The ESEMeD-WMH project: strenghtening epidemiological research in Europe through the study of variation in prevalence estimates

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Abstract. The European Study of the Epidemiology of Mental Disorders (ESEMeD) project is the first cross-national European survey to collect data on prevalence, risk factors, health-related quality of life and use of services associated with common mental disorders. Representative samples of the non-institutionalized populations of Belgium, France, Germany, Italy, the Netherlands and Spain were interviewed using the CIDI 3.0, totaling 21,425 adult individuals. There was important variation across countries in prevalence estimates of the disorders studied, with Belgium and France in the highest proportions and Italy and Spain the lowest. Comorbidity of mood and anxiety disorders was frequent in all countries. Use of services due to mental health is low in all European countries, but especially low in Italy. Remarkably, only about one in five participants with a mental disorder had consulted the health services in the prior year. We discuss about the possible explanations of cross-national differences in prevalence estimates of mental disorders, and some of the limitations of the data on alcohol abuse and dependence gathered in the study. We conclude that despite the advances in knowledge about determinants and treatment methods, the care of the mentally ill is rather limited in Europe.

Over the past 30 years, many epidemiological community studies conducted in Europe have been published (Kohn *et al.*, 1998; Wittchen & Jacobi, 2005; de Girolamo & Bassi, 2003). These studies have provided valuable information, but the cross-national variation found in prevalence estimates has been difficult to interpret, because it has been often seen as the result of remarkable differences in study methodology.

The ESEMeD-WMH project, carried out in the framework of the World Mental Health (WMH) Survey Initiative (Demyttenaere *et al.*, 2004), is the first transnational European survey to collect data on prevalence, risk factors, disability and health-related Quality Of Life (QOL), and use of treatment and healthcare services associated with mood, anxiety and alcohol-related disorders. The data collection project was completed in July 2003.

In the ESEMeD-WMH project a representative sample of non-institutionalized adults from six European countries (Belgium, France, Germany, Italy, The Netherlands and Spain) underwent a face-to-face *Computer-Assisted Personal Interview* (CAPI) conducted by a trained lay interviewer who administered an updated version of the CIDI, the CIDI 3.0, a state-of-the-art tool containing 38 sections covering a large number of sociodemographic, clinical and treatment-related variables. The design, sampling and methodology used in the ESEMeD-WMH-WMH project have been described elsewhere (Alonso et al., 2004a) and only some key design features will be outlined here; for the Italian survey, we refer to a recent monograph (de Girolamo *et al.*, 2005) and to a paper in press (de Girolamo *et al.*, in press); a detailed description of the CIDI 3.0 can be found in Kessler & Üstün (2004).

CIDI analytical diagnostic algorithms have been regularly updated, and most recent modifications have determined little differences in prevalence estimates presented here (updated June 2005), which are slightly different from those previously published (Alonso *et al.*, 2004b).

A two-stage interview procedure was used, with the first phase screening all respondents for the most common mood and anxiety disorders. The second phase involved interviewing those who presented a number of symptoms of specific mood and anxiety disorders and a random 25% of those who did not. This second phase included in-depth questions about additional mental disorders and other information. Data discussed in this editorial are based on analyses from individuals who were assessed in the second phase (N=8,796).

QOL was measured using the two summary measures obtained from the SF-12 health survey form, the *Physical Component Summary* (PCS-12) and the *Mental Component Summary* (MCS-12) (Ware *et al.*, 1995; 1996). The number of work loss days (because of total inability to work or perform activities due to a mental disorder) was also estimated.

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Declaration of Interest: none.

SUMMARY OF THE ESEMED-WMH RESULTS

A total of 21,425 individuals, representative of an overall population of 212,794,642 from the six participating countries, was interviewed. Response rates varied between countries, ranging from 46% in France to 79% in Spain; response rate in Italy was the second highest (71.3%).

