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Epidemiology of Major Depressive Episode in a Southern European Country: Results from the ESEMeD-Spain Project

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Abstract

Background—Information of the epidemiology of Major Depressive Episode (MDE) in Spain, one of the biggest southern European countries, is scarce and heterogeneous. The objective of this study was to assess the epidemiology of the disorder in the Spanish sample of the ESEMeD project.

Methods—The ESEMED-Spain project is a cross-sectional, general population, household survey conducted with a representative sample of Spanish non-institutionalized adult population. The survey instrument was the CIDI 3.0, a structured diagnostic interview to assess disorders and treatment.

Results—Lifetime prevalence was 10.6% while 12-month prevalence was 4.0%. A monotonic increase in lifetime overall prevalence was found from the youngest to the 50–64 cohort, declining then in the oldest group. Median age of onset was 30.0. Being a woman (OR= 2.7), previously married (OR= 1.8), unemployed or disabled to work (OR= 2.9) was associated to higher risk of 12-month-MDE. The highest comorbid associations were with dysthymia (OR= 73.1) and panic disorder (OR= 41.8).

Limitations—1. Psychiatric diagnoses were made by trained lay interviewers and this could have an imperfect sensitivity/specificity; 2. Individuals with mental illness could have more frequently rejected to participate in the survey; 3. Age-related recall bias could have affected the accuracy of age of onset estimates.

Conclusions—The study shows that prevalence MDE in Spain is lower than in other Western countries. Important findings are the early age of onset, the high proportion of chronicity, and the

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high female/male ratio. Taken together, results offer a complex picture of the epidemiology of MDE in Spain, when compared to other countries in Europe. The role of cultural factors is discussed.

Keywords

Depression; Spain; Epidemiology; Health Surveys; Disability

INTRODUCTION

Depression represents a big challenge for public health as it is highly prevalent (up to 21.4% lifetime prevalence worldwide) (Kessler et al, 2007a) and is associated with high disability and costs for the individual, families and society. It accounts for almost 12% of total years lived with disability in the world (Ustun and Chatterji, 2001) (World Health Organization, 2008), and represents the first cause of premature retirement and absence from work due to illness in many European countries (Curran et al, 2007). Furthermore it is the most costly brain disorder in the continent, accounting for 33% of their total cost (Sobocki et al, 2006).

There is limited information on the international epidemiology of depression and other mental disorders but there seems to be important differences between regions and countries. Specific reasons for these differences are not known and different factors such as site specific environmental or socio-cultural determinants have been proposed (Rahmqvist and Carstensen, 1998). For instance some regions of Europe such as the south share a more traditional and less secularized socio-cultural environment and some evidence show that suicide and depression could be less prevalent there (European Communities, 2004). Spain is one of the biggest countries in the south of Europe, but there is still very little information about the epidemiology of mental disorders in this country. Few community studies have been conducted in Spain to date and they report prevalence estimates ranging up to 20% for lifetime prevalence of depression (Ayuso-Mateos et al, 2001; Fernandez Fernandez et al, 2006; Haro et al, 2006b; Mateos et al, 2000; Roca-Bennasar et al, 2001; Urbina Torrija et al, 2007; Vazquez et al, 1997; Vázquez and Blanco, 2008). However these studies are mostly based on regional samples or specific subpopulations, which limits the possibility of generalizing results to the entire country. As a consequence, it is unknown what proportion of the Spanish population is affected by MDE, and beyond prevalence, the lack of data is more pronounced with regard to the burden of MDE.

This study is based in the Spanish sample of the ESEMeD project, one of the first transnational community based epidemiologic studies of mental disorders which was developed, among others, in 6 European countries, offering unprecedented mental health data for some of them. The goal of our study was to assess the epidemiology of MDE in Spain and to compare it with available information from other European countries and worldwide. Specifically, we assessed the overall prevalence of MDE in Spain and its distribution according to sociodemographic groups. We also analyzed the severity and the degree of functional limitation associated with this disorder. Finally, we used our results to contrast whether previous findings suggesting that the epidemiology of depression in the South of Europe was different from that in other European and American countries.

METHODS

The ESEMED-Spain study was a cross-sectional, general population, household survey conducted with a representative sample of Spanish non institutionalized adult population. A detailed description of methods has been provided elsewhere (The ESEMeD/MHEDEA 2000 Investigators, 2002, 2004a), and we summarize them here briefly.

Sampling methods

A stratified, probability sample without replacement design was used to guarantee the representativity of all the regions in the country. The target population were non-institutionalized, adult (aged 18 years or older) which were identified from the census tracts. An additional sample of spouses from 10% of the main respondents was also randomly selected. The final sample was composed of 5473 respondents, 327 of which were couples, with a final response rate was of 78.6%. Data collection was conducted from September 2001 to September 2002.

The survey interview and questionnaire

The survey instrument was the World Mental Health Survey version of the WHO Composite International Diagnostic Interview (CIDI 3.0) (Kessler et al, 2004), a fully structured diagnostic interview to assess disorders and treatment. It provides, by means of computerized algorithms, lifetime and 12-month mental disorders diagnoses according to the International Classification of Diseases (ICD-10) (World Health Organization, 1993) and the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV) (American Psychiatric Association, 1994). CIDI organic exclusion rules were used. The interview also included questions on presence, persistence and intensity of clusters of psychiatric symptoms as well as probes for age of onset and lifetime course, together with validated assessment tools to measure disease severity, disability and health-related quality of life, and additional batteries of questions regarding suicidality, chronic physical conditions, health care utilization, use of medication and risk factors. In order to optimize the length of the interview and to reduce respondent burden, a two-phase interview procedure was used. In the first phase, the most common mood and anxiety disorders were screened for all respondents. Only those who presented a number of symptoms of specific mood and anxiety disorders and a random 25% of those who did not, were asked the second phase of the questionnaire that included an in-depth interview about additional mental disorders among other information.

