Depression in Europe

Geographical distribution among older people

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Background This is the first report of results from the EURODEP Programme.

Aims To assess the prevalence of depression judged suitable for intervention in randomised samples of those aged ⩾65 in nine European centres.

Method The GMS–AGECAT package.

Results Differences in prevalence are apparent, 8.8% (Iceland) to 23.6% (Munich). When sub-cases and cases are added together, five high- and four low-scoring centres emerge. Women predominated over men. Proportions of sub-cases to cases revealed striking differences but did not explain prevalence. There was no constant association between prevalence and age. A meta-analysis (n=13 808) gave an overall prevalence of 12.3%, 14.1% for women and 8.6% for men.

Conclusions Considerable variation occurs in the levels of depression across Europe, the cause for which is not immediately obvious. Case and sub-case levels taken together show greater variability, suggesting that it is not a matter of case/sub-case selection criteria, which were standardised by computer. Substantial levels of depression are shown but 62–82% of persons had no depressive level. Opportunities for treatment exist.

Declaration of interest The European Commission BIOMED I initiative funded this Concerted Action Programme.

The growing proportion of older people in both developing and developed societies has concentrated interest on the mental disorders of this age group, especially those which seriously impair the quality of life and absorb a disproportionate provision of health and social services. Depressive illness is such a condition. It is ubiquitous, occurring not only as an isolated illness but also in association with others, particularly physical illnesses, when it may impair rehabilitation, tend towards chronicity, and sometimes may precede or mimic dementia (Jorm *et al*, 1987).

Community studies using identical methods tend to show similar prevalences of depression. The US–UK Diagnostic Project found a prevalence of 16.2% of case-level depression of all types in New York, compared with 19.5% in London (Gurland *et al*, 1983; Copeland *et al*, 1987*a*), but significant differences have been demonstrated between London (19.5%) and Liverpool (11.5%) (Copeland *et al*, 1987*b*). Prevalence in Iceland among subjects aged 85–87 (Magnusson, 1989) was lower than for comparable age groups in Liverpool, while Dewey *et al* (1993) have reported similar proportions between Zaragoza and Liverpool. Such findings suggest a search for risk factors and for evidence of prescribed treatment, which in turn have implications for service planning. Effective treatments for most types of old-age depression are well established, but the introduction of a new generation of anti-depressants with fewer risks and side-effects, and the demonstration that techniques such as cognitive therapy are also effective, have led to the reappraisal of public health measures against a condition from which many older people are needlessly suffering.

To assess the extent of these problems facing the European Community, the EURODEP study was established, as a European Concerted Action Programme under the BIOMED 1 initiative, to examine the geographical variation of depression in older people, risk factors, detection and treatment.

METHOD

Research groups in Europe were known to be examining random community samples of older people using the same standardised assessment method, namely the Geriatric Mental State–AGECAT (GMS–AGECAT) package (GMS: Copeland *et al*, 1976; Gurland *et al*, 1976; AGECAT: Copeland *et al*, 1986; Dewey & Copeland, 1986). Their personnel had been trained by the Liverpool centre, which remained in touch with the progress of the studies. By establishing a research collaboration, not only could the reasons for differences found within the Community be examined, but by aggregating the samples a more intense investigation of possible risk factors for depression could also be undertaken.

Geographical distribution

The centres were not selected with the intention of assessing specific problems but by serendipity. Nevertheless, they can provide comparative data on the prevalence of depressive illness across a wide area of Europe, presenting a geographical and religious mix. The two southern centres, Italy and Spain, are predominantly Catholic. Of seven northern centres, two in the UK (London and Liverpool), two in Germany (Berlin and Munich), one in the Netherlands and one in Iceland are predominantly Protestant, while one is Catholic (Dublin) (Fig. 1).

An Albanian centre was added later as funds became available, and its study is still proceeding. A number of new centres have opted to join the consortium. These centres, which have been examining similar samples but using other measures, are Gothenburg, Sweden (who started in 1993), Antwerp, Belgium (1991), Bordeaux, France (PAQUID) (1989), Oulu, Finland (1984), and a further sample in Amsterdam (longitudinal ageing study; Beekman *et al*, 1995). The Maastricht centre has advised on the application of the experience sampling method. A comparison involving these centres is reported in companion papers (Prince *et al*, 1999*a*,*b*, this issue).

The sample and method for each study reported here have been described elsewhere: Amsterdam, van Ojen *et al* (1995); Berlin, Helmchen *et al* (1996); Dublin, Lawlor *et al* (1994); Iceland, Magnusson

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(1989); Liverpool, Saunders *et al* (1993); London, Livingston *et al* (1990); Munich, Meller *et al* (1993); Verona, Italy, Turrina *et al* (1991*b*); and Zaragoza, Spain, Lobo *et al* (1992). Table 1 provides a summary, including details of the year of sample selection, age range, sampling frame and size, and provides further details of the exclusion criteria, refusal rates, response rates, type of location, version of GMS used, and whether or not a screening phase was undertaken.

Iceland provided a birth cohort aged between 85 and 87 at the time of the 1983 follow-up. They have been included in the 85–89 age group.

Table 2 shows additional interview schedules used, criteria for depression and whether or not the study was part of a longitudinal design.

