailand, Senanarong V, 2000	1.64 0.34-2.94	2.66 0.84-4.48	5.48 2.47-8.49	11.01 5.13-16.9	20.0 10.95-29.05				4.95 2.3
	3. Thailand, Jitapunkul S, 2001	1.0	1.2	3.5	3.5	10.1	13.0	31.3		3.3
	4. Sri Lanka, Silva HA, 2003		3.3 1.88-4.72		7.95 2.3-13.6		11.1 0-31.6			3.98 2.53-5.43
YOUR ESTIMATE										
BRIEF COMMENTS										

Study 1: It does not use the same procedures for diagnosis for screen negatives and positives. It does not give total figures for each phase.

Confidence Intervals for studies 1, 2 and 4 were calculated by CF assuming it was a simple random sample (one phase).This will underestimate the standard error, i.e. the robustly estimated confidence interval would be wider. CI was not calculated for study 3 as it does not give the total numbers of the age groups separated.

SEARO D

REGION	Studies	Setting	Sample size	Design	Diagnostic criteria
SEARO D	1. India Shaji, S.,1996	Rural community (Panchayath in Ernakuklam District, Kerala) over 60, door knocking	PHASE 1 2191 identified 2067 screened PHASE 2 309 screen + 272 completed second phase PHASE 3 254 scored + (clinically assessed)	Three phases (phase I: MMSE; phase II: all positive plus 5% of negatives (CAMDEX-section B and H), phase III: all positives from phase II plus 5% of negatives (clinically assessed by a psychiatrist) 5% from screen negative into phase 2 **? problems with weighting** It gives overall weighted prev. of 3.39 but I calculated as 4.8 (see comments on study 1)	DSM-III-R
	2. India, Rajkumar S et al, 1997	Rural area close to Madras city over 60 Cluster sampling technique 10 out of the 51 clusters were randomly selected and a door to door survey was conducted in each selected cluster until a total sample size of 750 was obtained)	750 No data on numbers proceeding through two phases or response rates	GMS/ AGECAT was used as a screening and the diagnosis corroborated by two psychiatrists. The design is unclear in some respects. Not a straight forward two phase study. It is stated that 10% of non-cases according to GMS were randomly examined by the psychiatrists to corroborate the diagnosis, but no figures were given on this	ICD-10 (consensus between 2 psychiatrists)
	3. India, Chandra V et al, 1998 a)CDR>0.5 b)CDR>1	Rural area of Ballabgarh (35km from New Delhi) over 55 years	PHASE 1 5649 identified 5126 screened PHASE 2 536(+)+270(-)= 806 627 (further assessed)	Two phases 5.3% sampled from screen negative One dementia case among screen negatives - weighting back not conducted (see below)	DSM-IV

	4. India, Vas CJ et al. , (2001)	Urban (catchment area of a hospital in Bombay) Over 40	PHASE 1 30,000 24,488 screened i(SCAG) 1,507 screened+ 507 in phase 2 174+ 174 plus 25 from the (-) in phase 2	Three phase using non-validated screening assessments. No screen negatives were selected for further examination in PHASE 2. For phase III 7.5% from negatives in phase II were selected for further examination but no data is given on outcome, and no weighting back carried out.	DSM-IV