Survey procedures and data control

Questions were administered by trained lay interviewers using a computer-assisted personal interview (CAPI) using the Blaise software system (Statistics Netherlands, 1999). Eligible individuals were asked for their informed consent to participate in a face-to-face interview and those who accepted received an economic incentive of 12 euro. All interviewers had been certified. After the main CIDI interview a clinical reappraisal study was carried out in a subsample (Haro et al, 2006a) aiming at comparing the diagnosis resulting from the CIDI interview with those obtained by a clinician administering the axis I Structured Clinical Interview for DSMIV (SCID) (First et al, 1995). Results of this study showed that CIDI-SCID agreement in DSM-IV diagnoses is good, with CIDI lifetime prevalence estimates generally conservative and CIDI 12-month prevalence estimates generally unbiased, relative to SCID estimates.

Data analysis

Cases were weighted to account for the known probability of selection as well as to restore the age and gender distribution of the population within the country. Prevalence estimates are expressed in absolute numbers and percentages with 95% confidence intervals (CI). Correlates of major depression were examined using logistic regression analyses (Hosmer and Lemeshow, 1989). The statistical significance of each independent variable to the predictive model was determined by Wald chi-square statistics. The odds ratios (ORs) and CI were produced using the Taylor series method. Statistical significance was based on 2-sided design-based tests evaluated at the .05 level of significance. Age-at onset curves were calculated with the Kaplan-Meier method (Kaplan and Meier, 1958).

Based on researchers' consensus, individuals with 12-month mental disorders were classified in three severity groups (severe, moderate or mild) according to the following rules: individuals were classified as severe if they fulfilled any of the following conditions: 1) attempted suicide within the last 12 month; 2) Alcohol dependence (ALD) with physiological dependence syndrome; 3) severe role impairment (scores from 8 to 10) in at least two areas of the WMH adapted version of the Sheehan Disability Scales (Sheehan et al, 1996). Cases not defined as severe were defined as moderate if they had moderate role impairment in at least one domain of the SDS (i.e. score greater than 4) or if they had ALD disorder without physiological dependence. All other individuals with mental disorders were classified as mild.

All the analyses were performed using SAS ™ software, version 9.1 of the SAS System for Windows and SUDAAN software version 9.0 (Research Triangle Institute, 2004), a statistical package used to estimate standard errors of data obtained from complex design surveys. Data analyses were carried out at the Harvard University (Boston, USA) and the IMIM-Hospital del Mar (Barcelona, Spain).

RESULTS

Prevalence of MDE

Lifetime (LT) prevalence of MDE in the overall sample was 10.6% while 12-month prevalence was 4.0%. Women showed significantly higher rates than men for both LT (14.5%) and 12-month (5.7%) disorders. Prevalence estimates did also vary significantly by age group. A monotonic increase in LT prevalence was found from the youngest to the 50–64 cohort (12.6%), declining then in the oldest group. The same pattern was found in LT prevalence for women but not for men. The 12-month prevalence to LT-prevalence ratio, an indirect estimate of the chronicity, was 37.5%. No differences in this ratio were found across age or gender groups.

Age of onset of MDE

Median age of onset of MDE was 30.0 with an interquartile range (IQR range) ranging from 19.7 to 44.3 years. Age cohort was significantly associated to the onset of MDE. This means that the relative odds of reporting a lifetime history of MDE adjusting for the number of years at risk was highest in the more recent cohort (OR=1.0) and monotonically decreased in the earlier cohorts (OR=0.1). While no significant differences were found between men and women in the age of onset of depression, they were found by age cohort when comparing the Kaplan-Meier survival curves. Observed cumulative prevalence was fairly low until the mid teens/adolescence in all the cohorts rising then roughly with an increasingly steep slope in successively more recent cohorts.

Severity of 12-month MDE

Three quarters of the individuals had a severe (37.27%) or a moderate (38.21%) disorder, according to our established criteria. Gender differences in severity of MDE were nonsignificant.

Sociodemographic correlates

Women had a significantly greater risk than men of 12-month disorder (OR= 2.7). Those previously married (separated, widowed or divorced) were almost twice as likely to have MDE within the past year when compared to those married (OR= 1.8). Homemakers (OR= 1.6) and those unemployed or disabled to work (OR=2.9) showed the highest risks of depression. Those with ages between 50 and 64+ showed an increased risk when compared to the youngest cohorts. No statistical differences were found for education attainment,

income level or urbanicity. To determine whether the risk was more concentrated in certain population groups, we also examined whether sociodemographic correlates varied by age cohort. Sex effects in risk differed across cohorts with bigger proportional risks for women +65 and less important for the 35–49 age group. The bigger proportional increase in the risk in those previously married was found in the 35–49 age group (data not shown, available upon request). No significant association was found between sociodemographic variables and the risk to have a severe MDE.

Co morbidity with 12-month Mental Disorders

More than half of respondents (55.8%) with 12-month MDE also met criteria for some of the other 12-month mental disorders analysed here. Comorbidity with any anxiety disorder (42.2%) was the most prevalent. The highest specific associations were with dysthymia (OR= 73.1) and GAD (OR= 67.5), followed by panic disorder (OR= 41.8). A dose-response increase in the risk of MDE was found with the number of mental disorders.

Suicidality

The prevalence of suicidal ideations, plans and attempts in those with 12-month MDE was 7,4% (SE 2.0), 2.4% (SE 0.9) and 1,5% (SE 0.8) respectively. Significant associations between 12-month MDE and suicidality were found, but without meaningful age cohort differences in the correlates.