The centres included in the study reported here used the same assessment measures, their interviewers had been trained to use the measures at an approved training course during which interrater reliability was assessed, and they had a suitably drawn random or total sample of subjects aged at least 65 years and living in the community.

Measures

GMS–AGECAT package

The interviews were carried out using the community version of the GMS, some using version A2 and some version A3 (adapted to provide for the international classifications). The GMS is a semi-structured interview schedule designed to be used with older people. The community version is derived from the parent schedule by omitting many of the more psychotic items less likely to be encountered in the community.

The GMS has been translated into over 20 languages, including Italian (Turrina *et al*, 1991*a*), Spanish (Lobo *et al*, 1988) and Dutch (Hooijer *et al*, 1991). In each case the schedule has been translated and at least part back-translated. AGECAT is a computerised diagnostic algorithm which uses scores on GMS items in Stage 1 for each subject to produce a level of confidence of diagnosis on a scale of 0–4 or 0–5 for each of eight diagnostic syndrome clusters: organic brain syndrome, schizophrenia, mania, depression (psychotic and neurotic), and obsessional, hypochondriacal, phobic and anxiety neuroses. Stage 2 reaches a final differential diagnosis by comparing level for level, recorded as either a diagnostic sub-case (confidence levels 1 and 2) or a diagnostic case (confidence levels 3, 4 and 5). Thus, it allows the identification of syndrome comorbid states. It also splits the depression cases into psychotic and neurotic types, which have some correspondence with the categories of major depressive episode and dysthymic disorder of DSM–III (American Psychiatric Association, 1980), but does not apply a two-year rule to dysthymic disorder. It should be emphasised that 'psychotic' here does not necessarily imply the presence of delusions and/or hallucinations, which would be rare in these populations. The kappa value for cases of DSM–III–R (American Psychiatric Association, 1987) major depressive episode and dysthymic mood taken together against AGECAT diagnostic cases of depression is in the range 0.70–0.72 (Copeland *et al*, 1990; Ames *et al*, 1994). Level 3 on any diagnostic cluster accords with what psychiatrists would usually recognise as a case for treatment or intervention, if available. Reliability data on the schedule are collected during the training sessions and in the course of each study. Validity studies using psychiatrists' diagnosis as the gold standard (kappa value for depression, 0.76) and outcome studies have been reported (Copeland *et al*, 1992).

Good agreement has been shown between AGECAT cases of depression and DSM–III major depressive episode and dysthymia taken together (Copeland *et al*, 1990; Ames *et al*, 1994; Fichter *et al*, 1995). Kappa value of agreement between AGECAT diagnosis of depression and that made by psychiatrists interviewing the same subjects was 0.76 (Copeland *et al*, 1988), and for test–re-test, 0.73 (Dewey *et al*, 1993).

The advantages of having a thoroughly consistent and reliable method for forming a diagnosis for comparative studies are

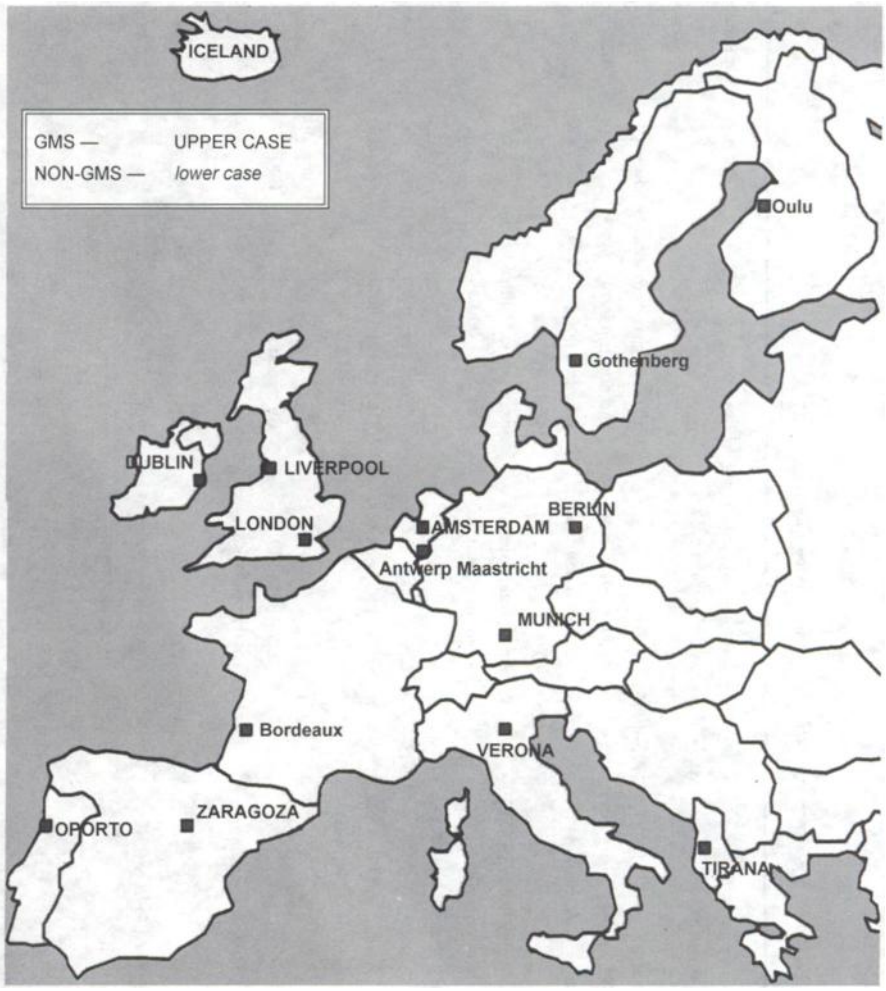


Fig. 1 EURODEP: European Concerted Action Programme on depression of older age – collaborating centres.