1. Shaji S., Promodu K, Abraham T, Jacob Roy K and Varghese A, An epidemiological study of dementia in a rural community in Kerala, India, *British Journal of Psychiatry,* 168: 745-749 (1996)
2. Rajkumar S, Kumar S and Thara R, Prevalence of dementia in a rural setting: a report from India, *International Journal of Geriatric Psychiatry,* 12: 702-707 (1997)
3. Chandra V, Ganguli, M, Pandav R, Johnston J, Belle S and DeKosky ST, *Neurology, 1998,* 51:1000-1008.
4. Vas JC, Pinto C, Panikker, D, Noronha S, Deshpande N, Kulkarni L and Sachdeva S, *International Psychoageriatrics,* 13(4): 439-450.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
SEARO D	1. India Shaji, S,1996	0.33 (0-0.79)	0.99 0.55-1.43	1.50 0.3-2.7	3.24 1.16-5.32	12.88 7.78-17.98	16.28 8.48-24.08	32.14 14.86-49.42		3.19 (60+)*
	2. India, Rajkumar S et al, 1997	2.5 1.25-3.75		5.5 1.5-9.5		16.0 1.6-30.4				3.5 (60+) 2.2-4.8
	3.India, Chandra V et al, 1998 a)CDR>0.5 b)CDR>1		0.70 (0.38-1.18) 0.55 (0.28-0.99)		1.68 (0.81-3.10) 1.32 (0.58-2.65)		9.85 (5.24-16.84) 9.09 (4.7-15.88)			(55+) 0.84(0.61-1.13) 0.70(0.49-0.97) (65+) 1.36 (0.96-1.88) 1.14
	4.India, Vas CJ et al. (2001)	0.28 0.05-0.51	0.80 0.38-1.22	2.42 1.54-3.30	4.99 3.04-6.94	5.06 2.72-7.40	3.85 1.24-6.46			2.31(65+) 1.84-2.78
YOUR ESTIMATES										
BRIEF COMMENTS										

Study 1: Overall prevalence was recalculated joining phase 2 and phase 3 figures resulting in a higher figure: 4.8(4.3-5.3). The figures used are those who were examined in phase II (not those selected into phase II).
Study 2: Only cases detected as dementia of moderate to severe intensity were included; according to the authors mild dementias could not be diagnosed reliably.
Study 3: One case of dementia was identified among the 5% sample of screen negatives. However, this is described as an onset of dementia between screening and second phase assessment, as a consequence of stroke. While this case seems to be included in the numerator it is unweighted. After weighting the total prevalence (all over 55) changes from 0.84 (0.61-1.13) to 1.15% (0.26-2.04). Depending, therefore, upon whether it seems reasonable to include this case, some of the prevalence estimates may be up to 50% higher than cited, and the confidence intervals much broader.

Confidence Intervals for studies 1, 2 and 4 were calculated by CF assuming it was a simple random sample (one phase). This will underestimate the standard error, i.e. the robustly estimated confidence intervals would be wider.

AFRO D and E

AFRO D	1.Nigeria, Hendri et al 1995	Delimited geographical area of Ibadan (door knocking)	2535 eligible 2494 interviewed 423 clinical assessment response rate for the poor performance group at phase II was 76.7%	Two phases. First phase participants were divided in three groups according to their performance in the screening interview. A random sample of each group were selected and further examined in the second phase. The median time between screening interview and clinical assessment was 10 months. Appropriate weighting back was carried out	DSM-III-R and ICD-10
AFRO E	2.South-Africa, Ben-Arie O. et al 1983	Random sample of coloured persons non-institutionalized over 65 living in the community in Cape Town in 1982	150 eligible 139 received clinical assessment	Few details given. But it seems to be a one phase design	Not very clear. PSE (CATEGO) and MMSE were used

1. Hendrie HC, Osuntokun BO, Hall KS et all, Prevalence of Alzheimer's Disease and Dementia in two Communities: Nigerian Africans and Africans Americans, *American journal of Psychiatry,* 152: 1485-1492, 1995.
2. Ben-Arie O, Swartz L, Teggin AF and Elk R, The coloured elderly in Cape Town – a psychosocial, psychiatric and medical community survey, *SA Medical Journal,* 64:1056-1061.

REGION	Studies	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+	overall
AFRO D	1. Nigeria, Hendri et al 1995		0.86 (0.40-1.32)		2.72 (1.62-3.81)		9.59 (2.82-16.37)			2.29 (1.17-3.41)
YOUR ESTIMATES										
BRIEF COMMENTS										
AFRO E	2.South-Africa, Ben-Arie O. et al 1983		8.6							8.6
YOUR ESTIMATES										
BRIEF COMMENTS										