The study sample was made up by a higher proportion of females (51.8%) as compared to males. More than two-thirds of the sample (66.8%) were married or cohabiting, whereas 22.1% had never been married. The mean age (± standard error [SE]) of participants was 47 (0.5) years with most individuals falling into the 'middle-aged' category (aged 35–49 years). Approximately 21% of participants were aged 65 years or over: this is important to notice since most previous surveys had not included this population group. More than one-third of the study population (34.6%) had more than 12 years of schooling, over half (56.5%) was in paid employment and 23.5% were retired.

PREVALENCE AND IMPACT OF MENTAL DISORDERS

There was a substantial variation in prevalence estimates across the six countries involved in the ESEMeD-WMH project: a percentage ranging from a low of 7.3% in Italy up to a high of 18.4% in France met criteria for any mood, anxiety or alcohol-related disorders in the last 12 months. In general lowest 12-month prevalence estimates of any mental disorder, any mood disorder, any anxiety disorder and any alcohol use disorder were found in Italy; Spain showed the second lowest prevalence estimates, with a clear tendency for Belgium, France and the Netherlands to present higher estimates.

Specific phobia, GAD, social anxiety disorder/social phobia and PTSD were the most prevalent anxiety disorders. The overall lifetime prevalence of any mood disorders in the ESEMeD-WMH project was similar to anxiety disorders with 14.7% prevalence, but only 4.5% experienced an episode during the past year. A lifetime history of alcohol abuse or dependence was reported by 4.9%, 3.8% and 1.1% of participants in the ESEMeD-WMH project, respectively. Less than 1% of participants met criteria for these disorders within the past 12 months.

Sociodemographic risk factors were generally consistent with previous literature findings, with females showing higher estimates of anxiety and mood disorders as compared to males. With regards to age, mental disorders were more prevalent in younger participants.

Other risk factors included to have never been married, and to a lesser degree, to be widowed or divorced as compared to those who were currently married. Odds ratios for education and employment status varied, but compared with those in paid employment, the unemployed (looking for work or disabled) were particularly at risk of depression or of any mood disorder and alcohol-related disorders.

More than 40% of participants with a 12-month diagnosis of a mood disorder had also experienced an anxiety or alcohol-related disorder in the past 12 months, highlighting the need for integrated treatment and primary prevention of secondary disorders (Alonso *et al.*, 2004b).

Mental disorders were consistently associated with substantial functional impairment (Alonso *et al.*, 2004c; Buist-Bouwman *et al.*, 2006). Indeed, mood and anxiety disorders were more debilitating than some chronic physical conditions, such as heart disease and diabetes. QOL as measured by the SF-12 showed a substantial decrease in respondents meeting criteria for common mental disorders.

When adjusted for age/gender and comorbidity, dysthymia, major depression, PTSD, panic disorder and social anxiety disorder/social phobia had the greatest impact across all disability and QOL measures. The highest levels of disability and impairment were seen in individuals with comorbid disorders, with levels of impairment increasing in line with the number of comorbid conditions.

USE OF HEALTH SERVICES

In total, 6.1% of the ESEMeD-WMH participants had presented to formal health services because of emotional or mental health issues during the 12 months preceding the survey (Alonso *et al.*, 2004d); however, even in terms of service utilization there was a remarkable cross-country variation, with respondents in Italy having the lowest estimates of contact with health and mental health services (de Girolamo *et al.*, 2005; Kovess-Masfety *et al.*, in press). Of the participants with a mental disorder, a little more than 1/5 had consulted health services in the 12-month prior to the survey, with rates higher for respondents with a mood disorder than for those with an anxiety disorder.

General practitioners were the most common point of contact: one third of individuals with any mental disorder during the past 12 months consulted exclusively these professionals. A further 20.6% consulted a psychiatrist, and 28.9% consulted both. Notably, of those consulting health services, more than one-third (39.7%) had not made contact with a mental health professional; one-fifth (20.7%) received no treatment.

CROSS-NATIONAL DIFFERENCES IN PREVALENCE ESTIMATES: ARE THEY TRUE OR ARE AN ARTIFACT?