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Table 1 EURODEP prevalences: characteristics of study populations

Centre/study name Principal investigators	Years of study	Sample – age and selection process	Frame	Size	Exclusions	Response rate[1]	Locality	GMS version	GMS – all subjects	Depression screen phase
Amsterdam AMSTEL Project C. Hooijer & A. Beekman	1990–1996	65–84 Age stratified Randomly sampled	30 GP registers randomly and non-randomly selected, pop.=10 950	4051	Nursing homes, hospitalised > 6 months	85%	Urban	A2	Yes	No
Berlin Berlin Ageing Study (BASE), psychiatry section F. Reischies & M. Linden	1990–1993	70+ Age/gender stratified Randomly sampled	Verified West Berlin Registration Office Pop.=282 000	516	None	27%	Urban	A3	Yes	No
Dublin Dublin Ageing and Mental Health Study (DAMHS) B. Lawlor	1993–	65+ GP complete register	GP registers Medical card holders Pop.=1190	451 (practice 1) 485 (practice 2)	None	85%	Urban	A3	Yes	No
Iceland H. Magnusson	1983	Born 1895–1897 Total population	Birth cohort	800	Living in remote and isolated farms and villages > 100 km from Reykjavik	84%	Mixed/rural	A2	Yes	No
Liverpool Liverpool ALPHA Study J. Copeland	1989–1991	65+ Age/gender stratified – equal strata Randomly sampled	GP registers Pop.=78 479	5222	Hospitalised > 2 years, already in research	87%	Urban	A2	Yes	No
London London Gospel Oak Study A. Mann & M. Prince	1993–1994	65+ Total population of Gospel Oak electoral ward	Door-knocking census Pop.=889	654	None	80%	Urban	SHORT-CARE (includes GMS items)	Yes (SHORT-CARE)	No
Munich Munich Study I. Meller & M. Fichter	1990–1994	85+ Randomly sampled	Electoral register Pop.=20 415	358	Exclusions for security reasons	89%	Urban	A3	Yes	No
Verona, Italy C. Turrina	1990–1991	65+ Randomly sampled	Census Pop.=6538	202	Hospitalised or in nursing homes	95%	Urban	A2	Yes	No
Zaragoza, Spain Zaragoza Study A. Lobo	1988–1989	65+ Age/gender stratified Randomly sampled	Census Pop.=68 954	1080	None	95%	Mainly urban	A2	Yes	No

1. As proportion of those available for interview.
GMS, Geriatric Mental State; GP, general practitioner; pop., total population.

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Table 2 EURODEP prevalence study methods

Centre	Other schedules used	Criteria for diagnosis of depression	Interviewer	Study type
Amsterdam	CAMDEX, AMTS, MSQ, SPMSQ, life events, ADL, IADL	AGECAT	Lay interviewers	LS (Wave II)
Berlin	HAS, HDS/CES–D	AGECAT	Psychiatrist	LS (Wave II)
	Interview with psychiatrist	Consensus DSM–III–R		LS (Wave III)
	Interview on MMSE			
Dublin	HAS on subsample	AGECAT	Nurse, epidemiologist	LS (follow-up of organic and depression cases)
Iceland	ADL	AGECAT	Psychiatrist, medical students	LS – but not using AGECAT
		Psychiatrist		
		DSM–III–R		
Liverpool	MMSE – Wave I, Minimum Data Set	AGECAT	Community nurses	LS (Wave II)
				LS (Wave III)
London	SHORT-CARE	AGECAT	Medical doctor, psychologist, graduate student, medical student	CS (prevalence study)
	Life Events			LS (follow-up of dementia)
	Social support/network			
	Impairment disability			
Munich	HDS	AGECAT	Psychiatrists	LS (Wave II)
	GDS	Psychiatrist		
	SIDAM	DSM–III–R		
	HAS on subsample			
Verona, Italy	MMSE, Belloc Health Scale	AGECAT	Trainee psychiatrists	CS
	PSSL			
	IIISS			
Zaragoza, Spain	MMSE (adapted)	AGECAT	Medical students	LS (Wave II)
	SSS (n=700)	Psychiatrist		
		DSM–III–R		

AMTS, Abbreviated Mental Test Score; ADL, Activities of Daily Living; GDS, Global Deterioration Scale; HDS, Hamilton Depression Rating Scale; CES–D, Centre for Epidemiological Studies Depression Scale (Radloff, 1977); IADL, Instrumental Activities of Daily Living; CAMDEX, Cambridge Examination for Mental Disorders of the Elderly; HAS, History and Aetiology Schedule (Informant interview for GMS); IIISS, Ingham Interview for Intimate Social Support; MMSE, Mini-Mental State Examination; MSQ, Mental Status Questionnaire; PSSL, Paykel Scale for Stressful Life Events; SPMSQ, Short Portable Mental Status Questionnaire; SIDAM, Structured Interview for the Diagnosis of Alzheimer's Disease and Multi-infarct Dementia and Dementia of other Aetiology; SSS, Social Status Schedule; LS, longitudinal study; CS, cross-sectional study.

considered to outweigh the disadvantages of not using a diagnosis made by a specialist. The GMS–AGECAT method was developed for precisely this type of study.