Functional disability

Recent MDE (within 30 days of the interview) was associated with significant limitation in the 5 WHO Disablement Assessment Scale (WHO-DAS) domains, when compared with respondents with no lifetime MDE. Quite similar results were found also for respondents with MDE within the past 12 months and earlier than 12 months, where significantly higher limitations were found in 4 out of 5 domains. Except for self-care, functional impairments were higher among individuals with the most recent episode (30 days) of MDE.

DISCUSSION

The ESEMeD-Spain study is the first study providing information about the epidemiology of major depressive episode (MDE) in Spain which is based on a nationally representative sample and uses a standardised methodology, allowing for comparisons with other international studies. The study shows that MDE is a frequent disorder with an early age of onset, high rates of comorbidity and chronicity. This suggests that an important percentage of those with MDE actively develop the disorder over a large proportion of life course.

Overall, estimates show that MDE is a prevalent disorder in the country and equivalent to national population projections of 3,7 to 4 million Spanish adults with lifetime MDE and 1,3 to 1,5 million with 12-month MDE. These results add valuable information to previous community studies at the regional level or with specific subpopulations in Spain, which showed prevalence estimates ranging from 2.6% for 1 month to 20% for lifetime prevalence (Ayuso-Mateos et al, 2001; Fernandez Fernandez et al, 2006; Mateos et al, 2000; Roca-Bennasar et al, 2001; Urbina Torrija et al, 2007; Vazquez et al, 1997;Vázquez and Blanco, 2008). When compared to other WMH studies in Europe, these results fall below the average of the 6 ESEMED countries (Alonso et al, 2008), with only Italy and Germany showing slightly lower rates than Spain. Higher MDE prevalences are also found when other European countries and studies are considered, especially in Northern and Eastern Europe (Bromet et al, 2005; Kringlen et al, 2001; Pirkola et al, 2005; Wittchen and Jacobi, 2005). Results from other regions such as the USA are also higher (16.2% for LT MDE) (Kessler et al, 2003), but this is not the case if we compare with Latin-America, a region which is more

similar culturally and where prevalence rates appear slightly higher or alike (Kohn et al, 2005; Medina-Mora et al, 2007; Posada-Villa et al, 2004).

Indirect estimates of the chronicity of the disorder can be obtained by comparing the rates of 12-month to lifetime prevalence (WHO International Consortium in Psychiatric Epidemiology, 2000) and most previous epidemiological studies through the world have shown ratios between one-third and one half (Andrade et al, 2003; Weissman et al, 1996), suggesting that MDE is mostly a chronic illness. Our results fall within this broad interval although they appear higher than the mean ratio for Europe in ESEMeD. It could then be argued that various factors combine to have opposite impacts on lifetime prevalence and persistence in Spain when compared to other European countries. Higher persistence of MDE has been related to factors such as lower access to health services and poorer quality of treatment received (Miranda et al, 2003), although the role of these factors in our sample deserves further research.

The tendency for the younger cohorts to develop MDE earlier in life is consistent with the literature and, overall, Spain shows similar results when compared to the other European countries (Kessler et al, 2007a). Some explanations have been proposed for this trend, which is stronger for MDE than for other mental disorders, including recent cultural or economic changes affecting young people, or the recall bias which could affect older people more, however the issue remains controversial. It is well known that MDE has an early onset, and a wide range of median age at onset across countries (from 25 to 45) is reflected in the literature (Kessler et al, 2007b). Results in Spain are concordant to this worldwide data although they are lower than the average in Europe, which remains in the late 30s (Alonso et al, 2008). An early age at onset has been linked to greater disorder severity, persistence and lack of treatment response but reasons for cross national differences remain unknown and seem to be unrelated to economic development, structural correlates or region of the world (Kessler et al, 2007b).

Similarly to other studies high prevalence rates of other mental disorders among those with MDE (comorbidity) were found. This association was particularly strong with dysthymia and some anxiety disorders. Previous ESEMeD research showed that pure mood disorders were less prevalent in Spain when compared to other European countries (ESEMED/MHEDEA 2000 Investigators, 2004b; Haro et al, 2006b). Furthermore results show that the links with most of the anxiety disorders are stronger in Spain when compared to the entire European sample (up to two or three times bigger in some cases). This study could not provide information about the temporal precedence of MDE, although it is important to mention that results from previous research have shown that comorbid anxiety disorders have an earlier age at onset than MDE (Andrade et al, 2003) and this could have important implications in terms of MDE prevention.

On the other hand, the association of MDE to specific sociodemographic factors showed some noteworthy differences with previous international studies. Female gender is one of the most consistent and stable factors associated with depression. An overall 12-month CIDI female/male ratio of 2/1 has been described in the literature (Fryers et al, 2004; Paykel, 1991). Our results show a gender ratio which is higher than the average (2.59), and especially for older ages. This suggests an even more increased risk in Spanish women that has also been found in other countries from southern Europe such as Italy (2.5) (de Girolamo et al, 2006). Employment status was the second most important sociodemographic risk factor for MDE. The higher risk among the unemployed and homemakers is consistent with the literature (Fryers et al, 2003; Tello and Bonizzato, 2003), as it is also the higher risk in those previously married (Kohn et al, 1998). Results in our study show also a monotonic increase in the risk from the youngest to the 50–64 age cohort, which is very different from

other European countries where the highest rates of mood disorders are found in the youngest age groups (18–24 years old) and then show a significant decline with age (Alonso et al, 2008). Additional differences appeared with respect to income and educational attainment as the consistent association of high levels of education and lower risk of depression was not found, nor any evidence of a socioeconomic gradient (Fryers et al, 2003).