It is difficult to make comparisons between epidemiological study results; however, the prevalence estimates detected in the ESEMeD-WMH project are generally lower than those observed in other European studies. A recent meta-analysis of 27 epidemiological studies (including the ESEMeD-WMH) conducted in 16 European countries on some 150,000 subjects found that about 27% of the population is or has been affected by at least one mental disorder in the past 12 months (Wittchen & Jacobi, 2005). This percentage is substantially higher than the 11.5% found in the ESEMeD-WMH survey; in Wittchen and Jacobi's review, the three most common disorders were major depression (median: 6.9%), specific phobias (median: 6.6%) and somatoform disorders (median: 6.3%). The latter group of disorders was not assessed in the ESEMeD-WMH, while estimates for major depression and simple phobias were 4.1% and 5.4%.

There are important differences between the studies included in the Wittchen and Jacobi's review and the ESEMeD-WMH project, which can at least in part explain the differences in the overall prevalence estimates of any disorders: in their review, the authors have included a larger number of disorders (e.g., psychotic and bipolar disorders, somatoform disorders, substance dependence, eating disorders and obsessive-compulsive disorders), some of which (in particular somatoform disorders) showed high prevalence estimates.

Moreover the ESEMeD-WMH also surveyed older people, which have not been considered in Wittchen and Jacobi's review. Elderly patients comprised 20.7% of ESEMeD-WMH study population. The assessment of mental disorders in the elderly is complex: relationships between mental disorders, mortality and organic disease can confound prevalence estimates in this age group and the appropriateness of diagnostic and assessment tools for use in this population has been subject to much debate (Beekman *et al.*, 1997). For this reason most epidemiological surveys have not included elderly subjects, an age group in which prevalence estimates for common mental disorders are generally low. This could be an additional explanatory factor for the lower prevalence estimates detected by this project.

In general the usual explanation for variation in prevalence estimates between different studies has to do with common (sometimes fundamental) differences in sampling technique, target population and their age distribution, diagnostic/assessment tools, information sources and methods of data collection, data processing and presentation: all these variables make comparisons of their results difficult (Kohn *et al.*, 1998; Patten, 2003; de Girolamo & Bassi, 2004). Under these circumstances, differences in prevalence estimates are considered an artifact.

At the same time a comparison of different surveys conducted in the same population through the adoption of strict criteria of clinical significance has led to a substantial decrease in the disparity of different study findings (Narrow *et al.*, 2002), showing that 'milder' forms of disorders may account for a substantial proportion of different estimates. In this perspective it is not trivial to note that age-adjusted prevalence estimates of very severe mental disorders such as schizophrenia, as assessed by clinically trained interviewers, shows much smaller variation as compared to common mental disorders (Warner & de Girolamo, 1995).

The ESEMeD-WMH, which adopted the same methodology and the same assessment instrument, has found remarkable variation in prevalence estimates between the six participating countries; this difference mirrors even sharper differences found among the 16 world-wide countries participating to the WMH project whose data have been analyzed so far (Demyttenaere *et al.*, 2004). Restricting now the discussion to the differences among the six European countries, non-response estimates do not appear to explain the difference in prevalence figures. Many researchers argue that community survey subjects who refuse to be interviewed or are untraceable have a greater probability of suffering from a mental disorder (De Graaf *et al.*, 2000). In the ESEMeD-WMH study, however, the highest prevalence of mental disorder was found in France and the Netherlands, the countries with the lowest rates estimates of subject participation.

It is possible that the number of subjects excluded because they were institutionalised or without a fixed address could affect the prevalence estimates detected. The relatively small number of these subjects in the surveyed countries renders this possibility unlikely. Also excluded from the national samples were immigrants with no local citizenship, a group which is larger than the institutionalised population, and which may have a higher prevalence of common mental disorders. To explore the effect of the exclusion of this group further it would be necessary to conduct epidemiological studies of mental disorders in different ethnic immigrant groups.

Another possible (and very important) explanation has to do with the national differences in the propensity for individuals to reveal details of their personal and emotional lives, which might well be influenced by differences in the degree of stigma attached to mental disorders (WHO International Consortium in Psychiatric Epidemiology,

2000; Patten 2003), as well as by their willingness to admit mental health problems to strangers (lay interviewers) in a household survey. Indeed the six participating countries do have remarkable differences in terms of sociocultural patterns, historical traditions, etc., which may well impinge on individual predispositions to speak about own's psychological problems. It might also be that there are cross-national differences in the terms used by lay people to describe mental disorders or that these syndromes are assessed with different levels of precision across countries by the CIDI symptom questions.