Data analysis

The Liverpool and Berlin samples were gender- and age-stratified. The overall prevalence figures for these centres are therefore adjusted using the appropriate weights to take this into account.

RESULTS

Variations in prevalence of diagnostic depression between centres

Figure 2 shows the prevalence in each of the centres of AGECAT diagnostic cases of depression. Here, we use the 'diagnostic cases' – those subjects where AGECAT has made a differential diagnosis of primary depression, excluding, for example, depression comorbid with dementia. Sub-cases (levels 1 and 2) and cases (levels 3–5) represent something of a spectrum of depression severity, although even sub-case level 1 represents the presence of a substantial number of symptoms. Taking the genders together, the centres fall into two groups: the high scorers (17.3–23.6%) – London, Berlin, Verona (small sample) and Munich (aged 85 and over); and the low scorers (8.8–12.0%) – Iceland (aged 85–87), Liverpool, Zaragoza, Dublin and Amsterdam.

Differences in prevalence by gender

Samples of women show higher proportions of depression than men in most studies. Does this hold true for the EURODEP centres? Figure 3 shows that it does (although confidence intervals overlap in some centres), except in the sample aged 85 and over from Munich. The Verona sample is unusual in showing a five-fold difference between the genders – only four cases of depression are found in 77 men (5.2%) but 33 are found in 125 women (26.4%). Otherwise, centres vary, with Amsterdam and Zaragoza showing two and half times as many women as men, and the rest having ratios below two. Although the gender pattern in the high-scoring centres is still discernible for women, it is much less obvious for men, except in Munich. A meta-analysis of the pooled data from the nine centres (n=13 808) gave an overall prevalence of 12.3% (95% CI 11.8–12.9), 14.1% for women (95% CI 13.5–14.8) and 8.6% for men (95% CI 7.9–9.3).

Diagnostic sub-cases and cases of depression

If there were one set of risk factors acting on well patients to produce sub-cases and another acting on sub-cases to produce cases, a preponderance of the latter might result in a low level of sub-cases and a high level of cases. However, the overall level of sub-cases plus cases might be similar between centres. A preponderance of the former might produce high levels of sub-cases and correspondingly high levels of cases.

Figures 4 and 5 show histograms of proportions of sub-cases and cases, with the genders combined and divided. A levelling effect is not seen. Taking the genders together, the ratios of cases to sub-cases are generally similar, with some exceptions, such as Amsterdam and Munich. When the genders are looked at separately there is a trend for women to have more cases than sub-cases, and vice-versa for men. The exceptions are Amsterdam (women have more sub-cases) and Liverpool (women), Berlin (equal proportions), and Munich (men). When sub-cases and cases are added together, women still tend to score more highly, the exceptions being Dublin and London. The group of the four original higher-scoring centres plus Amsterdam is clearly demonstrated only for women, not for men, with only London (38.3%) and Munich (41.6%) way out in front, and Berlin (27.2%) a little ahead of the others (12.6–27.2%).

Psychotic and neurotic depression

Could the difference between the centres be due to differing proportions of psychotic and neurotic depression? Figures 6 and 7 do not bear this out. Whereas Munich, the centre with the highest prevalence of undifferentiated depression, does have the highest proportion of psychotic depression, London, the next highest, has one of the lowest proportions of psychotic depression, lower even than Iceland. When the genders are divided, Munich women are shown to have higher proportions of psychotic than neurotic depression (not found in any other centre), whereas the opposite is true for men, where the incidence of psychotic depression is only one-fifth that of neurotic depression. In Verona, with the highest

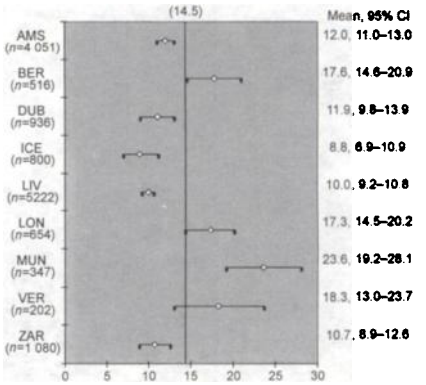


Fig. 2 EURODEP prevalence – depression levels in participating centres: diagnostic cases for men and women (95% confidence intervals). AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

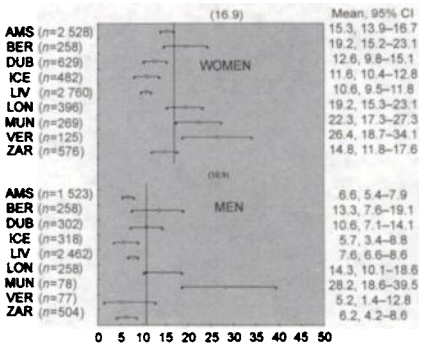


Fig. 3 EURODEP prevalence – depression levels in participating centres according to gender: diagnostic cases (95% confidence intervals). AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

proportion of undifferentiated depression in women, almost one-third is found to be psychotic depression, whereas among Amsterdam women only one-sixth of depression is psychotic. If psychotic depression is considered the more serious type of depression, these differences require explanation.