Although some of the differences described may be due to methodological factors or even to other reasons such as differences in stigma (Wauterickx and Bracke, 2005), it has been suggested that real differences in the prevalence of MDE between countries and cultures might exist just as is true for physical disorders (Dalstra et al, 2005) and that they might be partly related to site specific environmental or socio-cultural factors (Rahmqvist and Carstensen, 1998). Cross-cultural meaningful contrasts between Mediterranean countries and the more secularized and economically developed northern Europe (Saroglou et al, 2004; Halman, 2001) have been documented and they might have differential effects on mental health of populations. Lower rates of depression and also of suicide and suicidality can be found in southern Europe (Ayuso-Mateos et al, 2001; Bernal et al, 2007; World Health Organization, 2003) and a possible protective effect of the more traditional Mediterranean or Latin culture (Fernandez-Cordon and Sgritta, 2000), where strong social support is offered by family cohesion (“familism”) or the extended social networks (Hjelmeland et al, 2002; Levi et al, 2003) has been proposed. Furthermore, religiosity has been linked to positive effects in mental health (Hackney and Sanders, 2003) and could also play a role considering that Spain as well as other southern European countries have important Catholic Christian historical background and high rates of religious service attendance when compared to other European regions (Inglehart and Baker, 2000).

With regards to gender, differential acknowledgement (e. g., men in these countries could report fewer depressive symptoms at a given level of disability) could account for some of the differences found (Paykel, 1991), but again the role of socio-cultural risk factors should be considered. Differences across countries in the magnitude of gender health inequalities have been previously described and linked to factors such as cultural roles of gender, or labour market patterns (Lahelma and Arber, 1994; Artacoz et al, 2004a). Female participation in paid work seems beneficial for their mental health (Annandale and Hunt, 2000) although the rates of employment among Spanish women are one of the lowest in the EU-15 and only comparable with other Mediterranean countries (Artacoz et al, 2004b). In the last decades an increase in women’s participation in labour market has occurred, however this has raised concerns about possible adverse health consequences, as high workload (when combining job and family demands) can also be health-damaging (Artacoz et al, 2004b). It should be noted that no significant changes have occurred in Spain in the gender distribution of family responsibilities, and collaboration of men in domestic work is still very low (Dominguez-Alcón, 2001). Moreover, the welfare state is less developed in this region (Navarro and Shi, 2001; Flaquer, 2000) and women are still the main responsible of the care of dependant members of their family such as children or the elderly (García-Calventea et al, 2004). In this context, work overload and also the conflict with traditional attitudes towards gender roles which still persist (Simon, 1995; Meil, 1999) could minimize the beneficial effects on health of paid work.

Our results should be interpreted within the context of some limitations. First, psychiatric diagnoses were made using structured interviews by trained lay interviewers. Previous CIDI validation studies have shown acceptable validity and reliability (Wittchen, 1994), and clinical reappraisal interviews also confirmed these findings (Haro et al, 2006a). But sensitivity and specificity might not be perfect. Second, some people with mental illness have been found less likely to participate in surveys because of factors such as reluctance to

be involved or their differential mortality. Considering the high participation rate in this study, this might not be a relevant explanation for the low prevalence rates although, of course, it cannot be completely ruled out. On the other hand, other groups not included in the survey, such as the institutionalized and those without a fixed address, could hardly affect the main results as they are relatively low numbers. Third, age-related recall bias has been documented (Giuffra and Risch, 1994; Simon and Von Korff, 1995a) affecting the accuracy of age of onset estimates, and thus the evidence of age cohort effects. The novel probing strategy that was used in the WMH surveys, which was based in question series (Simon and Vonkorf, 1995b), has shown to diminish this bias (Knauper et al,1999). Finally, an underreporting related to stigma and associated reluctance to admit mental illness has been described. This might be of special importance in some countries and cultures, although the relative importance of this factor in this case deserves further research. Due to the above limitations, our results are more likely an underestimation of the real prevalence of MDE in Spain.

Taken together the results offer a complex picture of the epidemiology of MDE in Spain, when compared to other countries in Europe. In some cases the role of socio-cultural factors has been proposed, as both having possible beneficial and negative effects on mental health. Overall, lower prevalence estimates appeared for men and women, but the results of chronicity and age at onset suggest that an important percentage of those with MDE actively develop the disorder over a large proportion of life course. This is even more relevant if the strong effects of this disorder on role functioning and quality of life are considered. In such situation the prevention of the onset of MDE becomes especially important as well as the identification of mechanisms for illness persistence which, if independent, should be specially targeted. Furthermore, the adequate diagnosis and treatment of a temporally primary comorbid and highly prevalent disorder, such as anxiety, could help to reduce the risk of subsequent mood disorders. On the other hand, the effects of recent economic development and modernization of the country should be monitored, as these changes have been previously related to reductions in traditional values as result of which societies can become less in-group focused and more individualized (Saroglou et al, 2004; Inglehart and Baker, 2000). Available information on suicide mortality trends in Spain, showing an increase in last decades which contrast with the overall decrease observed in Europe, should call our attention and stimulate reflection and further research in this area.