Having said this, it should be pointed out that a similarly wide variation in prevalence estimates was found in the WHO study on psychological disorders in primary health care (Sartorius *et al.* 1993), a clinical epidemiological survey that was carried out using consistent diagnostic criteria and methodological procedures (including the use of clinical interviewers) in 14 different countries, including 7 European countries. Interestingly, in this study prevalence estimates in France and in Germany were twice as high as in Italy, the same pattern found in the ESEMeD-WMH project.

Moreover regional consistencies exist in prevalence estimates obtained in the ESEMeD-WMH survey: for instance, prevalence estimates are consistently higher in North America and lower in Asia; in Italy, the country showing lowest prevalence estimates among the six ESEMeD-WMH participating nations, other recent surveys have also found very low estimates of common mental disorders (Faravelli *et al.*, 2004; Gigantesco *et al.*, 2006).

It should also be highlighted that initial results for the clinical reappraisal studies carried out in conjunction with the WMH Survey Initiative (and conducted in three of the European ESEMeD-WMH countries), aimed at establishing whether the DSM-IV diagnoses generated in the WMH surveys are consistent with diagnoses based on a state-of-the-art clinical research diagnostic interview (SCID), have found fair to good individual-level concordance for 12-month disorder classes, with CIDI prevalence estimates being unbiased relative to SCID estimates; this finding again supports the notion that differences in prevalence estimates in the ESEMeD-WMH survey might not be due to methodological artifacts (Haro *et al.*, submitted for publication).

VARIATION IN PREVALENCE ESTIMATES: VIVE LA DIFFERENCE!

Given these circumstances, at least some of the difference in prevalence estimates for common mental disorders described in various reviews of population studies (Patten, 2003; de Girolamo & Bassi, 2003; Kohn *et al.*, 1998; Wittchen & Jacobi, 2005), as well as found in the ESEMeD-WMH survey, is likely to be due to *true* differences in the occurrence of these disorders, in turn related to interactions between the environment, biological factors, lifestyle, interpersonal relationships, and socioeconomic factors. This should not come to surprise because the main target of epidemiological research is indeed to carefully study variation in prevalence and incidence estimates among different populations, and factors associated to such a variation!

Prevalence estimates of almost all physical disorders studied cross-nationally similarly appear to vary quite substantially from country to country. A recent review of prevalence estimates of 17 chronic physical illnesses (including, for instance, stroke, diabetes, arthritis, hypertension, stomach ulcer, heart disease, cancer, etc.) in 8 European nations (including all the European countries participating in the ESEMeD-WMH project except Germany) revealed marked differences in all prevalence figures between countries, in some cases as great as 20:1 (Dalstra *et al.*, 2005).

Marked, sometimes huge cross-country variations have been reported for a variety of somatic disorders, including hypertension (Lawes *et al.*, 2006), hypercholesterolemia, stroke and heart diseases (Tolonen *et al.*, 2002; 2005; Kuulasmaa *et al.*, 2000), cancer (Parkin, 2001), asthma (D'Souza *et al.*, 2004), chronic obstructive pulmonary diseases (Halbert *et al.*, 2003), back pain (Pattemore *et al.*, 2004) and Alzheimer diseases (Corrada *et al.*, 1995): and this short list is just a small example.

The recent SHARE project has assessed the health conditions of some 22,000 individuals over the age of 50 in eleven European countries, including the six countries involved in the ESEMeD-WMH project. The conclusions of the authors in the first report of the project are (downloaded from http://www.share-project.org on May 31, 2006): "*There are huge differences between countries on the general indicators of physical health: self-perceived health, long-standing health problems, and activity limitations.... Self-reported general health shows large cross-country variations. Another part of the cross-country variation in self-reported health must be attributed to differences in reporting styles. If differences in reporting styles are taken into account, cross-country variations in general health are reduced but not eliminated*". In this project a similar variation has been found with respect to the mental health of the surveyed individuals in the 11 countries.