Differences in prevalence by age

Figures 8 and 9 show the age-specific levels of depression cases for men and women in

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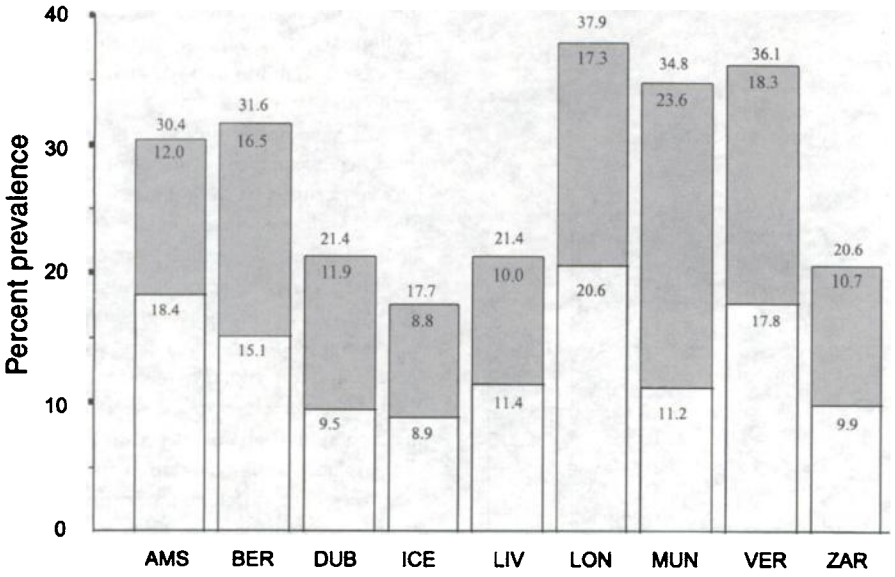


Fig. 4 EURODEP prevalence – depression levels in participating centres: diagnostic cases and sub-cases for men and women. ■, Diagnostic cases of depression; □, diagnostic sub-cases of depression. AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

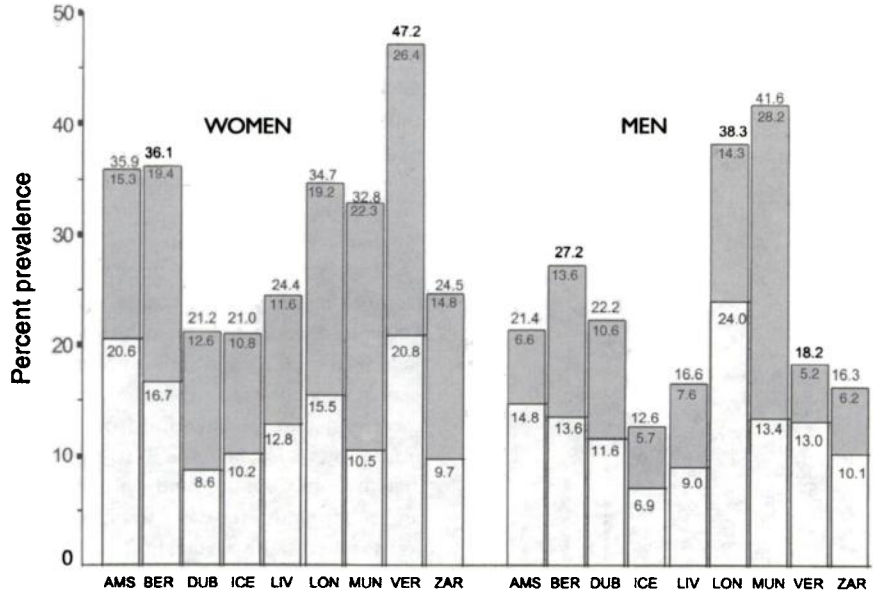


Fig. 5 EURODEP prevalence – depression levels in participating centres according to gender: diagnostic cases and sub-cases. ■, Diagnostic cases of depression; □, diagnostic sub-cases of depression. AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

each centre. Although fluctuations in level occur, they are not consistent between centres and there is no overall tendency to rise or fall with age, except in extreme old age.

Figure 8, showing levels in men, confirms that the London centre is almost always above the others. Figure 9 shows a greater consistency in the profiles for women, with London no longer playing such a dominant role, although the rise for ages 75–79 to 80–84 is at variance with the other centres. Verona shows a peak for ages 75–79 that may be an artefact of the comparatively small sample. Figure 10 shows the levels for the genders combined.