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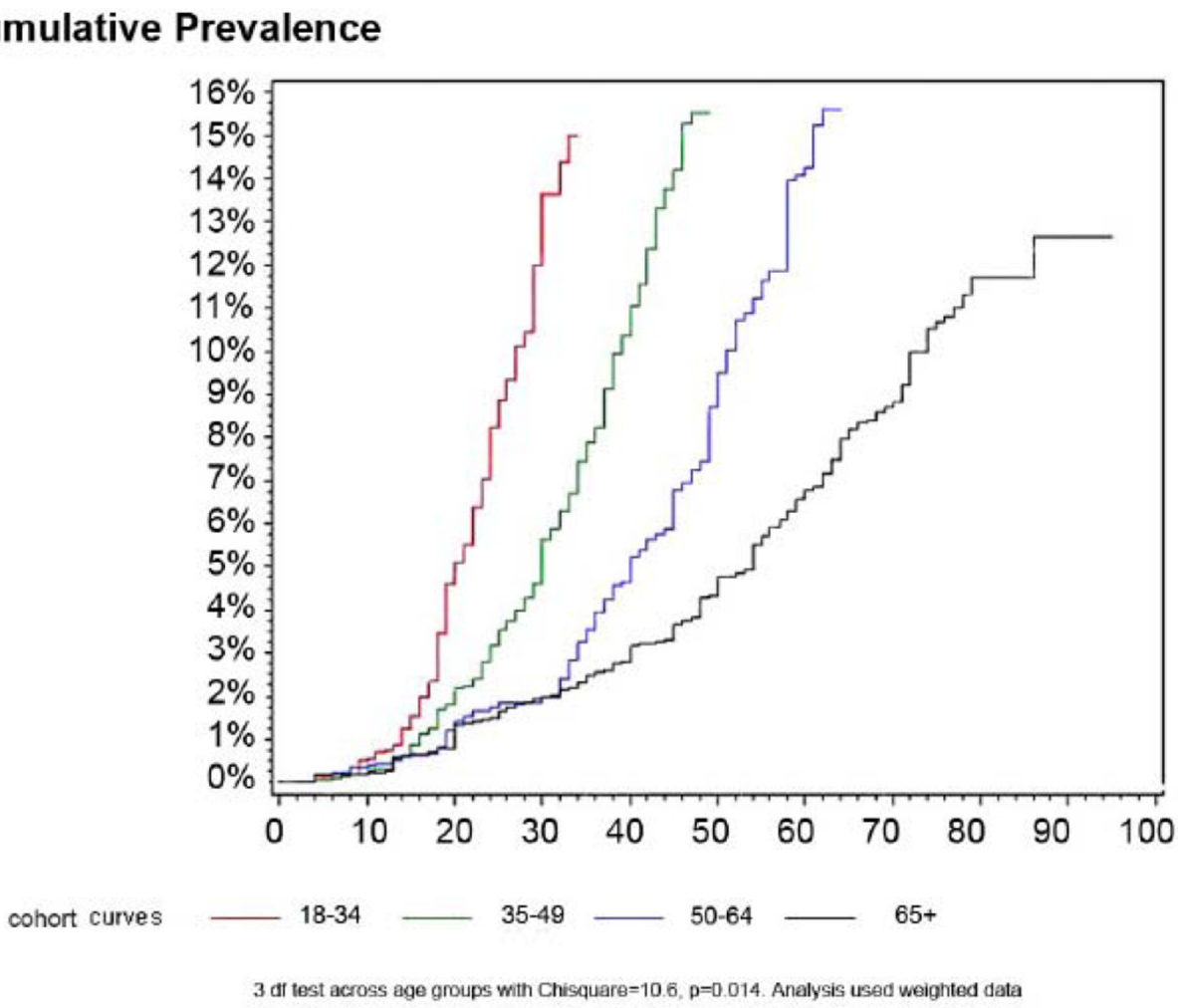

FIGURE 1.
Cumulative Lifetime prevalence of MDE, by birth cohort. The ESEMeD-Spain project.