Taken together these results should lead to a fundamental change from the usual question: "Is there varia-

tion in prevalence estimates between different countries and populations?" to a more basic question, which is at the forefront of the more advanced epidemiological research in other fields of medicine: "Why is there substantial variation in prevalence estimates between different countries and populations?". This theoretical shift may fruitfully help epidemiological research to focus on the investigation of a large set of risk factors (e.g., psychosocial, biological, genetic, environmental) leading to illness or modulating illness severity.

Great attention should therefore be directed to the study of correlates of disorders; with this regard, epidemiological studies, including the results of the WMH Survey initiative, show more consistencies than differences: for instance, in gender and age distribution, in socioeconomic correlates of disorders and risk of suffering from disorders, in childhood antecedents of disorders and in a variety of other variables acting as modulators or mediators of behavioural expressions of psychological suffering (WHO World Mental Health Survey Consortium, submitted for publication). The study of correlates of disorders, and the clarification of their variation represent an important area for future epidemiological research, and should become one of the main targets of future investigations.

DIFFERENCES IN ALCOHOL USE DISORDERS

With regard to differences in prevalence estimates of alcohol-related disorders between the six participating countries, they may be at least in part explained in terms of different alcohol utilization patterns. For instance, the common use pattern in France, Italy and Spain (showing low estimates of alcohol-related disorders) is represented by consistent daily consumption of substantial amounts of wine, rather than the binge consumption of excessive quantities of spirits, as it is the case of most northern European countries. Such differences in the use of alcohol between northern Europe and the wine-producing countries of southern Europe have previously been noted (Rehm *et al.*, 2005; Leon & McCambridge, 2006), and may help to explain the general finding that the countries with the lowest detected estimates of alcohol use disorder in this study (France, Italy and Spain) report relatively high estimates of cirrhosis compared to other European countries (Leon and McCambridge, 2006). Rehm *et al.* (2005) observe that the national prevalence of alcohol use disorder in Europe is *negatively* correlated with per capita alcohol consumption estimates, but *positively* correlated with the Hazardous Drinking Score, a measure of binge drinking. The low French, Italian and Spanish prevalence of alcohol use disorders in the present study appears to fit this pattern.

CONCLUSION

The ESEMeD-WMH project is the first pan-European survey to use DSM-IV criteria to assess the prevalence of mental disorders, their severity, and associated impairment. It is the largest European survey conducted to date, including more than 21,400 participants from six countries – a representative sample of about 213 million individuals. The study provides novel data, including the first European data on PTSD and the first cross-national European assessment of mental disorders in patients aged over 65 years. Importantly, since ESEMeD-WMH was part of the WHM Survey Initiative, data will be comparable with those in more than 30 countries.

The project shows that, despite the enormous growth of our knowledge about determinants of mental disorders and about treatment methods, the application of the available knowledge for the improvement of the care of the mentally ill has been rather limited. The net result of this important phenomenon is that populations and individuals do not receive the most appropriate and timely interventions they should (and may) receive.

Acknowledgement: The ESEMeD-WMH project was funded by the European Commission (Contract QLG5-1999-01042), the Piedmont Region (Italy), Fondo de Investigación Sanitaria, Instituto de Salud Carlos III, Spain (FIS 00/0028), Ministerio de Ciencia y Tecnología, Spain (SAF 2000-158-CE), Departament de Sanitat, Generalitat de Catalunya, Spain, and other local agencies and by an unrestricted educational grant from GlaxoSmithKline. The ESEMeD-WMH- project was carried out in conjunction with the World Health Organization World Mental Health (WMH) Survey Initiative. We thank the WMH staff for assistance with instrumentation, fieldwork, and data analysis. A complete list of WMH publications can be found at http://www.hcp.med.harvard.edu/wmh/.

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Special thanks are due to Prof. Giuseppe Costa (University of Turin) for his valuable suggestions.

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