In the larger samples there is some consistency in the relative proportions of depressive neurosis and psychosis in the different age bands. For Amsterdam, depressive psychosis remains at about one-sixth of the total depression cases diagnosed, whereas for Liverpool it is around one-third to one-half, and for Zaragoza generally a little higher. Dublin has consistently low levels of depressive psychosis, as does Munich, but London and Verona show greater variability than the other centres.

DISCUSSION

We have found strikingly high proportions of depression, as judged by psychiatrists to warrant intervention, in all the centres in the study. These findings are consistent across geographical boundaries, cultures and religions. Some of the differences that do exist seem more evident among women than among men.

We have not found an explanation for the above in the proportions of sub-cases versus cases but have found instead further differences between centres. AGECAT sub-cases, both levels 1 and 2, have substantial scores on depression symptoms, distinguishing them, on the one hand, from 'well' subjects who have few depression symptoms, and, on the other hand, from cases identified for intervention. Five-year follow-up of AGECAT sub-cases of depression shows that 36% develop case-level depression during this time, and during the first three years 12% of cases revert to sub-case status or 'well' (Sharma *et al*, 1998). There is therefore an interplay between some 'well' subjects, sub-cases and cases. All three may lie on a symptom continuum, with some subjects changing status several times during follow-up, but with others apparently 'fixed' within a single level. Risk factors may be at work here, facilitating or inhibiting the transition between both 'well' subjects and sub-cases, and sub-cases and cases. The elevation of Amsterdam to high-scoring status with the addition of sub-cases could suggest the existence of risk factors facilitating either the movement of 'wells' up to sub-cases or cases back to sub-cases, or protective factors preventing sub-cases from becoming cases, or inhibiting sub-cases from becoming 'wells'. Thus some risk factors may be associated with the transition from 'well' to sub-case and others from sub-case to case. Different degrees of exposure to such risk factors may explain some of the apparent anomalies, and suggest directions for

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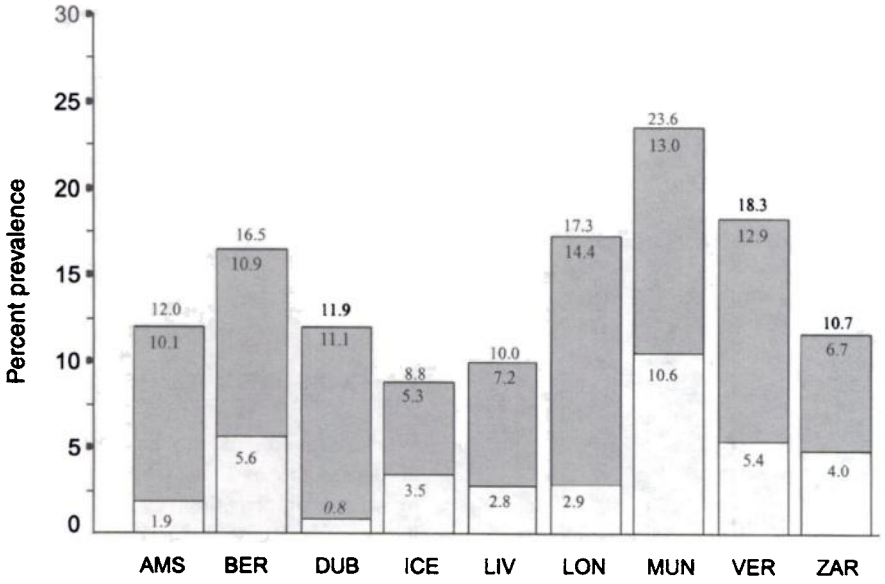


Fig 6 EURODEP prevalence – depression levels in participating centres: depressive neuroses and depressive psychoses for men and women. ■, Depressive neuroses; □, depressive psychoses. AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

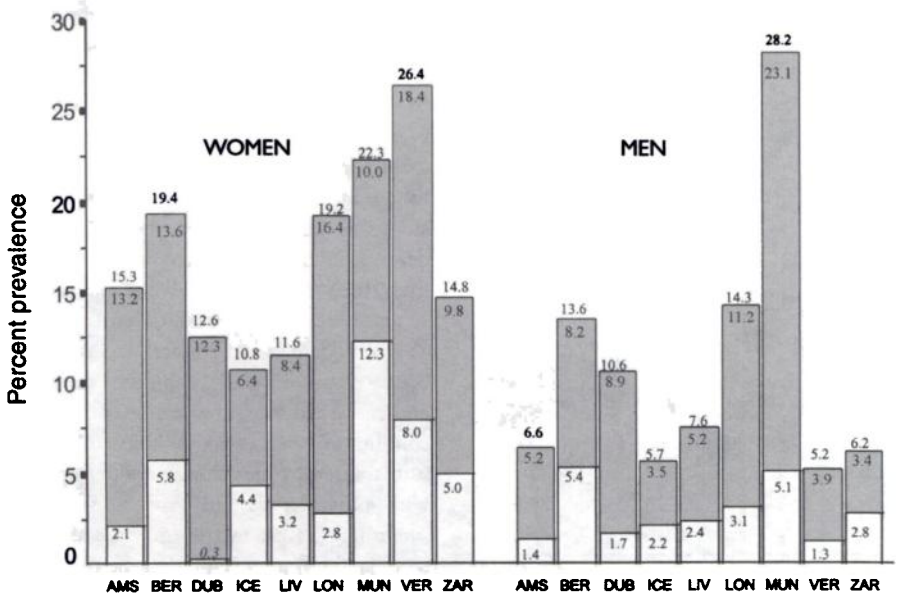


Fig. 7 EURODEP prevalence – depression levels in participating centres according to gender: depressive neuroses and depressive psychoses. ■, Depressive neuroses; □, depressive psychoses. AMS, Amsterdam; BER, Berlin; DUB, Dublin; ICE, Iceland; LIV, Liverpool; LON, London; MUN, Munich; VER, Verona (Italy); ZAR, Zaragoza (Spain).