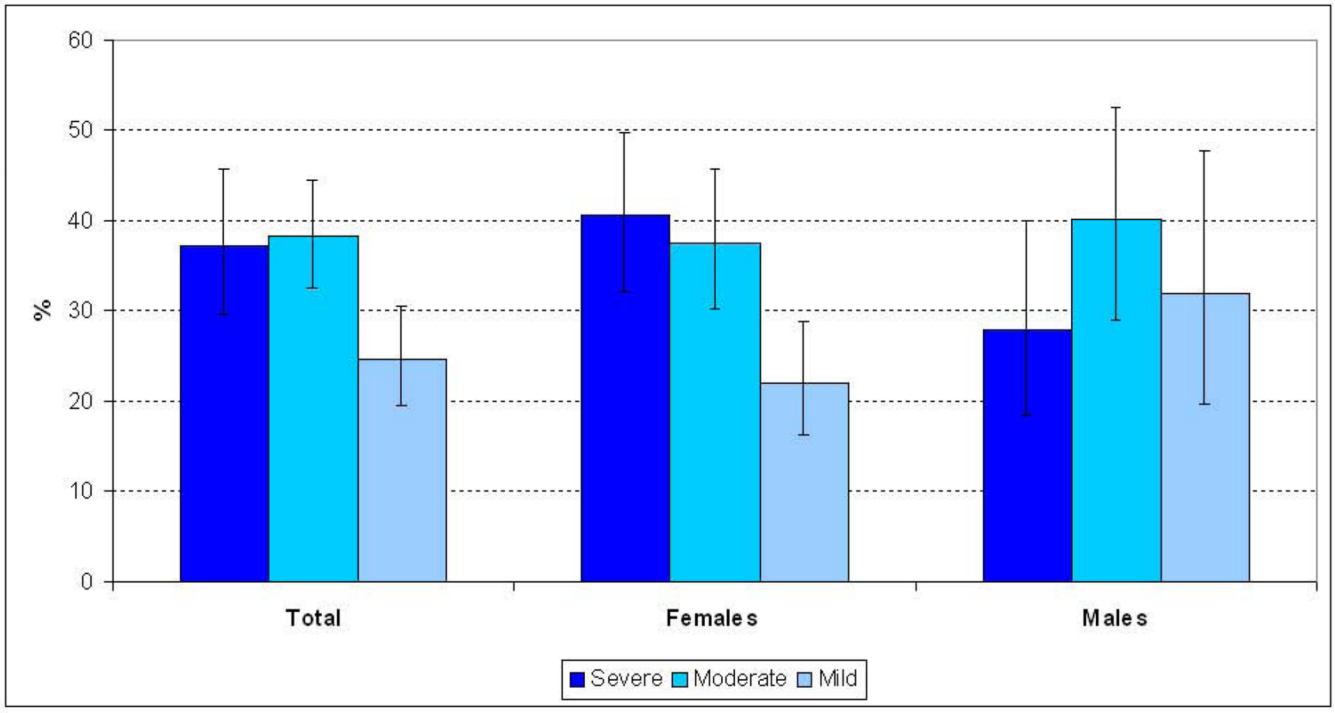

FIGURE 2.
Degree of severity of 12-month MDE, by gender. The ESEMeD-Spain project.

TABLE 1

Prevalence and Age of Onset of life-time and 12-month MDE, by Gender. The ESEMeD-Spain project.

		Total			Females			Males			
Diagnosis (12 Mo or LT)	**Cohorts**	**Denominator N[1]**	**N[2]**	**%(SE)**	**Denominator N[1]**	**N[2]**	**%(SE)**	**Denominator N[1]**	**N[2]**	**%(SE)**	**1 df test between gender[3]**
12-month MDE	18–34	1567	61	3.6 (0.7)	834	46	5.2 (1.1)	733	15	1.9 (0.6)	X^2=7.5*, P=.006, df=1
	35–49	1431	62	3.8 (0.5)	809	44	4.8 (0.8)	622	18	2.7 (0.5)	X^2=4.4*, P=.035, df=1
	50–64	1024	66	5.4 (0.7)	587	50	7.8 (1.2)	437	16	2.9 (0.8)	X^2=9.7*, P=.002, df=1
	65+	1451	58	3.6 (0.6)	822	51	5.4 (0.9)	629	7	0.9 (0.4)	X^2=15.9*, P=.000, df=1
	All Ages	5473	247	4.0 (0.3)	3052	191	5.7 (0.5)	2421	56	2.2 (0.3)	X^2=31.2*, P=.000, df=1
	3 df significance test across cohorts[3]	.	.	X^2=6.5, P=091, df=3	.	.	X^2=3.9, P=.274, df=3	.	.	X^2=11.4*, P=010, df=3	--
LT MDE	18–34	1567	167	9.1 (0.8)	834	114	12.3 (1.3)	733	53	6.0 (1.0)	X^2=14.2*, P=.000, df=1
	35–49	1431	194	11.9 (0.8)	809	141	15.3 (1.5)	622	53	8.3 (1.2)	X^2=10.9*, P=.001, df=1
	50–64	1024	160	12.6 (1.0)	587	118	17.9 (1.8)	437	42	6.9 (1.3)	X^2=21.1*, P=.000, df=1
	65+	1451	151	9.8 (1.0)	822	125	14.0 (1.7)	629	26	4.0 (0.8)	X^2=21.9*, P=.000, df=1
	All Ages	5473	672	10.6 (0.5)	3052	498	14.5 (0.8)	2421	174	6.4 (0.5)	X^2=55.9*, P=.000, df=1
	3 df significance test across cohorts[3]	.	.	X^2=10.9*, P=012, df=3	.	.	X^2=8.5*, P=.037, df=3	.	.	X^2=7.5, P=.058, df=3	--
12-month MDE among LT MDE	18–34	167	61	39.2 (5.5)	114	46	42.5 (6.5)	53	15	32.6 (8.8)	X^2=0.8, P=363, df=1
	35–49	194	62	31.9 (3.7)	141	44	31.4 (4.7)	53	18	32.9 (5.1)	X^2=0.1, P=.816, df=1

		Total			Females			Males			
Diagnosis (12 Mo or LT)	**Cohorts**	**Denominator N[1]**	**N[2]**	**%(SE)**	**Denominator N[1]**	**N[2]**	**%(SE)**	**Denominator N[1]**	**N[2]**	**%(SE)**	**1 df test between gender[3]**
	50–64	160	66	43.3 (4.0)	118	50	43.7 (5.2)	42	16	42.1 (8.7)	X^2=0.0, P=.887, df=1
	65+	151	58	36.2 (3.9)	125	51	38.8 (4.4)	26	7	23.7 (8.7)	X^2=2.2, P=.142, df=1
	All Ages	672	247	37.5 (1.9)	498	191	39.0 (2.3)	174	56	33.7 (3.9)	X^2=1.2, P=.281, df=1
	3 df significance test across cohorts[3]	.	.	X^2=3.1, P=.376, df=3	.	.	X^2=3.4, P=.336, df=3	.	.	X^2=2.9, P=.401, df=3	--
Median Age of Onset (IQR Range)	18–34		167	19.2 (16.8–23.8)	114		19.0 (16.1–23.7)		53	19.7 (17.4–23.9)	X^2=0.2, P=.636, df=1
	35–49		194	31.1 (23.4–37.0)	141		32.0 (23.9–37.0)		53	29.7 (22.1–36.9)	X^2=0.0, P=.856, df=1
	50–64		160	44.5 (33.8–49.9)	118		44.3 (33.3–49.0)		42	46.9 (35.1–51.6)	X^2=0.2, P=.643, df=1
	65+		151	52.8 (34.9–62.7)	125		50.0 (34.8–62.0)		26	54.5 (26.7–63.7)	X^2=0.0, P=876, df=1
	All Ages		672	30.0 (19.7–44.3)	498		32.0 (19.8–45.0)		174	28.9 (19.3–39.5)	X^2=2.3, P=.127, df=1

[1] Total cases among each age group

[2] cases of 12-mo/LT MDE among the age groups

[3] 3 df tests for significant difference across age groups and 1 df test for significance difference across genders; odds ratios and significance tests are not presented for the models where the size of the subsample is less than 15, or the count of the dependent variable is less than 5

[*] Significant at the 0.05 level

TABLE 2

Sociodemographic correlates of 12-month MDE, overall and for those with severe disorder. The ESEMeD-Spain project.