further studies. The AGECAT division between sub-cases and cases seeks to identify those to whom services should be supplied. It may represent nothing more than an arbitrary point of symptom severity. Perhaps subjects in some centres express more symptoms (tend to complain more) than others, ensuring that higher proportions cross both the well/sub-case threshold and the sub-case/case threshold.

We report in a companion paper (Copeland *et al*, 1999, this issue) the levels of depressive symptoms that occur in the 'well' population. Are they higher in the high depression scoring centres, suggesting a general tendency throughout the population to express more symptoms? Preliminary data suggest that this may be the case in London and Munich but not in Berlin and Verona.

We have not found an explanation for the difference in the prevalence of depression between centres in the relative proportions of psychotic and neurotic depression, but again further differences appear. Some psychiatrists have disputed the usefulness of this division, but many accept that psychotic depression (endogenous) is more likely to be 'severe' and to respond to medication. While there is not a close fit between psychotic depression and major depressive episode, there is substantial overlap between these diagnoses. The different proportions found in different centres suggest a further line of investigation.

Depression is known to be associated with pain, physical illness and lack of mobility, as many studies have shown. Such conditions become steadily more prevalent with age, and so depression would be expected to show a gradual rise for this reason alone. However, the levels of depression seem to remain much the same for men aged 85 and over as they are for men aged 65–69, whereas for women they show a small fall. When we tested this apparent fall in previous studies (Saunders *et al*, 1993), it was eliminated when the rise in dementia with age was controlled for. It is not clear why a rise in depression does not appear to accompany decreasing physical health. It is possible that a tendency to become depressed is associated with a failure to match expectations. Many older people may not expect to be free of disablement and pain in later life (so-called 'on time events'). Old age is still strongly associated in the public mind with disability and suffering. It may come to older persons as a relief that the reality is, in most instances, not as bad as the preconception.

Of course, the representation of European countries in this study is hardly complete. Rural areas are only covered in the Icelandic centre and then only partially. Some centres sampled parts of cities, so that differences between centres may relate more to the socio-economic indices of the area sampled than to the city as a whole. Nevertheless, these differences should still deliver insights into risk factors, which will be examined in later publications. We know from the findings of Kua (1992), using the same measures and similar method, that prevalence can be lower in cities with a different culture, such as among

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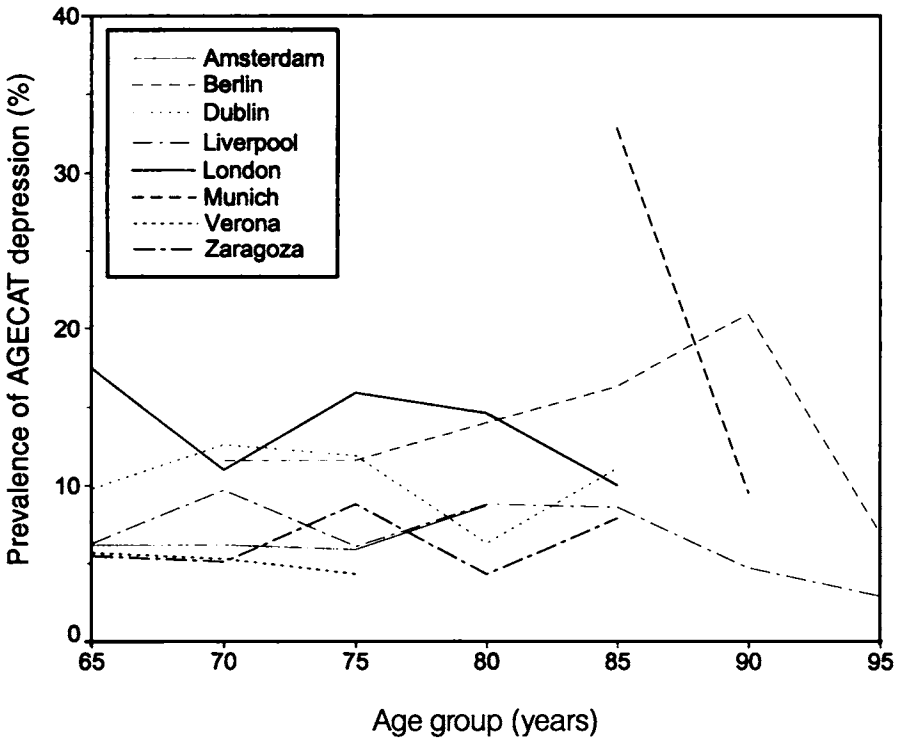


Fig. 8 EURODEP prevalence – depression levels in participating centres: men by age (n=5780).

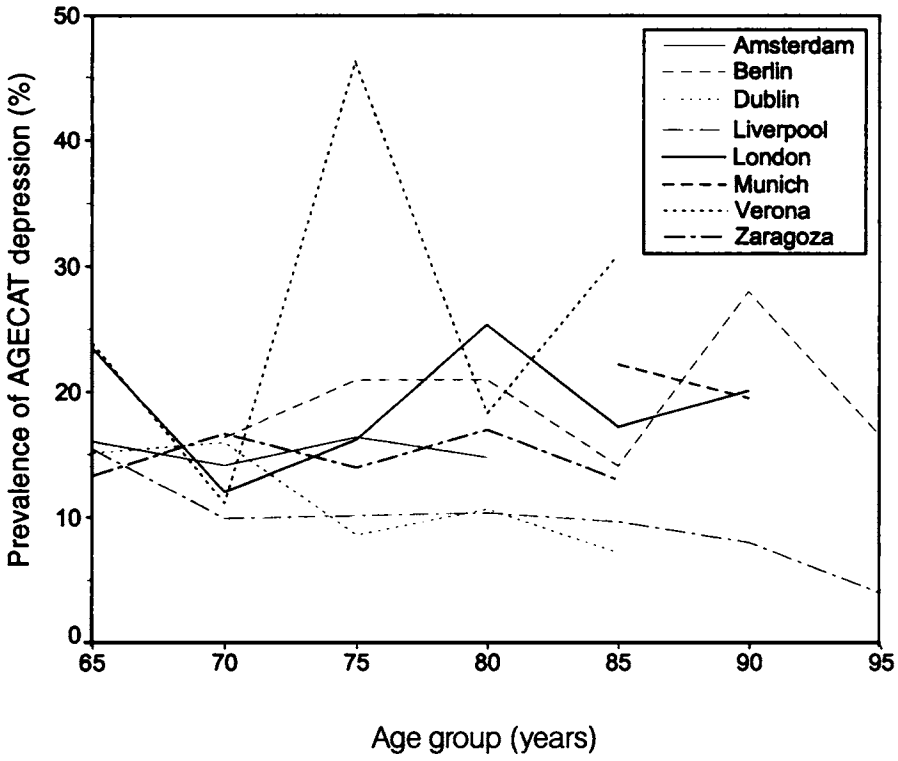


Fig. 9 EURODEP prevalence – depression levels in participating centres: women by age (n=8023).

the Chinese in Singapore (5.7%). The centres in this study are spread between northern and southern Europe, representing continental mainland areas and islands, and different national religions. Data from localities in eastern and western Europe will not be complete until the Tirana study reports its findings.

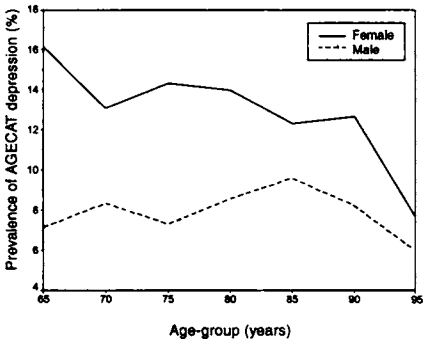


Fig. 10 EURODEP prevalence – depression levels in participating centres: genders combined by age (n=13 808).

IMPLICATIONS

We are confident, despite the reservations expressed above, that depression is a highly prevalent condition among older people in the European Community, and at a level of severity selected by psychiatrists specialising in the care of older people as meriting intervention. Banerjee *et al* (1996), in a case–control study, have shown that 58% of AGECAT depression cases in patients receiving home care revert to non-cases in six months with suitable intervention, compared with only 25% of controls. We know from past work that fewer than two-thirds of AGECAT depressions recover spontaneously in three years, and that these persons are often left with a comparatively high level of symptoms. The newer medications are much safer in older people so there are now fewer barriers to treatment.

However, over 60% of the respondents in all centres, and nearly 80% in four, show no evidence of any depression levels, case or sub-case. Hence, there are many older people who do not suffer depression in even milder degrees.

We shall report in a further publication whether or not the subjects identified in these studies as depressed were receiving treatment, and whether, if that treatment were medication, the dosage was adequate. From a number of previous studies in the UK and North America, neither seems probable.

Finally, perhaps one of the most intriguing findings of the study is that differences in the prevalence of depression between centres do not appear to be illuminated by simple explanatory models.

It is too early to speculate further about the origins of the different prevalence levels

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for depression. These will be examined in further papers.

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CLINICAL IMPLICATIONS

- Depression for which psychiatrists would wish to intervene is a common condition among older people in various centres in Europe, although 60–80% of such people had no case or sub-case level of depression.
- There is no constant association between prevalence of depression and old age.
- Substantial opportunities for treatment appear to exist.

LIMITATIONS

- Although all the studies used the same measures and similar methodology, they were not all undertaken at the same time.
- Although validation studies of the measures were undertaken in many centres, they were not undertaken in all.
- No obvious explanation for the different levels of depression prevelance between centres is apparent.

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