		Overall				With severe severity			
Demographics		**N in each category**	**N with MDE**	**% (SE)**	**OR (CI)**	**N in each category**	**N with MDE**	**% (SE)**	**OR (CI)**
Age	18–34	1567	61	3.6 (0.7)	1.0(0.6–1.7)	29	21	65.4 (11.4)	0.7(0.2–2.1)
	35–49	1431	62	3.8 (0.5)	1.1(0.7–1.6)	35	28	79.1 (6.0)	1.3(0.4–4.6)
	50–64	1024	66	5.4 (0.7)	1.6*(1.1–2.3)	33	26	70.7 (11.5)	0.9(0.2–3.6)
	65+	1451	58	3.6 (0.6)	1.0(1.0–1.0)	35	25	73.7 (9.4)	1.0(1.0–1.0)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=7.5, P=.057, df=3	.	.	--	X^2=1.1, P=.767, df=3
Sex	Female	3052	191	5.7 (0.5)	2.7*(1.9–3.8)	102	79	73.8 (7.7)	1.5(0.3–6.6)
	Male	2421	56	2.2 (0.3)	1.0(1.0–1.0)	30	21	64.9 (11.8)	1.0(1.0–1.0)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=33.8*, P=.000, df=1	.	.	--	X^2=0.3, P=.568, df=1
Education	Low	1545	87	4.7 (0.5)	1.2(0.7–1.9)	56	40	66.9 (8.5)	0.5(0.1–2.8)
	Low-average	1747	69	3.3 (0.5)	0.8(0.5–1.3)	43	32	70.4 (9.6)	0.6(0.1–4.2)
	High-average	960	42	4.2 (0.7)	1.0(0.7–1.6)	16	14	82.5 (12.5)	1.2(0.1–11.4)
	High	1221	49	4.0 (0.7)	1.0(1.0–1.0)	17	14	79.1 (11.6)	1.0(1.0–1.0)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=3.8, P=.287, df=3	.	.	--	X^2=2.1, P=.547, df=3
Marital Status	Married	3674	153	3.8 (0.3)	1.0(1.0–1.0)	82	63	75.3 (6.2)	1.0(1.0–1.0)
	Sep/wid/div	722	53	6.6 (1.1)	1.8*(1.2-2.7)	33	26	70.4 (12.3)	0.8(0.3–2.4)

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Demographics		Overall				With severe severity			
		N in each category	N with MDE	% (SE)	OR (CI)	N in each category	N with MDE	% (SE)	OR (CI)
	Never married	1077	41	3.5 (0.7)	0.9(0.6–1.4)	17	11	62.3 (10.4)	0.5(0.2–1.5)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=9.4*, P=.009, df=2	.	.	--	X^2=1.5, P=.473, Df=2
Urbanicity	Less than 10000 habitants	1411	50	3.6 (0.5)	0.9(0.6–1.3)	28	20	80.9 (8.4)	1.3(0.3–5.3)
	Between 10000 and 100000	2000	87	4.1 (0.5)	1.0(0.7–1.4)	54	39	63.7 (10.2)	0.5(0.1–2.2)
	More than 100000	2062	110	4.1 (0.5)	1.0(1.0–1.0)	50	41	76.2 (9.4)	1.0(1.0–1.0)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=0.7, P=.700, df=2	.	.	--	X^2=1.6, P=.453, df=2
Employment	Working	2582	91	3.1 (0.3)	1.0(1.0–1.0)	37	26	54.5 (11.2)	1.0(1.0–1.0)
	Student	213	8	4.1 (1.5)	1.4(0.6–3.1)	4	3	-(-,-)	--
	Homemaker	922	47	4.9 (0.8)	1.6*(1.1–2.4)	24	18	76.0 (9.5)	2.6(0.8–8.3)
	Retired	1321	49	3.6 (0.6)	1.2(0.8–1.8)	35	25	76.3 (8.1)	2.7(0.8–9.5)
	Other	435	52	8.4 (1.3)	2.9*(2.0–4.3)	32	28	87.0 (6.5)	5.6(1.0–32.9)
	Test (Chi-square/p-value/DF)	.	.	--	X^2=32.7*, P=.000, df=4	.	.	--	X^2=4.7, P=.325, df=4
Income	Low	769	37	4.0 (0.9)	1.0(0.5–2.0)	22	18	78.0 (11.2)	3.7(0.6–22.5)
	Low-average	1734	84	4.3 (0.5)	1.1(0.7–1.8)	57	43	70.4 (11.0)	2.5(0.3–17.9)
	High-average	1952	86	3.8 (0.4)	1.0(0.6–1.5)	41	33	76.0 (6.8)	3.3(0.6–17.2)
	High	1018	40	3.9 (0.8)	1.0(1.0–1.0)	12	6	48.8 (17.6)	1.0(1.0–1.0)

		Overall				With severe severity			
Demographics		**N in each category**	**N with MDE**	**% (SE)**	**OR (CI)**	**N in each category**	**N with MDE**	**% (SE)**	**OR (CI)**
	Test (Chi-square/p-value/DF)	.	.	--	X^2=0.7, P=.877, df=3	.	.	--	X^2=2.8, P=.429, df=3

TABLE 3

Co morbid mental disorders with 12-month MDE. The ESEMeD-Spain project.

12 month Disorders	N with MDE	N with dx	%[1](SE)	OR[2](CI)	Chisquare
Dysthymia	247	68	27.1 (3.6)	73.1 *(39.2–136.5)	X^2=191.0, P=.000
Any mood disorder	247	68	27.1 (3.6)	73.1 *(39.2–136.5)	X^2=191.0, P=.000
Generalized anxiety disorder	247	41	15.0 (2.9)	67.5 *(40.1–113.7)	X^2=263.6, P=.000
Agoraphobia without panic	247	9	3.0 (1.2)	9.5 *(4.0–22.6)	X^2=27.7, P=.000
Specific Phobia	247	35	14.4 (3.1)	3.9 *(2.4–6.3)	X^2=32.5, P=.000
Social Phobia	247	15	7.7 (2.8)	26.1 *(9.2–74.2)	X^2=39.4, P=.000
Post-traumatic stress disorder	247	20	7.3 (2.0)	27.1 *(10.6–69.6)	X^2=49.8, P=.000
Panic disorder	247	27	9.0 (2.2)	41.8 *(18.4–94.9)	X^2=84.0, P=.000
Any anxiety disorder	247	104	42.2 (5.1)	12.9 *(8.6–19.5)	X^2=159.0, P=.000
Alcohol abuse	247	3	0.5 (0.3)	-(-,-)	--
Alcohol abuse with dependence	247	2	0.3 (0.3)	-(-,-)	--
Any Alcohol use disorder	247	3	0.5 (0.3)	-(-,-)	--
Any disorder	247	141	55.8 (6.0)	19.6 *(12.1–31.7)	X^2=155.0, P=.000
Exactly 1 disorder	247	87	35.3 (4.2)	12.7 *(8.0–20.2)	X^2=121.1, P=.000
Exactly 2 disorders	247	38	16.4 (3.1)	163.5 *(45.9–585.2)	X^2=65.1, P=.000
3+ disorders	247	18	5.2 (1.5)	433.3 *(69.5–2701.2)	X^2=44.5, P=.000

[1]% of cases with 12-mo MDE who have corresponding diagnosis

[2]ORs are estimating the likelihood of each dx with 12-mo MDE as predictor, controlling for demographics (sex, education, marital status); Odds ratios are not presented for the cells where the count of respondents with MDE is less than 15, or the count of respondents with a physical illness is less than 5

*Significant at the 0.05 level

TABLE 4

30-Day Standardized Comparisons of Functional Limitation by the WHO-DAS, among Respondents With vs. Without MDE. The ESEMeD-Spain project (weighted Part 2 Sample).*

	Recency of MDD, Mean Score (SE) (95% CI)					
	Past 30 day	**Past 12 Months**	**>12 Months Ago**	**No Lifetime MDD**		
WHO-DAS Domains	**n=109**	**n=138**	**n=425**	**n=1449**	**F3,48**	**P-Value #**
Out of role	39.5 (SE=5.3), 95% CI=(28.8,50.1)+	18.1 (SE=3.3), 95% CI=(11.5,24.7)+	12.1 (SE=1.5), 95% CI=(9.2,15.1)+	7.2 (SE=0.8), 95% CI=(5.7,8.7)	27	<.001
Self-care	3.0 (SE=1.1), 95% CI=(0.8,5.3)+	1.6 (SE=0.8), 95% CI=(0.0,3.2)	1.6 (SE=0.5), 95% CI=(0.6,2.6)+	0.5 (SE=0.1), 95% CI=(0.2,0.7)	2,5	0,072
Mobility	14.9 (SE=3.0), 95% CI=(8.9,20.9)+	7.3 (SE=1.9), 95% CI=(3.5,11.1)+	6.4 (SE=1.0), 95% CI=(4.4,8.4)+	2.4 (SE=0.4), 95% CI=(1.7,3.2)	13,7	<.001
Cognition	11.6 (SE=2.2), 95% CI=(7.2,15.9)+	2.4 (SE=0.8), 95% CI=(0.9,3.9)+	0.5 (SE=0.2), 95% CI=(0.2,0.9)	0.2 (SE=0.0), 95% CI=(0.1,0.3)	12,3	<.001
Social	9.6 (SE=2.6), 95% CI=(4.3,14.8)+	1.3 (SE=0.3), 95% CI=(0.6,2.0)+	0.6 (SE=0.2), 95% CI=(0.2,1.0)+	0.2 (SE=0.0), 95% CI=(0.1,0.3)	8,7	<.001
Global WHODAS	15.7 (SE=2.2), 95% CI=(11.4,20.0)+	6.1 (SE=1.0), 95% CI=(4.1,8.1)+	4.3 (SE=0.6), 95% CI=(3.1,5.4)+	2.1 (SE=0.2), 95% CI=(1.6,2.6)	24,9	<.001

Abbreviations: CIDI, Composite International Diagnostic Interview; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth edition; MDD, Major Depressive Disorder; WHO-DAS, World Health Organization-Disability Assessment Schedule

*Each of the 4 subgroups was weighted to have the sample-wide distribution of the cross-classification of age, sex, and race/ethnicity before calculated WHODAS

+Significantly different from respondents with no lifetime MDD at the .05 level, 2-sided test

#Comparison across the 4 recency categories